Online Job Vacancy Analysis and ESCO

Occupations, Skills, Green and Digital Skills

21 May 2024

ETF
Working together
Learning for life

European Training Foundation

The journey of Big Data LMIS - ETF project

- 2019: Handbook "Big Data for LMIS: an introductory Guide"
- 6 countries: Egypt, Morocco, Tunisia, Kenya; Ukraine, Georgia
- 3 languages of data visualization dashboards: EN-FR-AR
- 5 training programs on Big Data-supported LMI (2019-2024)
- 45 pedagogic videos on YouTube channel
- Over 12.3 million OJV collected
- **New analyses** based on the collected OJV data: green skills, digital skills, remote work, supply side, data driven occupational profiles

ETF
Working together
Learning for life

European Training Foundation

Resources

ETF (2019), Big data for labour market intelligence: an introductory guide, https://www.etf.europa.eu/sites/default/files/2019-06/Big%20data%20for%20LMI.pdf

Versions in Russian and in French

Open Space webpage: LMI in transformation – Focus on Big Data

ETF - Learn all about Big Data for Labour Market Intelligence: training programme, webinars and interactions: YouTube channel

OJV Data dashboards (6 countries): Countries Ukraine, Tunisia, Georgia, Egypt,Morocco, Kenya. A short intro briefing at the link: big_data_lmi_en_web.pdf (europa.eu)

Access: **https://solutions.lightcast.io/?pc=x$fhADtD*cu$BjY9** (without password)

ETF
Working together
Learning for life
European Training Foundation

Starting from the end…

The **value added** of Big Data for LMI:

- Skills change and dynamics
- Volume, velocity, variety, veracity, value
- Real-time, granularity of data
- Combinable: Big Data and conventional statistics
- Use of international classifications (ESCO, ISCO…)
- Early spotting of new trends – for further deeper and wider analysis (combining other data sources)
- "Let the Data Speak"
- Eurostat adopted Big Data (OJV) – Skills analysis

Challenges exist and are being addressed

ETF Working together
Learning for life

European Training Foundation

Large volumes of data from employers' job vacancies published online: new and rich source for Labour Market Intelligence
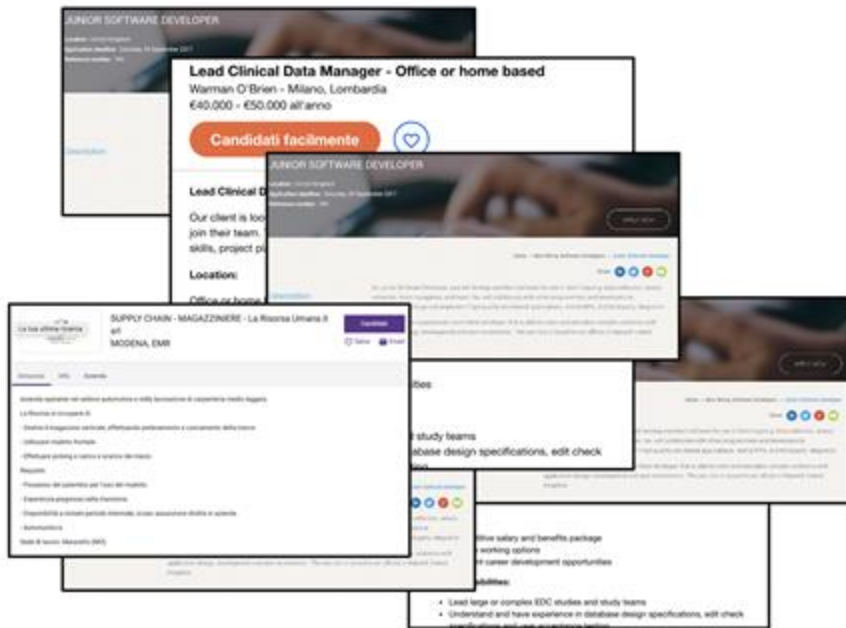
Online Job advertisements / vacancies

(OJV - OJA)

Looking for a job ?
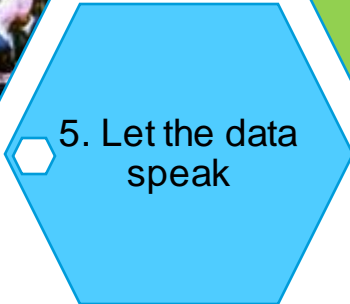
THE GOAL OF ONLINE JOB VACANCY ANALYSIS IS…

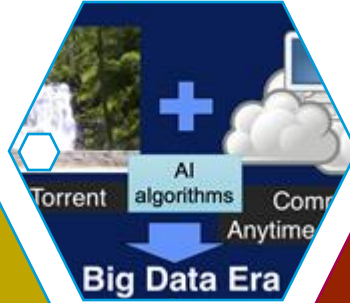**To transform this…**

…into value

OJV analysis system: the 6 building blocks

1. Data from OJV — Complements conventional statistics

2. AI-aided data system

3. International Classifications ESCO, ISCO, NACE…

4. Visualisation Dashboard - variables

5. Let the data speak

6. Volume, Velocity, Variety, Veracity, Value
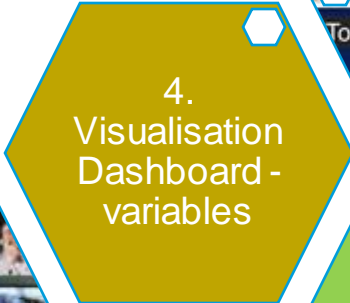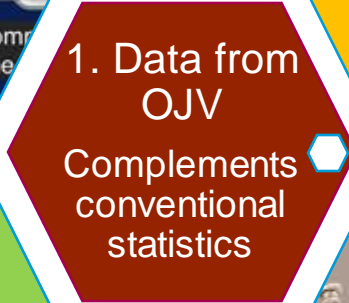
Big Data for LMI - OJV DATA

- **Experimental project – data production system based on Big (internet) data**
- Data science expertise: Lightcast
- Data: constant inflow; updates: monthly
- 12,5 million OJV collected in the Database

All 6 country Dashboards at:
https://solutions.lightcast.io/?pc=x$fhADtD*cu$BjY9

Methodological Guide:
https://www.etf.europa.eu/en/publications-and-resources/publications/big-data-labour-market-intelligence-introductory-guide

New Dashboards (2024): www.acqf.africa

Standard variables on ETF dashboards - Analysis by:

- Occupation
- Occupation– education
- Occupation – industry
- Industry
- Occupation to skill (ESCO)
- Occupation to skill (O*Net)
- Location – language
- Professional dashboard
- New: green skills, digital skills

Big Data for LMI – ESCO as a predominant taxonomy for Skills and supporting for Occupations

The OJV data is collected, stored, processed and **classified** using international taxonomies:

- **ISCO 4 digits, ESCO 5 digits** – for Occupations
- **ESCO 1.1.1** – for Skills
- **NACE** – for economic activities
- **ISCED-2011** – for levels of education

European Training Foundation

Big Data for LMI – ESCO as a predominant taxonomy for Skills and supporting for Occupations

ESCO – used for classification of Online Job Adds of ETF data system

Not all 13939 ESCO skills, but approx. 3000

ESCO Skills
- All skills
- ESCO Digital Skills
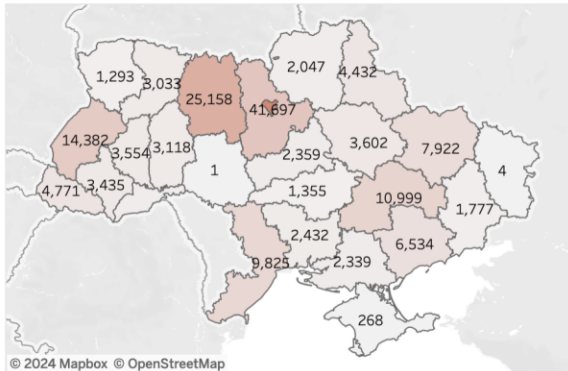- ESCO Green Skills (with ETF green skills list)

ESCO occupations
(5 digits):
Data OJA – occupations aggregated by Machine Learning Model at digit 4 level (ISCO). Disaggregation to ESCO 5-digits can be done (Kenya experiment)
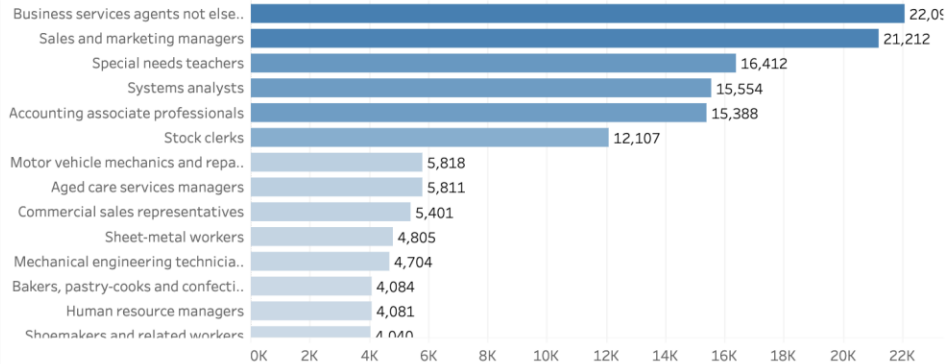
Ukraine: Occupation to skill

ETF — Working together Learning for life

Data in this section refer to Online Job Vacancies published in the last 12 months available for analysis

Location

© 2024 Mapbox © OpenStreetMap
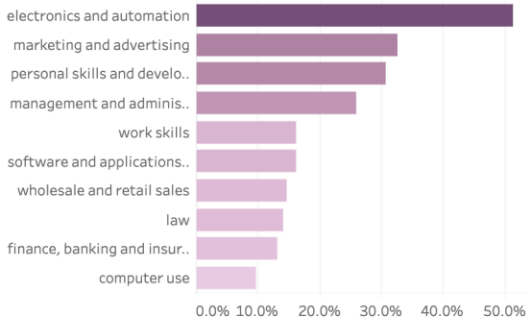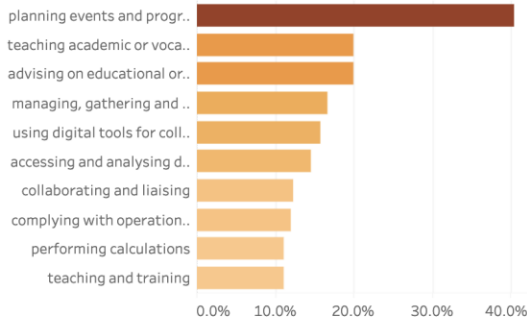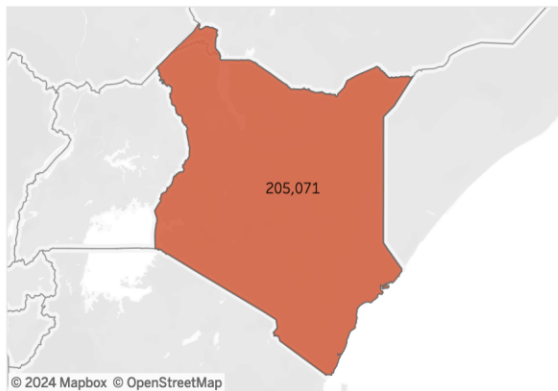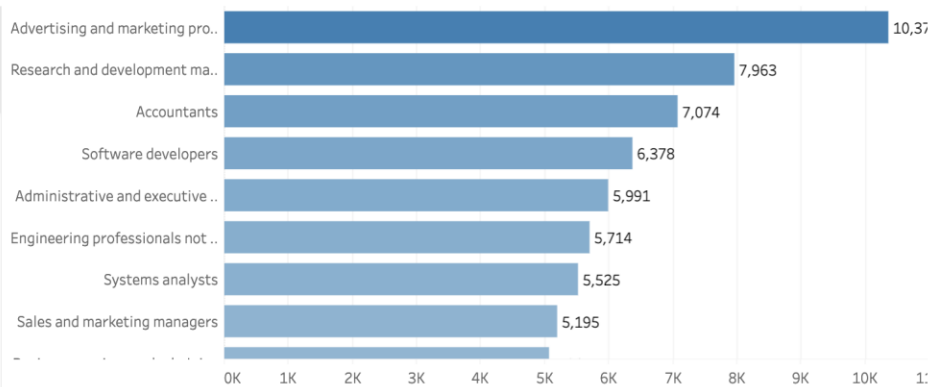
Map values: 1,293 · 3,033 · 2,047 · 4,432 · 25,158 · 41,897 · 14,382 · 3,554 · 3,118 · 2,359 · 3,602 · 7,922 · 4,771 · 3,435 · 1 · 1,355 · 10,999 · 1,777 · 2,432 · 6,534 · 4 · 9,825 · 2,339 · 268

Select the Occupation that you want to Analyze (then select it againg to reset your choice)

Occupation	Value
Business services agents not else..	22,09
Sales and marketing managers	21,212
Special needs teachers	16,412
Systems analysts	15,554
Accounting associate professionals	15,388
Stock clerks	12,107
Motor vehicle mechanics and repa..	5,818
Aged care services managers	5,811
Commercial sales representatives	5,401
Sheet-metal workers	4,805
Mechanical engineering technicia..	4,704
Bakers, pastry-cooks and confecti..	4,084
Human resource managers	4,081
Shoemakers and related workers	4,040

X-axis: 0K 2K 4K 6K 8K 10K 12K 14K 16K 18K 20K 22K

Knowledge

- electronics and automation
- marketing and advertising
- personal skills and develo..
- management and adminis..
- work skills
- software and applications..
- wholesale and retail sales
- law
- finance, banking and insur..
- computer use

X-axis: 0.0% 10.0% 20.0% 30.0% 40.0% 50.0%

Skills

- planning events and progr..
- teaching academic or voca..
- advising on educational or..
- managing, gathering and ..
- using digital tools for coll..
- accessing and analysing d..
- collaborating and liaising
- complying with operation..
- performing calculations
- teaching and training

X-axis: 0.0% 10.0% 20.0% 30.0% 40.0%

Transversal Skills and Competences

- demonstrating willingnes..
- planning and organising
- advise others
- working efficiently
- collaborating in teams an..
- taking a proactive approa..
- cope with stress
- processing information, id..
- manage quality
- thinking creatively and in..
- leading others
- communicating
- show initiative
- working with digital devic..
- attend to detail
- mastering languages
- supporting others
- instruct others
- adapt to change
- demonstrate trustworthi..

X-axis: 0.0% 10.0% 20.0% 30.0%

Kenya: Occupation to skill

Egypt: Digital Skills

Kenya: Top 20 digital skills in Job Postings (online)

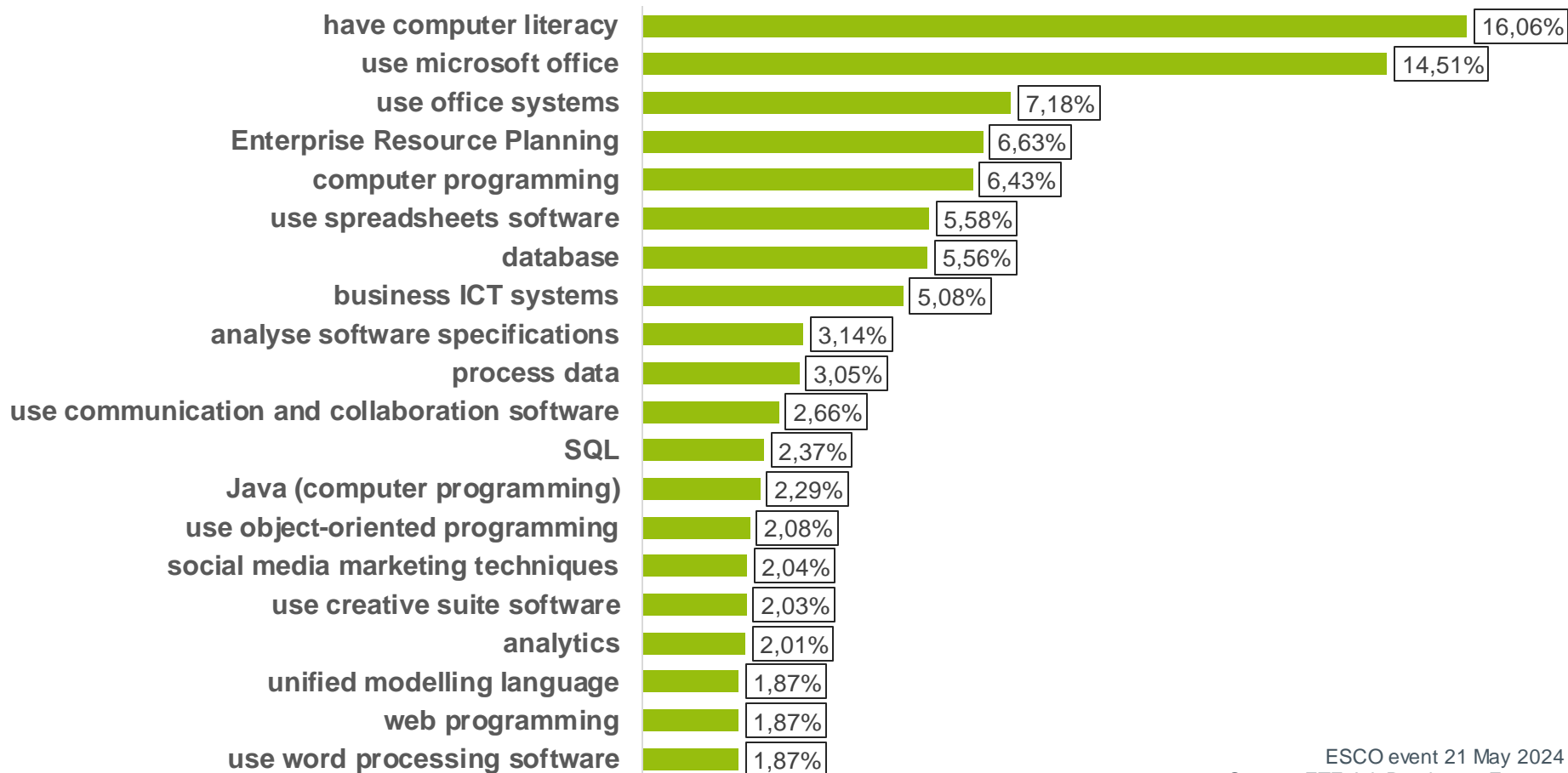| Digital skill		Unique Job postings (Oct 22-Jul 23)
use microsoft office	21,2%	133.629
have computer literacy	19,2%	121.093
office software	7,6%	47.684
database	5,7%	35.886
use spreadsheets software	5,4%	33.935
computer programming	5,4%	33.775
business ICT systems	4,0%	25.000
perform data analysis	3,8%	24.040
online analytical processing	3,5%	21.879
process data	3,2%	19.941
social media marketing techniques	3,0%	19.083
use communication and collaboration software	2,9%	18.554
use word processing software	2,6%	16.306
analyse software specifications	2,3%	14.409
digital marketing techniques	2,0%	12.549
use creative suite software	1,9%	11.825
use software design patterns	1,7%	10.686
computer science	1,7%	10.611
use object-oriented programming	1,5%	9.463
administer ICT system	1,5%	9.337

Egypt: DIGITAL SKILLS: TOP 20

Skill	Percentage
have computer literacy	16,06%
use microsoft office	14,51%
use office systems	7,18%
Enterprise Resource Planning	6,63%
computer programming	6,43%
use spreadsheets software	5,58%
database	5,56%
business ICT systems	5,08%
analyse software specifications	3,14%
process data	3,05%
use communication and collaboration software	2,66%
SQL	2,37%
Java (computer programming)	2,29%
use object-oriented programming	2,08%
social media marketing techniques	2,04%
use creative suite software	2,03%
analytics	2,01%
unified modelling language	1,87%
web programming	1,87%
use word processing software	1,87%

Big Data LMIS ETF project

New initiatives using our database, other data sources and ESCO - 2024
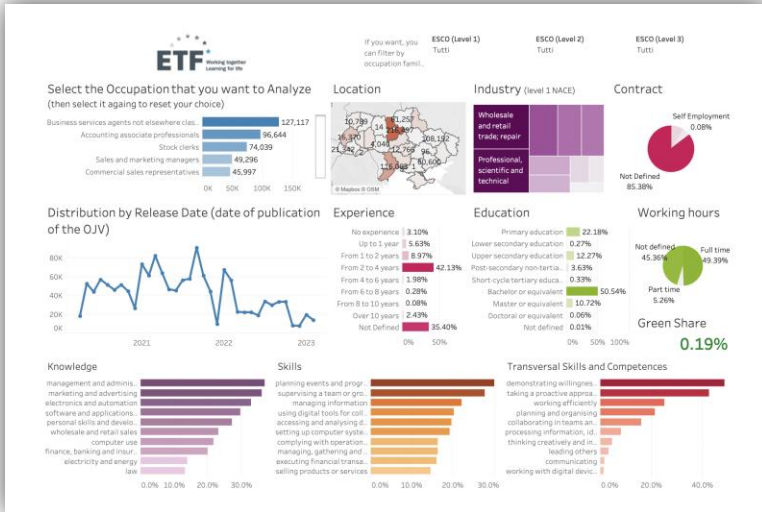
- Occupational profiles – data driven, ESCO-based (ACQF-II – for common profiles of qualifications)

- Demand for green skills – data driven, ESCO-based - report

- Demand for digital skills - report

- Supply side – social profiles (ESCO Skills)

- Combination of data (OJV, conventional statistics, administrative)

Thank you

ETF
Working together
Learning for life

European Training Foundation