

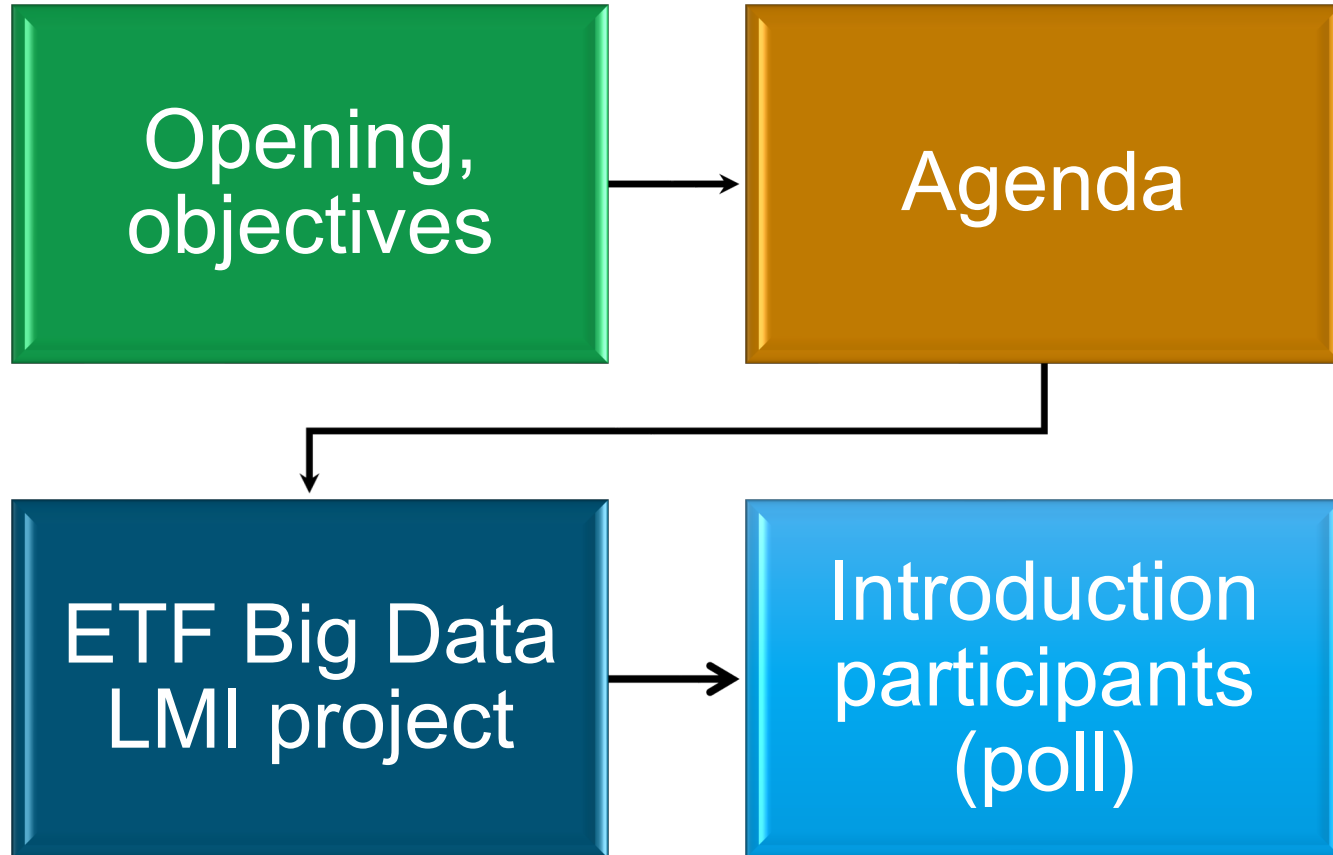
BIG DATA FOR LABOUR MARKET INTELLIGENCE

ONLINE CAPACITY DEVELOPMENT PROGRAMME 2022

OPENING SESSION

Day 1: 02 November 2022
Eduarda Castel-Branco

WELCOME TO THE TRAINING PROGRAMME



OPENING: OUR PARTICIPANTS

Registered: over 90 participants

- From 20 countries
- Ukraine, Egypt, Mauritius, Kenya, Sierra Leone, Lebanon, North Macedonia, Tunisia, Italy, South Africa, Cameroon, Georgia, Maroc, Azerbaijan, Angola, Armenia, Moldova, Guiné-Bissau, UK, Belgium

Many new participants – first time in training programme of ETF project!

THANK YOU FOR YOUR ACTIVE CONTRIBUTION TO THIS KNOWLEDGE-SHARING AND KNOWLEDGE CREATION SPACE

OPENING: CONTEXT



- **Rapid and multi-layered transformation**
 - Work
 - Transitions between jobs
 - Mix of occupations in all economies
 - New and hybrid skills
 - Greening and digitalization
 - Learning – anytime, everywhere
 - Qualifications and new credentials

- **Require innovation and transformation of labour market and skills intelligence information (*LMI more important than ever!*)**
 - Harnessing new data sources
 - Applying novel data analytics
 - New forms and tools for data delivery
 - Real time and granular data
 - Connected databases
 - Interactive platforms – different target users and needs

Context and rationale of ETF project
"Big Data for LMI"

OBJECTIVES OF THE CAPACITY DEVELOPMENT PROGRAMME 2022

A. To refresh and further enhance

- Knowledge and understanding of an innovative Model for analysis of demand in the labour market, including:
 - Main concepts, methodology chain, techniques, use of AI – ML in the model
 - New paradigms in data production and analysis
 - Use of the data delivery tools (dashboards) and databases of this “new data”
 - And also the challenges, and open issues for further analysis

B. To debate, review, propose

- Value of OJV analysis for LMI and skills and employment eco-systems
- Value of landscaping of the web labour market
- New angles of analysis (green skills, remote work)
- Role and place of AI in the data system
- OJV and labour market statistics
- Supply side analysis using Internet data (Big Data)
- Classifications (occupations and skills): new developments with ESCO

OBJECTIVES OF THE CAPACITY DEVELOPMENT PROGRAMME 2022

C. Peer learning - to share and learn with each other's initiatives and experiences

- Mauritius: Human Resource Development Council
- Egypt: a networked and coordinated approach to co-create the national LMI system
- Credential Engine (USA) and CETIS LLP: the Semantic Web, linked data, knowledge graphs
- ESCO: new developments of the classification. Uses in skills analysis, skills matching, education. AI applications

D. Application and assessment of participants

- Application: Innovation space. Homework on use of the dashboards and databases for education-training planning / curriculum and qualifications

AGENDA

Module 1: technical training

3 webinars

- 2, 9 and 29 November

Themes:

- OJV analysis: methodology, quality, tools
- Dashboards: practical showcase
- Database
- Data classification and retrieval
- Use of Big Data for skills analysis. Combination of data from different sources
- Use of raw data from ETF database

Module 2: dissemination & analysis

3 webinars

- 15, 16 November and 6 December

Themes:

- Value: OJV analysis, landscaping
- New angles of analysis
- OJV data in the wider context of LM statistics / data
- Supply side analysis
- AI: applications in Big Data LMI
- ESCO developments
- Semantic Web, linked data, knowledge graphs

Use chat box for your questions and comments – all will be addressed

THE PEOPLE WHO CONTRIBUTE



ETF project

- Team Lightcast and CRISP:
 - Mauro Pelucchi
 - Anna Gatti
 - Simone Perego
 - Francesco Trentini
 - Fabio Mercorio
 - Mario Mezzanzanica
- **ETF project coordinator:** Eduarda Castel-Branco (chair and facilitator)
- Silvia Ornano
- Erika Davoglio (Opinno)
- Interpreters

Guest speakers

- Mauritius HRDC: Harris Neeliah
- Egypt: Radwa Abdelraouf
- ESCO Team: Laura Visan, Jan Lutz
- Credential Engine and CETIS LLP: Phil Barker

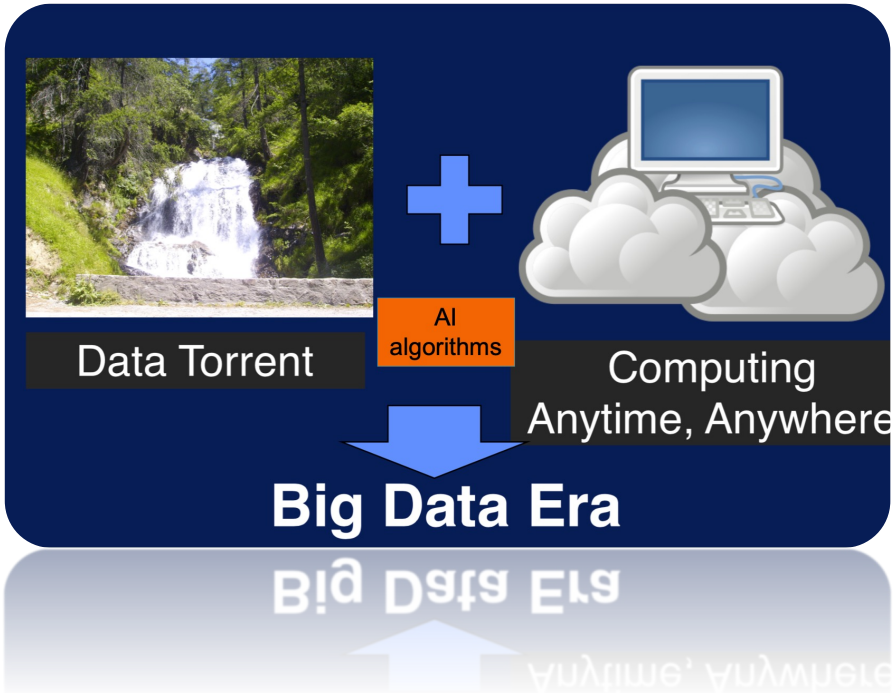


**BIG DATA
FOR LMI**

ETF PROJECT

ETF PROJECT

BIG DATA FOR LMI 2018-2024



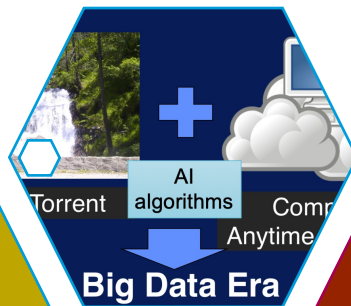
- **2018-2019: Methodology:** first step - brief methodological handbook “[Big Data for labour market intelligence: an introductory guide](#)” (published in **2019**).
 - **2019: First application:** Feasibility analysis – Landscaping of Web Labour Markets Tunisia and Morocco
 - **2019-2021:** 3 main training programmes for experts of the partner countries and other regions(Asia, Africa)
 - **2020:** Creation of the complete OJV analysis system and dashboards: Tunisia and Ukraine
 - Analytical reports: LM and skills Ukraine and Tunisia
 - **2021:**
 - New country – Georgia;
 - **Green dashboard;**
 - The data system is based exclusively on **demand** – based on **job vacancies (OJV)** posted on web portals
 - Full comparability with the Real-Time data system of the EU-27 (same methodology)
 - ETF works with the data analytics specialists of **University Milano-Bicocca and LightCast**
- 2022-24:** expansion new countries, new themes analysis



SOME NOTES

- **Data from internet sources (Big data): complement and add value conventional statistics and analyses (do not replace)**
- The current activities of ETF Big Data LMI project are focused on **OJV analysis (demand analysis)**.
- But...AI-aided data analytics and webdata offer wider perspectives for analysis, insights and trend-discovery related with **supply side**, which ETF is exploring.
- **Building and maintaining the OJV analysis system: skills and technology-intensive**
- To ensure quality, stability and credibility of the databases and dashboards ETF works with an experienced data science team, and a tested and continuously monitored methodological framework.
- Access of relevant national organisations to the databases can be planned and organised, and ETF will provide the necessary technical support to ensure clarity, quality and efficiency.
- Capacity development, dissemination and debate is important

Main elements of ETF OJV analysis system



3. International Classifications ESCO, ISCO



1. Data from OJV

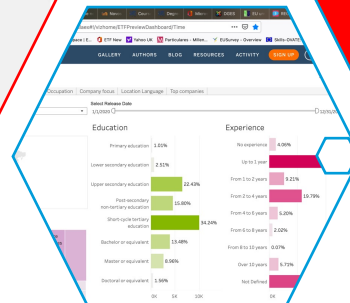


2. AI-aided data system

BIG DATA FOR LABOUR MARKET INTELLIGENCE

AN INTRODUCTORY GUIDE

6. Volume, Velocity, Variety, Veracity, Value



4. Dashboard and variables

5. Let the data speak



DATA CLASSIFICATION – TAXONOMIES

- **Occupations:**
ESCO/ISCO
- **Skills:** ESCO
- **Location:** NUTS and ISO
- **Educational Level:**
ISCED 2011
- **Sector:** NACE

**ONLINE JOB
ADVERTISEMENTS
/ VACANCIES**



ONLINE JOB ADVERTISEMENTS

The screenshot displays the Target Recruitment & HR Solutions website. At the top, there is a navigation bar with the Target logo and links for Executive Recruitment, Human Resources Solutions, HR Services, Global Staffing, and Vacancies. Below the navigation bar, the main heading reads "JOB SEEKERS Find a job you'll love". A search bar with the placeholder text "Job title or Keyword" and a red "Search Job" button is present. Below the search bar, it states "95817 jobs found for you". The job listings are categorized into three columns: Uncategorized (13 Oct), Engineering (28 Sep), and Human Resources (22 Aug). Each column contains a job listing with a title, a brief description, and a "Read More" link.

Uncategorized 13 Oct

VMware Expert
A very good opportunity in Cairo, Egypt, for an experienced "VMware Expert." Check the full details below and apply through the attached email. Job Description: - Support VMware products deployed
[Read More](#)

Engineering 28 Sep

Business Analyst
An excellent opportunity in New Cairo, Egypt, for a well-experienced and professional Business Analyst. The company operates in Electronics/Electronic Manufacturing industry. Check the full details below and apply through the
[Read More](#)

Human Resources 22 Aug

HR Coordinator
A multinational company is hiring an "HR Coordinator" for its office in Cairo, Egypt. Job Title: HR Coordinator Job Location: Cairo Company's Category: Multinational Company About the HR Coordinator
[Read More](#)

- Online job advertisements (OJAs) refer to advertisements published on the internet (WWW) revealing an employer's interest in recruiting workers with certain characteristics for performing certain work.
- This could be motivated by the employer's need to fill a current vacancy, by an exploration of potential opportunities, or other reasons. OJAs usually include data on the characteristics of the job (e.g. occupation and location), characteristics of the employer (e.g. economic activity) and requirements (e.g. education/skills).
- Part of this information is available only as natural language textual data.
- This type of big data requires specific methodologies for processing and analysis but also provides much more detailed information (compared to alternative data sources) and avoids pre-conceived classifications (e.g. important to identify emerging skills).

THE GOAL IS OF OJV ANALYSIS IS...

To transform this...



...into value

The collage shows several job listings. One for 'JUNIOR SOFTWARE DEVELOPER' at a location in United Kingdom, with an application deadline of Saturday, 30 September 2017. Another for 'Lead Clinical Data Manager - Office or home based' by Warman O'Brien in Milano, Lombardia, with a salary of €40,000 - €50,000 all'anno. A third for 'SUPPLY CHAIN - MAGAZZINIERE - La Risorsa Umana.it' in MODENA, EMR. Other snippets show requirements like 'Our client is looking for someone with strong programming and development skills' and 'As a passionate, committed developer that is able to solve and articulate complex problems with application design, development and user acceptance testing'.

Most relevant skill in digital occupations

WOLLYBI
powered by Tabulabs

Labour Market Intelligence - Dashboard Preview

Select desired country: [Italy] Select desired sources: [All] Select Release Date: [All]

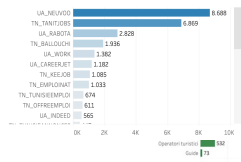
Number of job vacancies collected (excluding ru and uk languages)

43.418

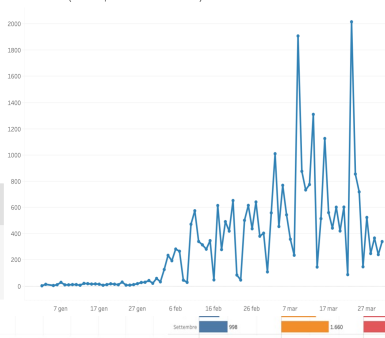
Number of job vacancies deduplicated (excluding ru and uk languages)

29.120

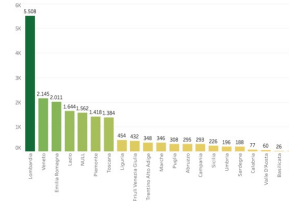
Sources



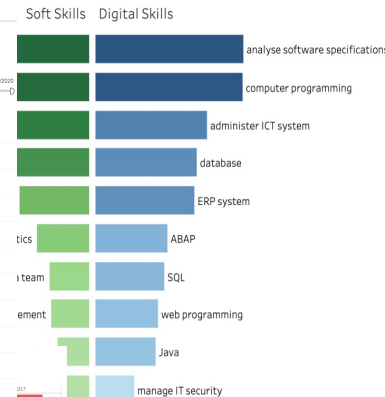
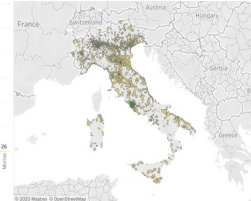
Release Date (date of publication of the OJV)



Region



Comune



“SPOILER”...ETF OVJ DATABASES

Country	Total collected	Total deduplicated	Time series
Tunisia	684,826	183,004	From 04/2020
Ukraine (general)	2,664,202	1,376,763	From 04/2020
Georgia	136,935	90,420	From 04/2021
Egypt	1,441,602	422,232	From 01/2021
Kenya	Approx. 15,000 (1st release soon)	1st release soon	From 08/2022

**THANK YOU FOR
NOW**



Poll participants

➤ **And to session 1**

THANK YOU

- Eduarda Castel-Branco
- ecb@etf.europa.eu