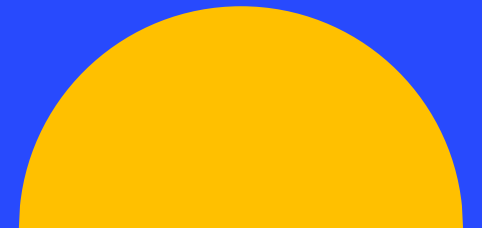# Training Course
How to use Labour Market Intelligence

Module 3
The role of LMI in University Strategic Planning Processes and Decisions

Matching Curriculum Content with Labour Market Demand

Introduction

The aim of the module is to understand how Universities use, or could use, Labour Market Intelligence (LMI) to design courses and curricula in order to provide students with skills and knowledge relevant to the needs of the job market.

Aligning curriculum content with labor market demand is crucial for preparing students with the skills and knowledge needed for successful employment.

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- Lesson 1: The Key Aspects
- Lesson 2: The Service Process
- Lesson 3: The Process in Italian Universities: The Job-In Case

Innovating the use of Labour Market Intelligence within European Universities

Training outline

Lesson 1

THE KEY ASPECTS

What are the key aspects of using LMI in universities for strategy planning

Lesson 2

THE SERVICE PROCESS

How the service process works, what factors are involved; the main outputs produced by the process and who needs them

Lesson 3

THE PROCESS IN ITALIAN UNIVERSITIES: THE JOB-IN CASE

How the service works in Italy with some specific examples

Lesson 1 Objectives

Understand what are the key aspects of using LMI in universities

Describe the main strategies planned by Universities

Identify the characteristics of each strategy: available data and used technologies

Lesson 1: Key Aspects

1. Curriculum Development
2. Skills Development
3. Partnership with Industry
4. Career Services
5. Other Strategies

Lesson 1:
1.1 Curriculum Development

- **Curriculum Design**:

Aligning programmes with industry needs and update academic programmes

- **Program Development**:

Creating specialised programmes based on LMI insights

- **Demand for Specific programmes**:

LMI assists universities in predicting the demand for specific programmes based on the job market

- **Identification of Emerging Fields**:

LMI enables universities to identify emerging fields and industries

- **Professional Development programmes**:

Organizing workshops and training sessions

Lesson 1:
1.1 Curriculum Development Technologies and Data

- Data Analytics and Business Intelligence
- Survey Tools
- Online Collaboration
- Big Data and Predictive Analytics
- Machine Learning and Artificial Intelligence
- Learning Management System (LMS) Platforms
- Labor Market Monitoring Systems

- Workforce and occupational trends
- Required Skills
- Job Opportunities
- Feedback from stakeholders
- Business insights
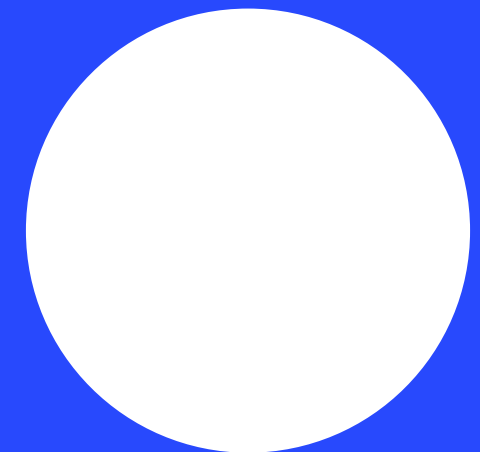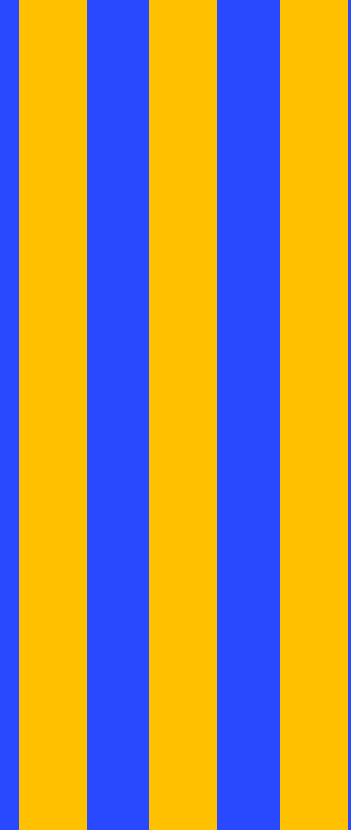
Lesson 1:
1.2 Skills Development

Skills Analysis:

Identify employer requirements and skill gap

Soft Skills Development:

Highlight importance and integrate soft skills into programmes

Soft Skills Integration:

Emphasize transferable skills for enhanced employability

Lesson 1:
1.2 Skills Development Technologies

- Data Analytics and Machine Learning
- Talent Management Software
- Surveys and Feedback Tools
- E-Learning Platforms
- Virtual Reality (VR) and Augmented Reality (AR)
- Gamification
- Online Portfolios and Credentialing Systems
- Career Development Platforms
- Networking and Mentorship Platforms
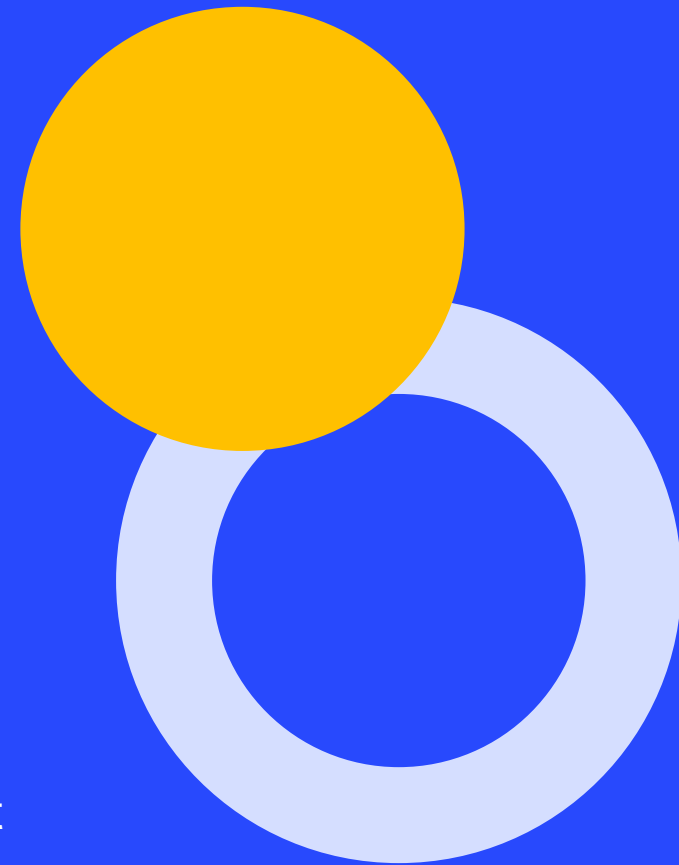
Lesson 1:
1.3 Partnerships with Industry

Monitoring Trends: Use LMI to adapt quickly to changing industry needs

Industry Collaborations: Obtain detailed skill demand information through partnerships

Internship and Experiential Learning: Collaborating with industries for real-world experiences

Advisory Boards and Industry Input: Engaging with industry experts for input

Research Initiatives: Conducting applied research projects in collaboration with industries

Lesson 1:
1.3 Partnerships with Industry Technologies

- Online Collaboration Platforms
- Professional Networking Platforms
- CRM Systems
- Online Internship Platforms
- Simulations and Virtual Learning
- Learning Management Systems (LMS)
- Online Feedback and Survey Platforms
- Partnership Management Systems
- Information Sharing Platforms
- Research Data Analytics Tools
- Crowdsourcing Platforms for Research

Lesson 1:
1.4 Career Services

Graduate Placement and Employability:

Use LMI to gain insights into what employers expect from graduates and to enhance their employability

Academic Counseling Support:

Use LMI for informed career guidance

Career Counseling and Guidance:

Providing informed career counseling

Lesson 1:
1.4 Career Services Technologies

- E-learning Platforms and Massive Open Online Courses (MOOCs)
- Networking Platforms and Social Media
- Career Platforms and Placement Portals
- Chatbots and Virtual Assistance
- Project-Based Learning and Online Collaboration

Lesson 1: Other Strategies

Optimizing Resources

LMI ensures that investments are strategically directed to areas that can have the most significant impact on student success and align with the demands of the labor market

Quality assurance

LMI helps universities to refine their programmes to enhance the quality of education and better meet the needs of employers

Long-Term Planning

Universities can engage in strategic planning for the future anticipating changes in the job market and adjusting institutional strategies accordingly

Lesson 2: Objectives

Understand how the service process works: how LMI can support Universities to develop curricula

Describe the main factors involved in the process: data, information, methods of analysis

Identify the needs of stakeholders and the main outputs of the process

Lesson 2:
2.1 The service process

Goals

- Program Design & Development
- Matching Supply-Demand
- Innovation
- Mitigate Dropouts

Services

- Placement
- Orientation (entry, in itinere, exit)
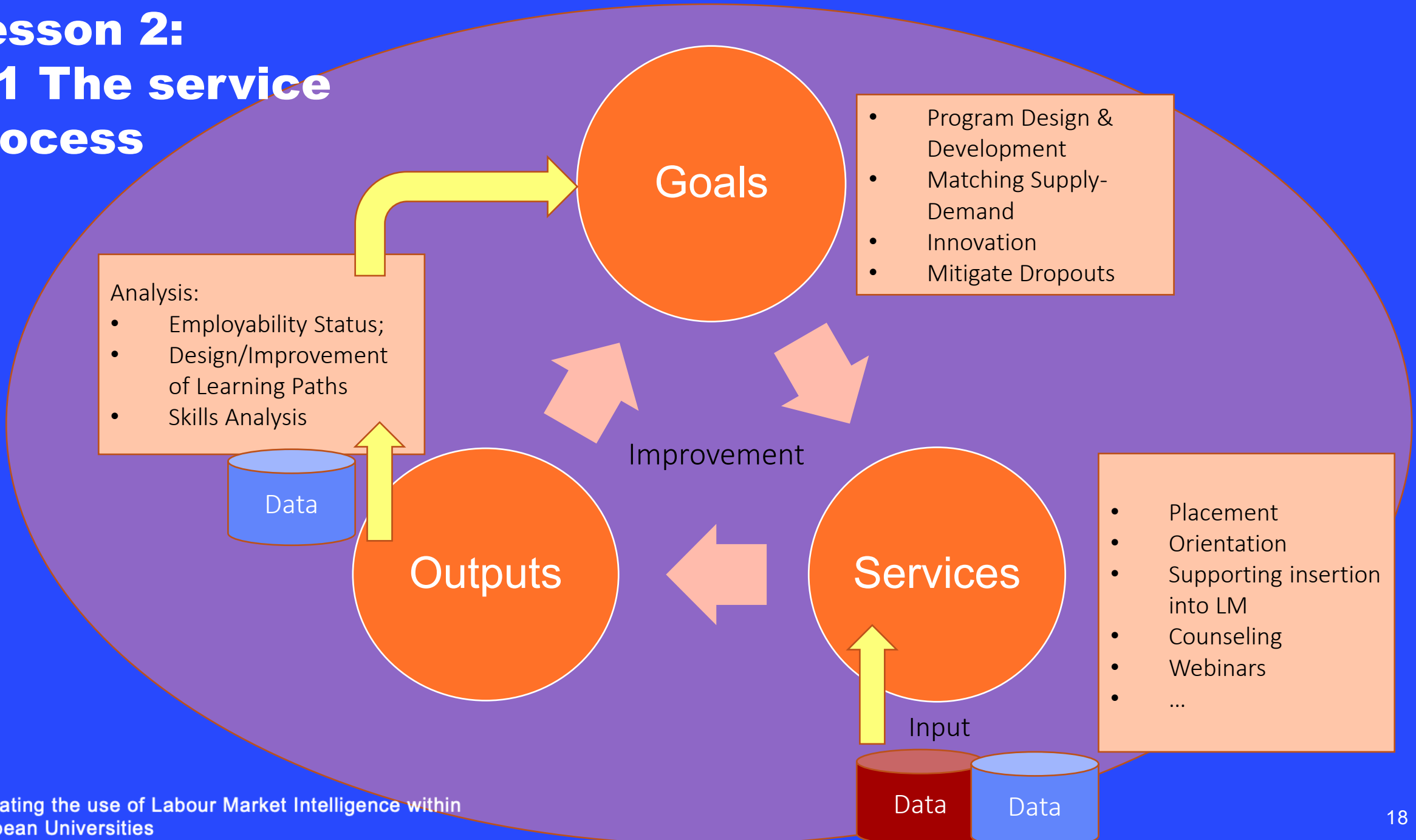- Supporting insertion into LM
- Counseling
- Webinar

Outputs

- Employability Status
- Design/Improvement of Learning Paths
- Skills Analysis

Lesson 2:
2.1 The service process

Goals

- Program Design & Development
- Matching Supply-Demand
- Innovation
- Mitigate Dropouts

Analysis:
- Employability Status;
- Design/Improvement of Learning Paths
- Skills Analysis

Data

Improvement

Outputs

Services

- Placement
- Orientation
- Supporting insertion into LM
- Counseling
- Webinars
- …

Input

Data   Data

Innovating the use of Labour Market Intelligence within European Universities
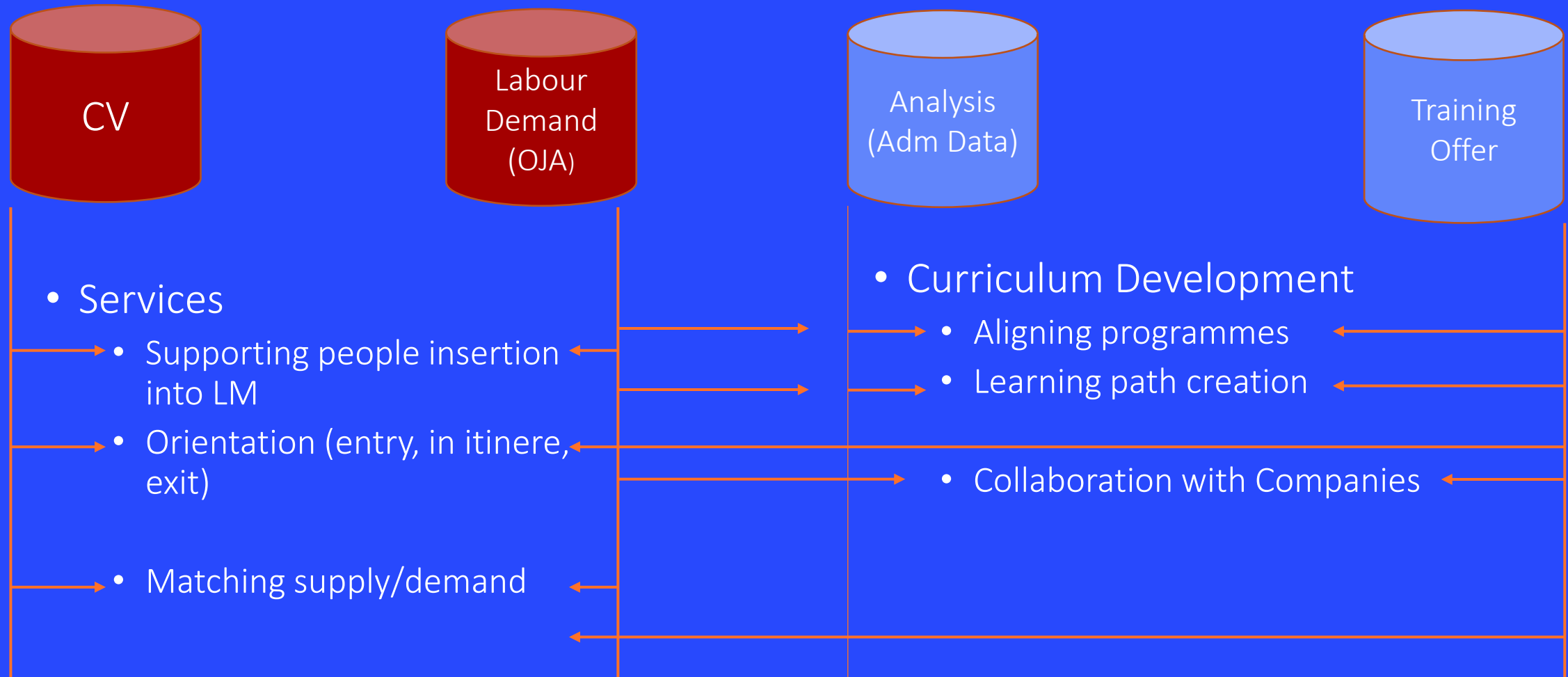
Lesson 2:
2.2 What information to use?

- Labour Demand
  - Online job adv
- Training Offer
  - Universities outgoing profiles
- Students cv
- Analysis
 - Administrative data

Lesson 2:
2.2 LMI Sources Mapping

CV

Labour Demand (OJA)

Analysis (Adm Data)

Training Offer

- Services
  - Supporting people insertion into LM
  - Orientation (entry, in itinere, exit)
  - Matching supply/demand

- Curriculum Development
  - Aligning programmes
  - Learning path creation
  - Collaboration with Companies

Lesson 2:
2.3 Design & Development of Course Process

Design → **Development** → **Implementation**

Design
1. Labor Market Analysis
2. Identification of Key Skills
3. Definition of Course Objectives

Development
4. Course Content Development
5. Incorporation of LMI Tools
6. Collaboration with Companies

Implementation
7. Continuous Adaptation
8. Impact Assessment
9. Career Opportunity Promotion

Lesson 2:
2.3 Skills Extraction and Identification

- The growing use of Online Job Vacancies enables the understanding of new professions and skills changes in near-real-time

- New skills are needed not only to perform new jobs but also the skill requirements of existing jobs have changed considerably

- By applying machine learning techniques to web vacancies it is possible to identify the skills required by the market, alongside a set of relevant variables such as region, sector, education and level of experience

- The result is a list of terms that identify potential skills

- Then by using string similarity functions is possible to map potential skills to ESCO taxonomy
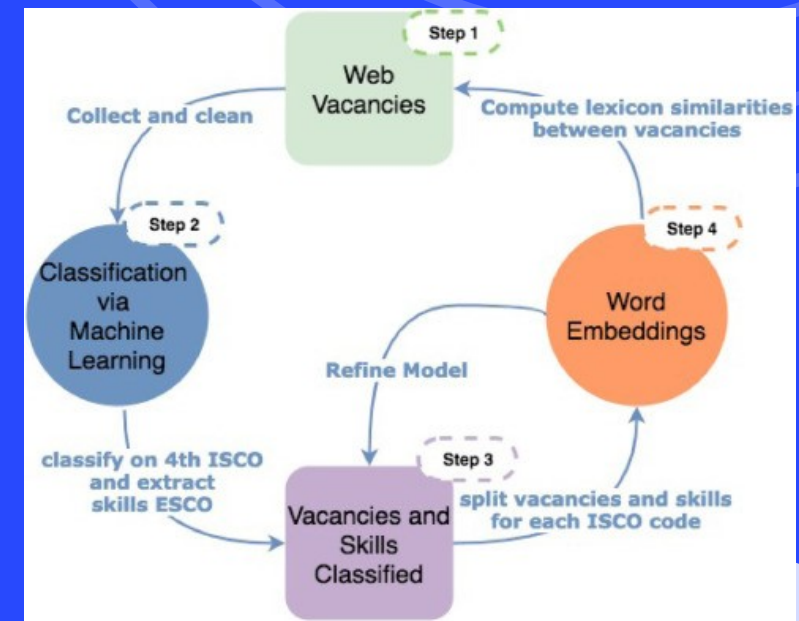
Lesson 2:
2.4 Job Placement Services

Registration and Profiling: Students usually register with the placement office and complete profiles that include information about their education, work experience, skills, and interests.

Job Listings: Universities maintain a list of job, internship, and training opportunities from companies and organizations. Students can access these listings and apply for positions.

Networking Events: Placement services organize events where companies and employers can meet students, allowing them to network and learn about available professional opportunities.

Preparation Support: They provide support in preparing resumes, cover letters, and interviews. Some also offer interview simulations

Example

Bicocca JobPlacement

- Supports outgoing orientation and makes companies aware of the best profiles

- https://www.unimib.it/jobplacement

- Services:
  - JobLab
  - JobTalk
  - JobRecruiting
  - Career Fair
  - Job board

- Elearning Course:

«Build your career» video tutorials

Lesson 2:
2.5 Open Days

Open Events: Open days are events where universities open their doors to prospective students. Students can attend sample classes, meet faculty and current students, tour campus facilities, and get information about academic life.

Information Sessions: Typically, there are informational sessions on academic programmes, facilities, student support, and post-graduate opportunities.

Campus Tours: Universities organize campus tours to showcase facilities, labs, libraries, and other available resources.

Lesson 2:
2.6 Career Fairs

Company Participation: Career fairs are events where companies and organizations participate to present job opportunities, internships, and training opportunities to students.

Networking: Students have the opportunity to interact directly with company representatives, ask questions, submit resumes, and establish professional contacts.

Presentations and Seminars: Fairs often include presentations and seminars on topics related to the job market, required skills, and industry trends.

Lesson 3: Objectives

Understand how the service works in Italy with some specific examples, in relation to career guidance and the creation of outgoing professional profiles

Describe the Almalaurea service and the Job-in tool and how it could become a best practice

Completing the lesson by seeing how technology and LMI support universities

Lesson 3: Italian example

- In Italy LMI is not yet sufficiently well known and used to support curriculum planning and creation

- The relationship between universities and businesses exists, but is often not aimed at designing and implementing courses according with the labour market

- However, some examples and tools show how the use of LMI can lead to very encouraging results and prospects
  - Job Placement Services
  - Almalaurea Consortium
  - Portals with job vacancies
  - Web-based platforms
  - Job Recommender Systems
  - Learning Platforms
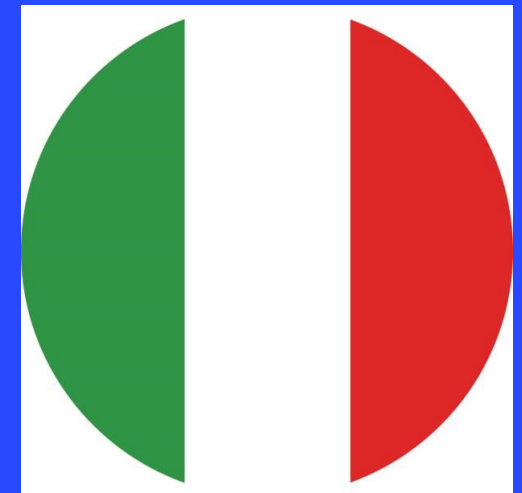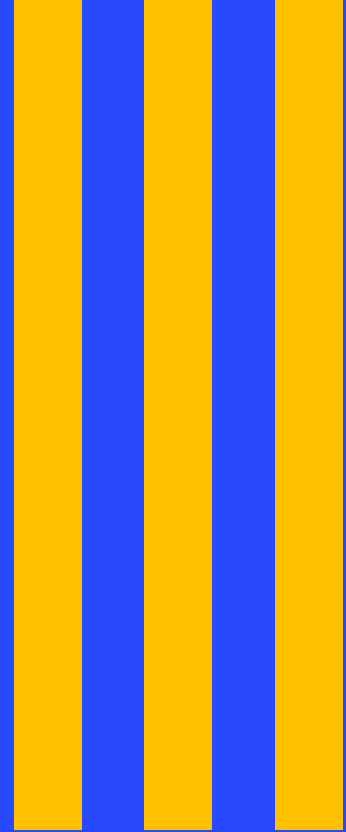
Lesson 3:
The LMI providers for Italian Universities

- Italian Universities use several LMI providers: National Institute of Statistics (ISTAT), Ministry of Education, Ministry of Labor, Italian Union of Chambers, Almalaurea

- **Almalaurea** is an Italian Interuniversity Consortium currently counts 78 Italian Universities and represents about 90% of Italian graduates

- It focuses on collecting, processing, and disseminating information about the academic and professional paths of university students.

- Its main objective is to facilitate the connection between supply and demand in the job market through the analysis of data provided by participating universities

Lesson 3: Almalaurea & University

How the relationship between Almalaurea and Universities works

- University Participation

  Universities join Almalaurea on a voluntary basis

- Data Collection and Management

  Almalaurea collects and manages the data provided by participating universities

- Data Analysis and Processing

  Almalaurea analyzes the collected data to extract meaningful insights

- Tools for Students and Graduates

  Almalaurea provides online services for students and graduates

- Linking with the Job Market

  Almalaurea facilitates the connection between graduates and companies

- Feedback and Monitoring

  Universities receive feedback and information about the employment outcomes of their graduates
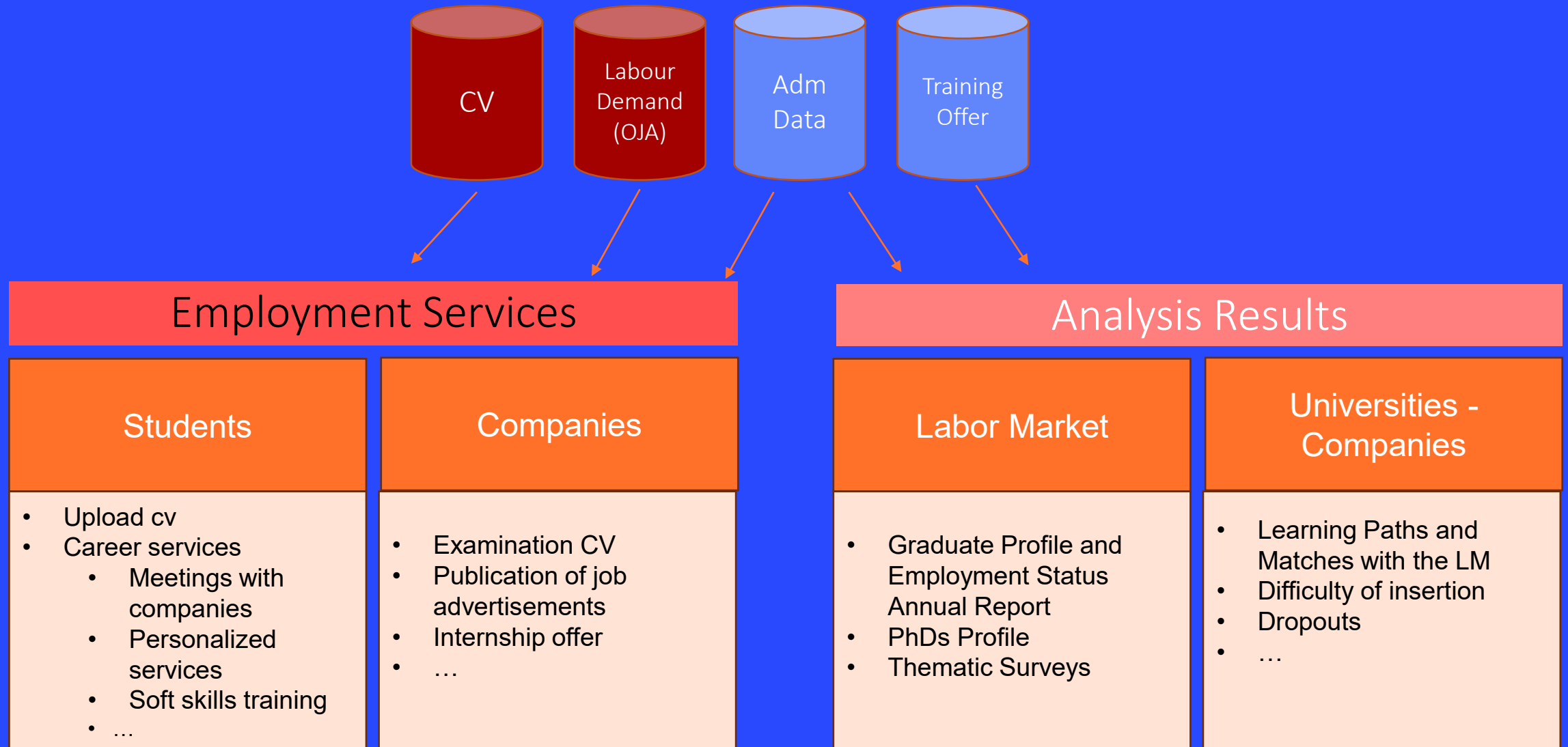
Best Practice

University of Milano-Bicocca provides an effective channel for companies to find candidates: the **Job Placement-AlmaLaurea** portal for the search of undergraduates/graduates and the activation of extracurricular internships

- Publish internship and job opportunities for undergraduates and graduates

- Search undergraduates and graduates through the CV Database

- Download the CVs of undergraduates and graduates

- Contact undergraduates and graduates directly to arrange an interview

- Consult the CV database anonymously

- Activate and manage extracurricular internships

AL ALMALAUREA

UNIVERSITÀ DEGLI STUDI DI MILANO BICOCCA
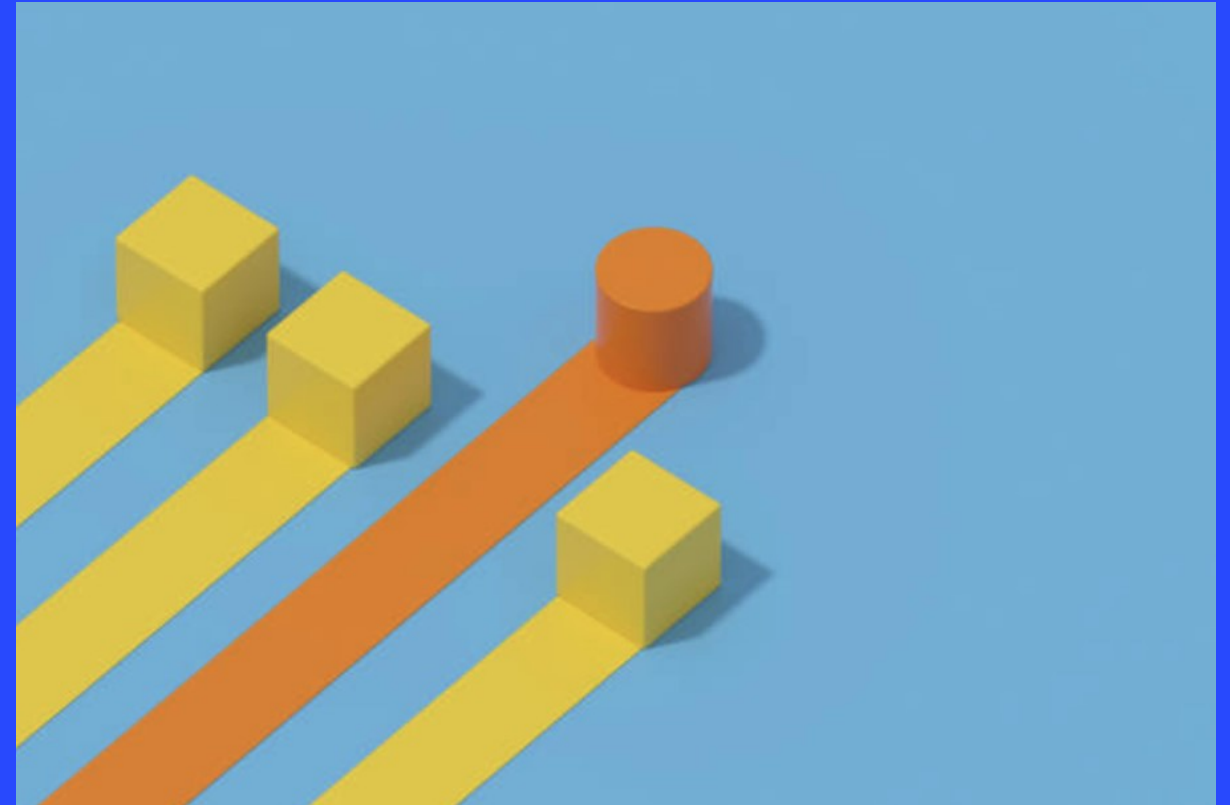
Lesson 3: LMI through AlmaLaurea

Databases: CV | Labour Demand (OJA) | Adm Data | Training Offer

Employment Services

Students
- Upload cv
- Career services
  - Meetings with companies
  - Personalized services
  - Soft skills training
  - …

Companies
- Examination CV
- Publication of job advertisements
- Internship offer
- …

Analysis Results

Labor Market
- Graduate Profile and Employment Status Annual Report
- PhDs Profile
- Thematic Surveys

Universities - Companies
- Learning Paths and Matches with the LM
- Difficulty of insertion
- Dropouts
- …

Lesson 3: JOB-IN

- Job-in is an innovative tool that helps users choose the degree course that best suits their desires

- Job-in helps students in the incoming orientation phase, but also enrolled students and recent graduates to continue their studies

- Job-in helps also teachers and companies to identify the degree courses and professional figures related to them
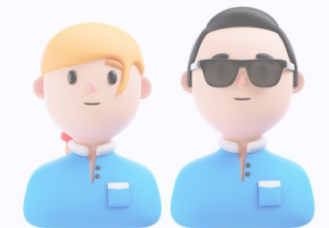
Lesson 3: Job-in outputs (1)

- The tool provides a matching between occupations and skills entered by the user and those ordered by the ESCO classification system

- The matching between user needs and University' training offer is supported by Natural Language Processing and Language Models able to semantically link degree course profile descriptions with labour market trends

Lesson 3: Job-in outputs (2)

- A degree course is described in terms of professional figures related to it, and these are enriched with a list of professional and transversal skills

- Moreover the professional figure is represented through the geo-localised professional opportunities (through the analysis of online job offers)
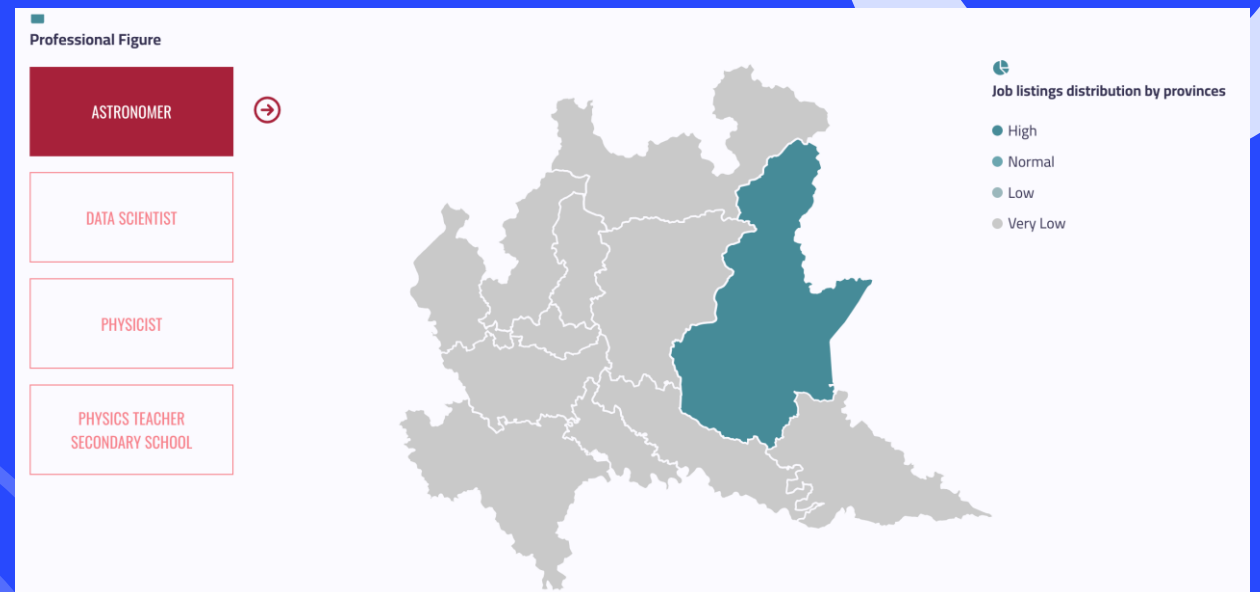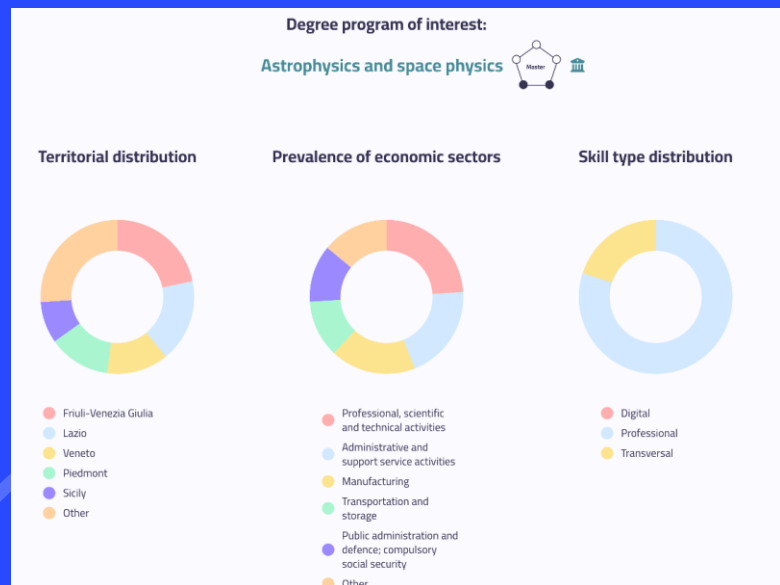
Summary of training

✓ Lesson 1: The key aspects, and the main technologies behind the use of LMI in universities for strategy planning are explained

✓ Lesson 2: How the service process works is explained: especially how LMI can support universities in curriculum development

✓ Lesson 3: It illustrates how the service works in Italy with some specific examples: the partnership between Almalaurea and italian universities, and the Job-in tool developed by the University of Milan Bicocca

What have we learned? QUIZ

1 **Would you be able to recall two technologies related to curriculum development?**

a) Big Data and Predictive Analytics; Labor Market Monitoring Systems
b) Virtual Reality (VR) and Augmented Reality (AR); Career Development Platforms
c) Chatbots and Virtual Assistance; Learning Management System (LMS) Platforms

2 **Do you remember a placement service offered to students?**

a) Free Registration
b) Career Fair
c) Open Badge
d) Preparation to exams

3 **What is the main innovation of Job-in?**

a) It is a recommender system
b) It allows the choice of degree course
c) It matches user needs through NLP algorithms

Resources & References

- Bicocca Job Placement:
  https://www.unimib.it/jobplacement

- Elearning Course: Build your career
  https://elearning.unimib.it/enrol/index.php?id=41323

- Almalaurea: https://www.almalaurea.it/

- Job-in

- Maginn A. & Dench S., Labour Market Information for Higher Education Institutions: a Guide, The Institute for Employment Studies, 2000.

- Lebesch, A.M. (2012), Using labor market information in program development and evaluation. New Directions for Institutional Research, 2012: 3-12

- Burkhard R., How Can Labor Market Information Inform Higher Education Program Offerings? thttps://www.linkedin.com/pulse/risks-starting-new-academic-programmes-ron-burkhardt/

Thank you

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