

# Módulo 2

## Big Data, Open Data y Gestión de Datos

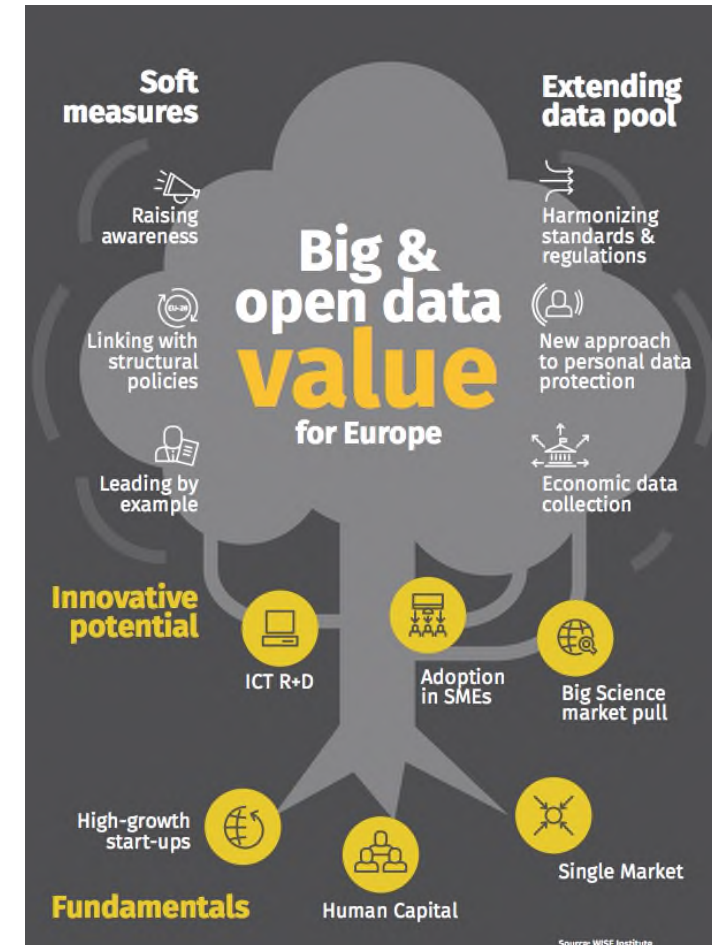
### Course overview

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# What this module is about...

- This is an introductory module aimed at presenting **current context** in Big Data, pillar **concepts**, **challenges** and starting point for **practice**
  - Introduction to Big Data ecosystem,
  - Open Data, as of the main concepts involving data features, standards, formats, repositories, analytics and world associations
    - Starting point for practice, where data is preliminary captured, loaded, formatted, analyzed, visualized to obtain valuable information
  - Relational Database: Design and manipulation



# Module Outline

- Lesson 1: Introduction
  - Big Data fundamentals
  - Ecosystem
  - Context in society
  - Challenges
- Lesson 2: Open Data
  - Big/Open/Linked Data
  - Standards and formats
  - Preliminary analysis and tools
- Lesson 3: Open Data Portals and Data Curation
  - CKAN Repositories
  - APIs and Organizations
  - Data sharing and collection
  - Data cleansing and curation

## Module Outline

- Lesson 4: Introduction
  - Data bases
  - Data modelling with EER model
- Lesson 5: Relational Model
  - ER-Relational mapping
  - Exercises.
- Lesson 6: Relational Algebra
  - CREATE TABLE
- Lesson 7: Data modelling in Oracle
  - SQL Developer Data Modelling
  - SQL Developer
- Lesson 8: Advanced SQL queries
  - Set operations
  - Joined relations features
- Lesson 9: Complex SQL Queries
  - Subqueries
  - Negative queries

# Module Schedule

	6 NOV	7 NOV	8 NOV	9 NOV	10 NOV
18:00	Student's Work (LAB)	Students work	Introductio n to Big Data	Open Data	BigData Ecosystem
19:00					
20:00					
21:00					

## Schedule

	13 Nov	14 Nov	15 Nov	16 Nov	17 Nov
18:00	Student's Work (LAB)	Student's Work Rec. Lectures	Introduction EER	Relational Model ER-Relational mapping	Relacional Algebra
19:00					
20:00					
21:00					
	20 Nov	21 Nov	22 Nov	23 Nov	24 Nov
18:00	Student's Work (LAB)	Student's Work	Data Modelling in Oracle	Advanced SQL Queries	Complex SQL Queries
19:00					
20:00					
21:00					
	28 Nov				
18:00	TASKS DEADLINE				
19:00					
20:00					
21:00					

# Students' Work

- Lesson 1: Introduction
  - Task 1 (recommended): Analysis of a Big Data application
- Lesson 2: Open Data
  - Task 2 (Mandatory): Open data use cases reproduction
  - Task 3 (Advanced): Open Data Visualization and Early Analysis
- Lesson 3: Big Data Ecosystem

## Student's Work

- Lesson 4:
  - Task 4 (MANDATORY, GROUP): Design your owl database
- Lesson 5:
  - Task 5 (Recommended, INDIVIDUAL): Relational Model: University
- Lesson 6:
  - Task 6 (Recommended, INDIVIDUAL): Create a database using the SQL create table sentence.
- Lesson 7:
  - Task 7 (MANDATORY, GROUP): Implementing your OWN databases.

- Lesson 8:

- Task 8 (MANDATORY, INDIVIDUAL): Basic SQL queries

- Lesson 9:

- Task 9 (ADVANCED, GROUP): Querying your own database
  - Task 10 (ADVANCED, INDIVIDUAL): Advanced SQL queries

### CHALLENGES:

Task 11 (Individual): Analysing your database

Task 12 (Individual/group): Implement your own database using APACHE HIVE



## Format and Deadlines:

- Groups of **4 students** for group tasks
- All tasks will be submitted through the Virtual Campus
  - Reports will be submitted as **PDF files (with snapshots)**
  - Video Tutorials will be uploaded to youtube or microsoft streams and submit the corresponding **link**
  - Queries solution will be submitted as a **.sql file**
- Due date:

**28th of November, 2022**

**Task 4 should be ready on 21th of November**

- Late submissions will be moved to the second evaluation period

# Contact

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