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PASSION FOR INNOVATION



**Politecnico
di Torino**



e l i l i s

European Laboratory for Learning and Intelligent Systems

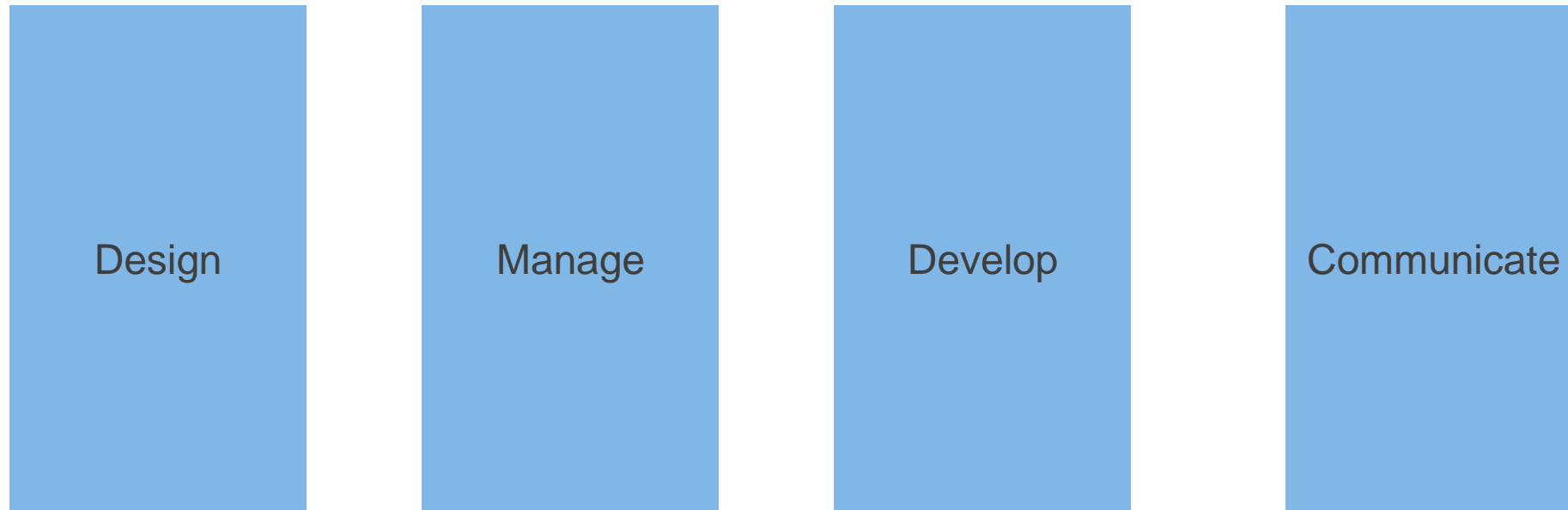
Applied Data Science Project

L2 - Project pillars

Turin

October 3, 2022

Pillars



Executed sequentially, meaning the development comes after Design and Manage

Develop and Communicate may be executed in parallel, usually after the preparedness of the project, namely Design and Manage





Design

Pillar 1

A project design starts with the definition of the **objectives**, **outcomes** and **output**

An **output** is a software program, or a training material, or a workshop or a stroller

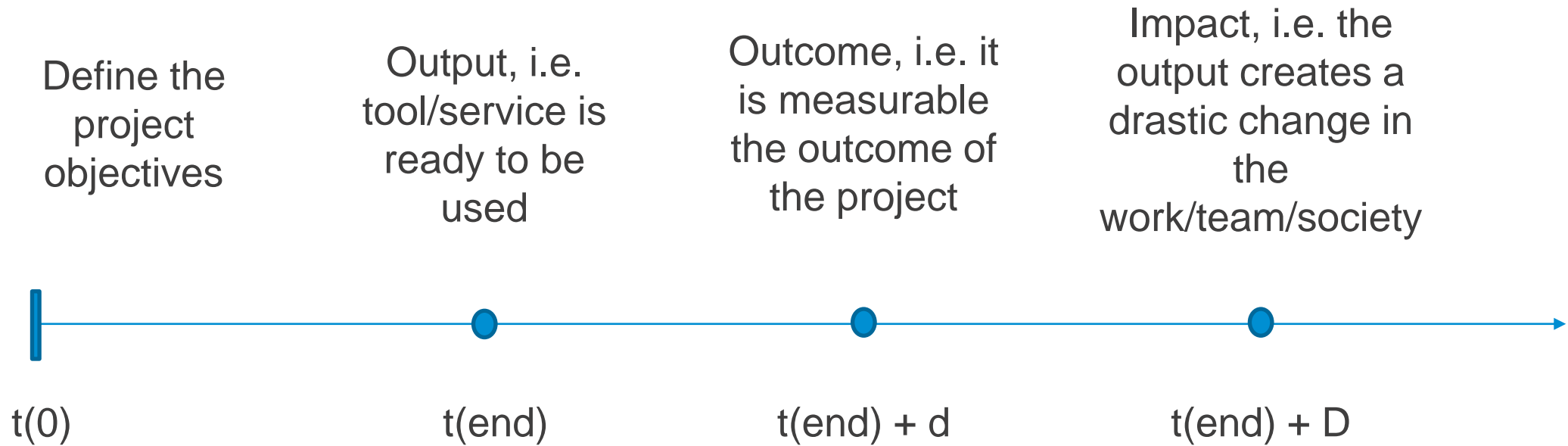
An **outcome** is the difference that the output makes if compared with the existing situation, for instance the software program helps the team to work faster, the stroller to keep a baby calm and relaxed

An **objective** is the the description of a goal, for instance lowering poverty or increasing societal inclusion



Project timeline

Pillar 1



$$d \ll D$$





Centered around the user

Pillar 1

The design involves the identification of user requirements

Requirements are translated in journeys that are use cases that underline the user pains and pave the way to outline the output

A persona is a fictional character utilized to represent a user type that will use the product or the solution being generated

A fictional character has both **needs** and **frustrations** and requires **tools** to address a situation





















Customer journey map

Pillar 1

It is defined as a comprehensive approach for improving the experience customers have along the service journey

Online Shopping Customer Journey Map

Stages of Journey	Motivation	Searches for Websites			Browses the Site	Evaluates Products		Pay	
Activities	Wants to buy a Christmas gift for a friend	Searches products keywords on search engines	Clicks the 1st ads. result.	Checks online again and go to the 1st. original result	Checks out ongoing deals and hot sale products	Opens a product page to check product details.	Opens more product pages to compare info.	Processes to pay a preferred product.	Contacts online service for help.
Feelings									
Very Happy									
Overall Satisfied									
Unhappy									
Experiences	Excited to give a surprise to the friend.	<ul style="list-style-type: none"> Happy to see many options Confusing about how to choose. 	Annoyed at the useless info.	<ul style="list-style-type: none"> Happy with the informative shopping website. Not sure about how to find the best price. 	Surprise to see lots of discounts	Frustrated about reviews from other customers.	<ul style="list-style-type: none"> Pleased with usages & designs. Sad to see out of stock products. 	Frustrated to find only the Paypal payment option.	<ul style="list-style-type: none"> Satisfied with bank card payment. Feels unhappy to wait for a bit of long time.
Customer Expectations	Easily to obtain discount news.	More user-friendly search engine.	Allow to hide unnecessary ads.	Clear and innovative website design.	More discounts during holidays.	Higher quality products.	Faster supply chain system.	More payment choices.	Faster website speed.

Personas

Pillar 1

Persona One	Persona Two	Persona Three
		
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Functional requirements

Pillar 1

Needs of the fictional characters are translated into requirements of the product or solution

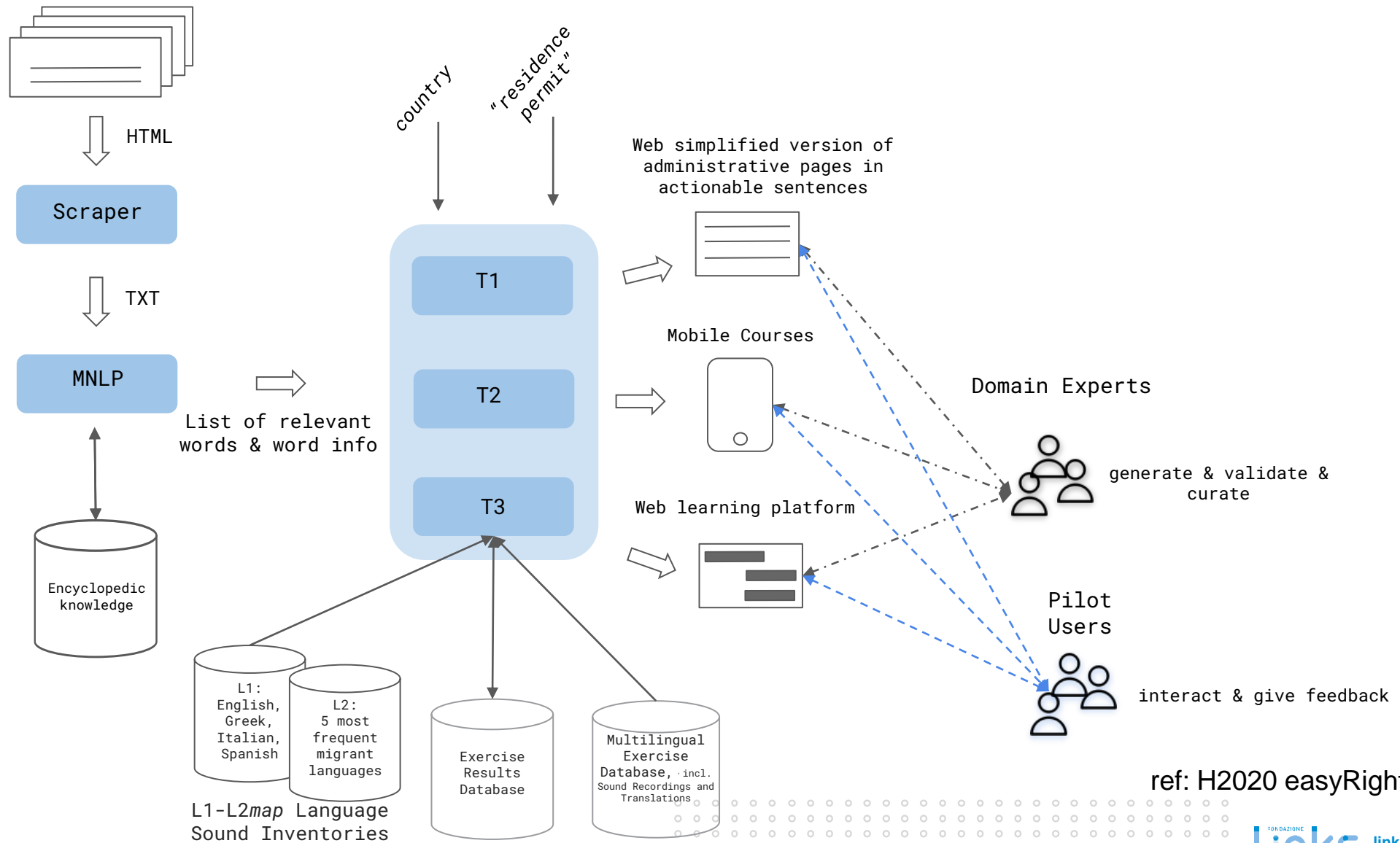
No.	Requirement	Notes	Category
1	Students should be able to use a live chatbox functionality to connect with available tutors.	N/A	Technical
2	Complete a roll-out of the portal to 30 after-school clubs in the state.	N/A	Business
3	The portal should include a section for explainer videos across four core educational subjects.	N/A	Technical

Example of a table that lists the requirements



Functional diagram

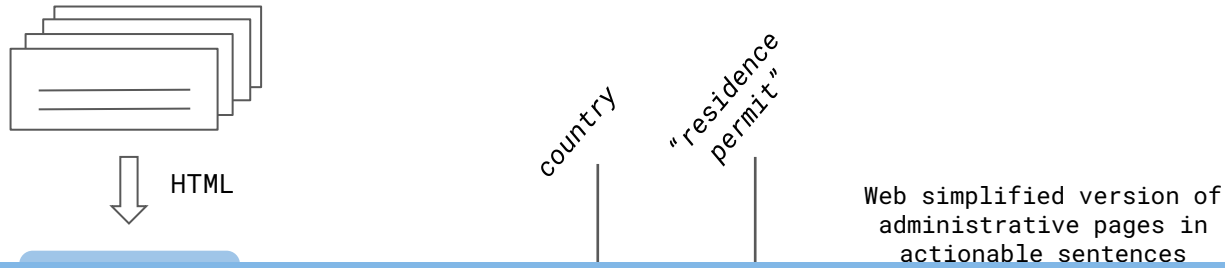
Pillar 1



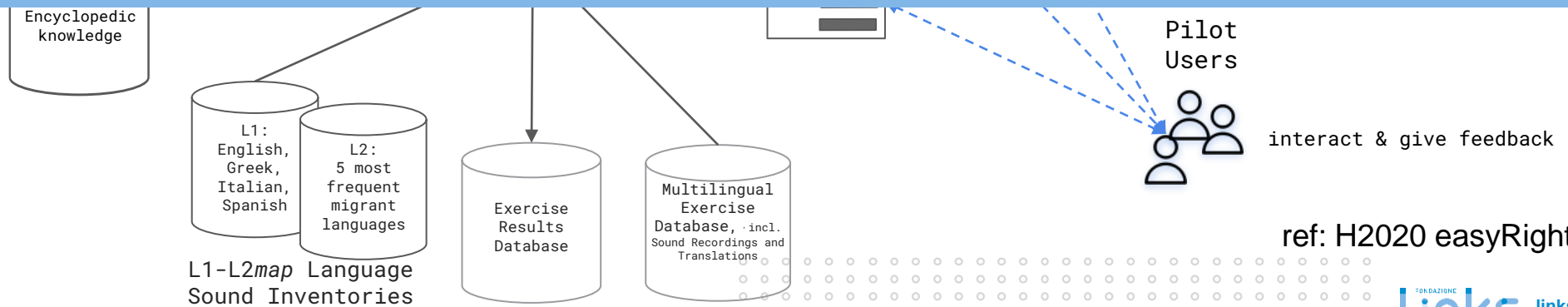
ref: H2020 easyRights project

Functional diagram

Pillar 1



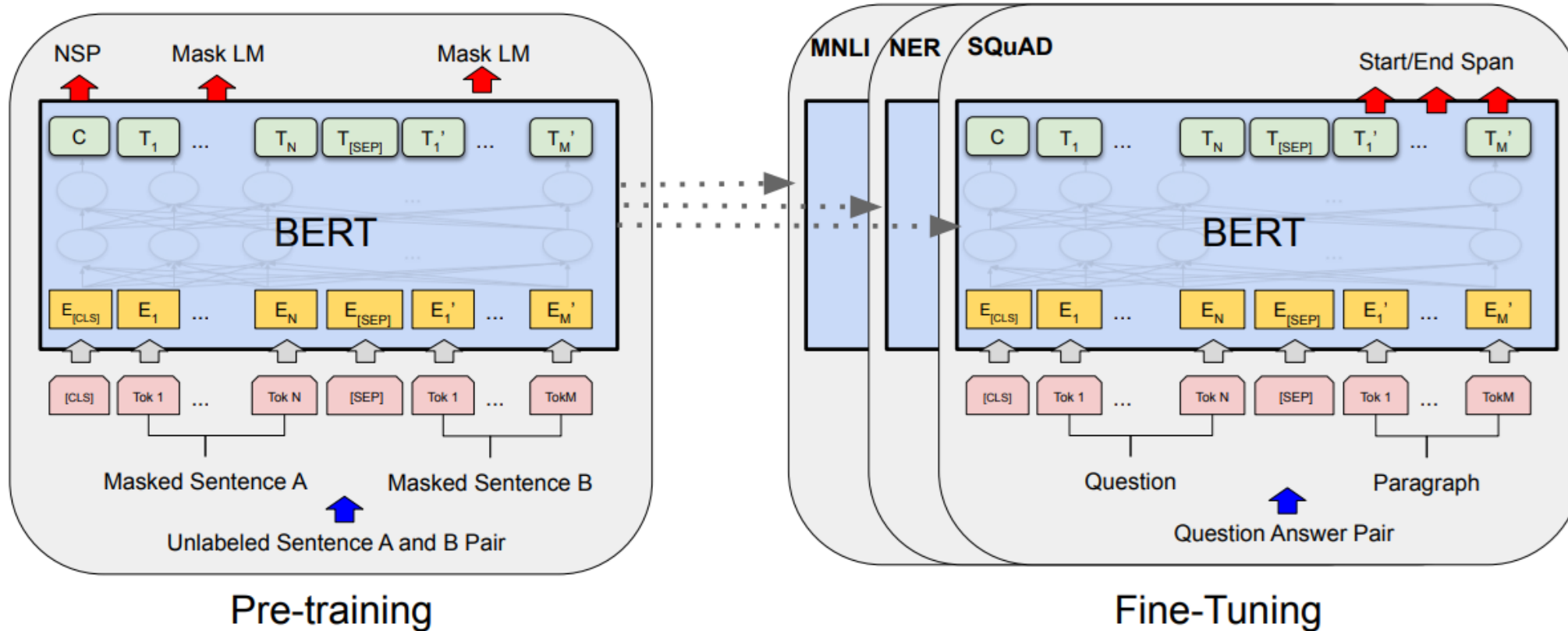
Whole project



ref: H2020 easyRights project

Functional Diagram

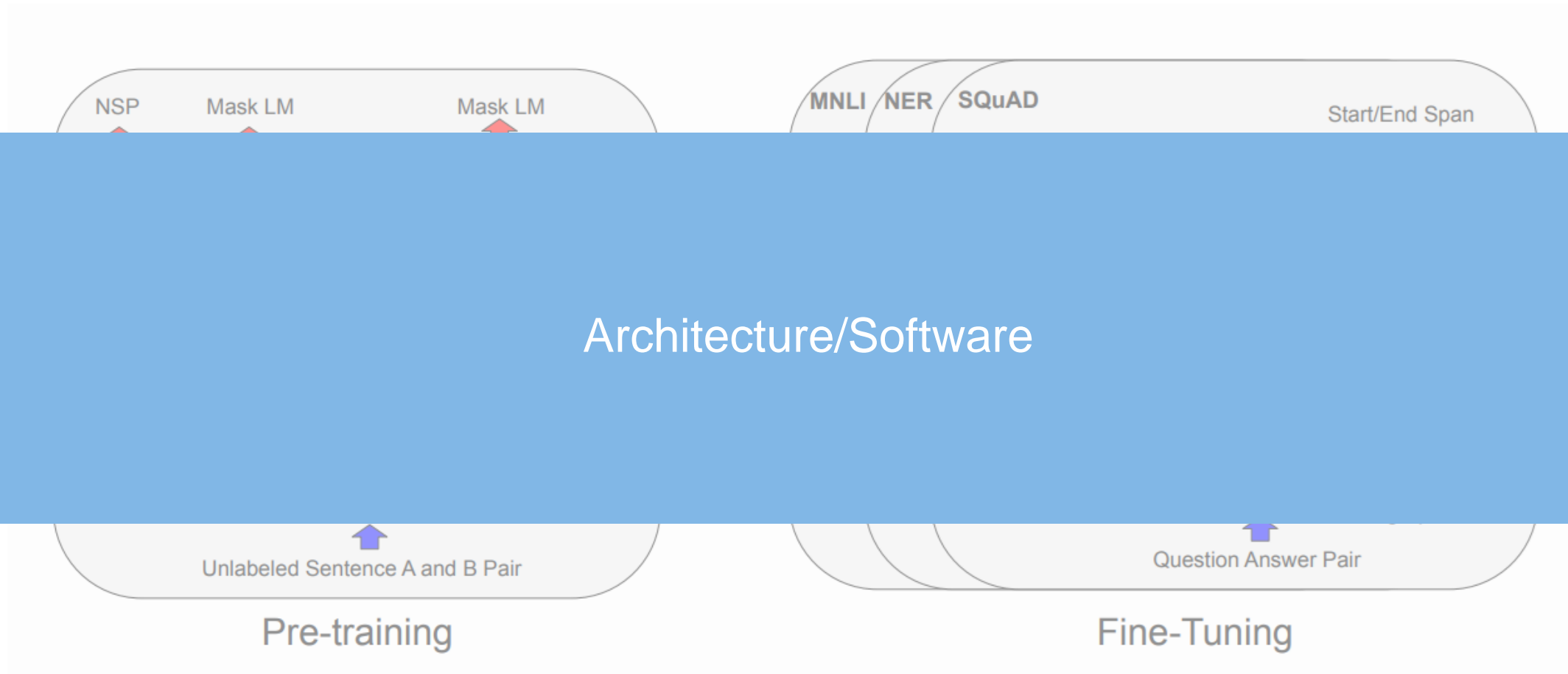
Pillar 1



ref: BERT

Functional diagram

Pillar 1





Manage

Pillar 2

Group activities in work packages

A **work package** is a building block of the work breakdown structure that allows the project management to define the steps necessary for completion of the work

A work package can be thought of as a sub-project, which, when combined with other work package units, form the completed project

Breaking down the work into work packages allows multiple teams to work simultaneously or sequentially on different components of the project

re. <https://ec.europa.eu/chafea/health/beneficiaries-corner/documents/factsheet-03.pdf>





Manage

Pillar 2

Work package is defined by a description, tasks, and outputs

Description

Each work package aims to achieve one or more of the project objectives. The description of the work package should start with the statement of the project objective

The work package objectives define the methods, actions, and evaluation of the work package outputs and deliverables





Manage

Pillar 2

Work package is defined by a description, tasks, and outputs

Task

It is the description of an activity where to list methods to reach the objective





Manage

Pillar 2

Work package is defined by a description, tasks, and outputs

Output

It can be either a software, or a visual or a document





Manage

Pillar 2

Work packages, tasks, outputs have meaningful names to let the reader understand what is the work about



Manage

Pillar 2

WP N°	4							WP Leader	P4				
WP title	ADSP solution												
Participant	1	2	3	4	5	6	7	8	9	10	11	12	
Short name	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	
PM	15	3	5.5	46	41	-	6	-	33.5	5.5	21	16.5	
Start month	4							End month				36	

Objectives

This WP will focus on the development of ...

The activities will focus on ...

The specific objectives of this WP are to:

- Task1;
- Task2;
- Task3;
- Task4.

Description of work

T4.1 Task name (M4-M36) – Leader: P1 – Contributors: P4, P2, P1, P6.

This task focuses...

T4.2 ...

T4.3 ...

T4.4 ...

Deliverables:

D4.1 Deliverable Name [P1] - Contributors: P4, P2, P1, P6. - (M12, M24, M36) - Description of the ...

D4.2 ...



Develop

Pillar 3

Align the task of the solution you are aiming to build to a known task of artificial intelligence (vision, language, ...)

For instance, you are building a solution to onboard users remotely only using a recorded video and a picture of the same user present in its electronic identification document

The task is about recognizing whether the user in the video is the same as in the picture

This is a task of **classification**



Stand on the shoulders of giants

Pillar 3

The artificial intelligence community made it available a consistent number of **models** that can be taken, adapted via transfer learning, and used

This has been demonstrated being effective because:

- it avoids the cold start problem when developing a new solution
- it helps reasoning in terms of aligning a task to existing ones
- it inherits the capability of the model to perform over the task

Workspace

Pillar 3

Shared workspace for coding

Use a meaningful name for the workspace and start filling a README with the main objectives of the project



Modular development

Pillar 3

Structure the **development in modules** porting the names of the utilized diagram

Each module:

- has an owner of the development
- has needs (defined) inputs
- generates (expected) outputs

Test & Scoring

Pillar 3

Define a **testing environment** and make it reproducible multiple times

- define once the dataset with a portion of data to be utilized for training and one portion for development and another for testing
- define the metrics, for instance accuracy or F-measure
- utilize/develop a framework for scoring. Recall: keep it fixed throughout the execution of the project unless you want to repeat all experiments all times you do a change



Communicate

Pillar 4

Strategizing the communication is usually the output of a task(s)/work package

Take the stakeholder groups you defined in the design and communicate with them

Tailor the communication according to your stakeholder groups

Keep it alive throughout the entire project (from the beginning till the end)





Communicate

Pillar 4

Visuals work best for managers/clients/customers

Spreadsheets work for managers/project team

Narratives of a technical document work for project team and additional developers



A good communication starts with a value proposition

Pillar 4

A project has a mission (1 sentence)



Accelerate the world's transition to sustainable energy





Thank you for your attention.

Questions?



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