ACQF

Global Gateway

Funded by the European Union

African Union

ETF Working together Learning for life
European Training Foundation

ACQF
African Continental Qualifications Framework

Day 2

Freetown workshop
Skills competences and labour market intelligence

Setting the scene

NQFs are policy instruments to classify, develop, articulate qualifications that speak to the world of work and the world of education and training.

Occupations, skills and competences.

Speaker: Eduarda Castel-Branco

Topics

- Occupations
- Skills
- Classifications
- Exercice

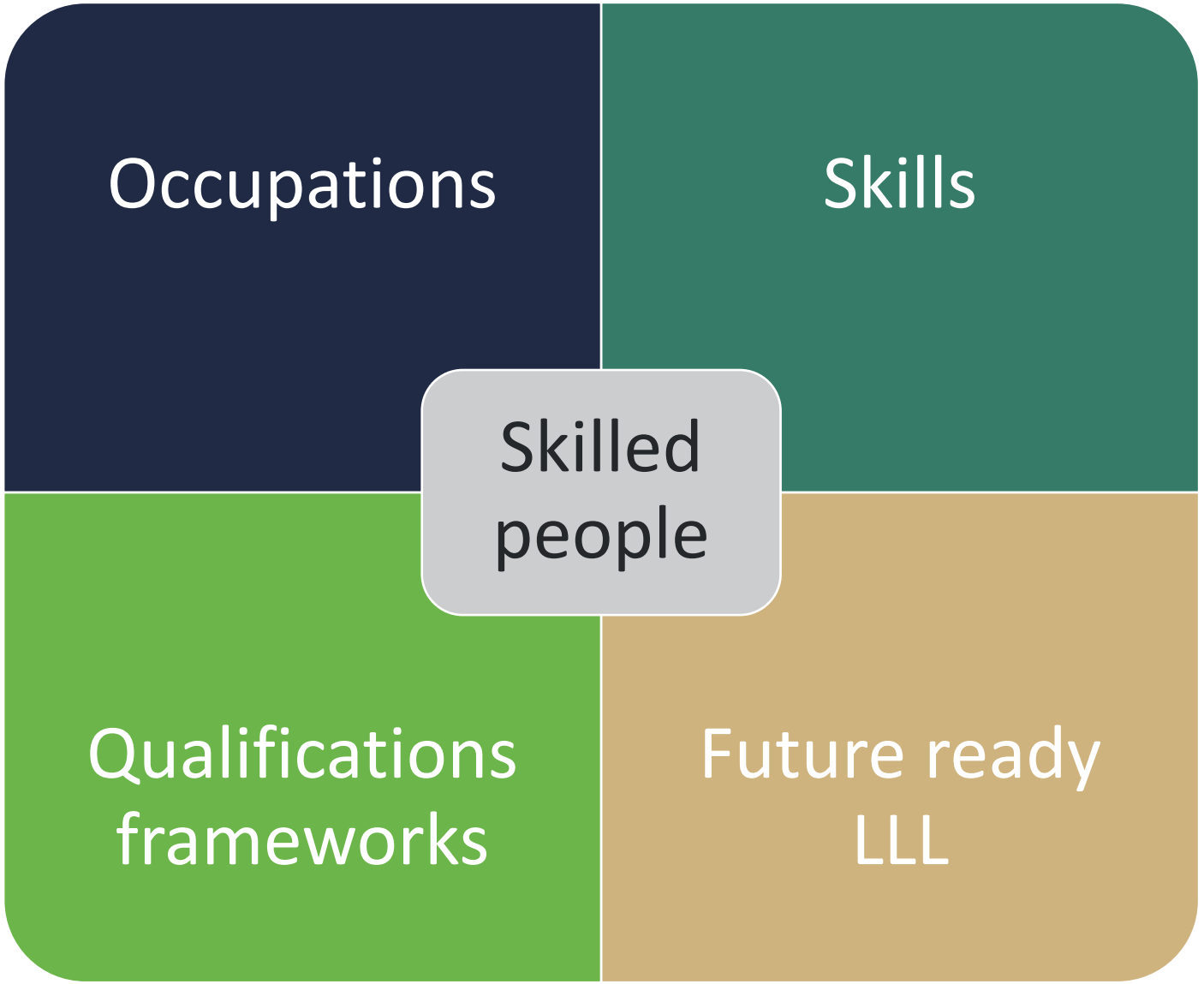
- **Dear participants**:
  - ➢ Please choose **1 occupation** and keep it for the practical exercice

01

Introduction

“Eco-system Work-Learn”

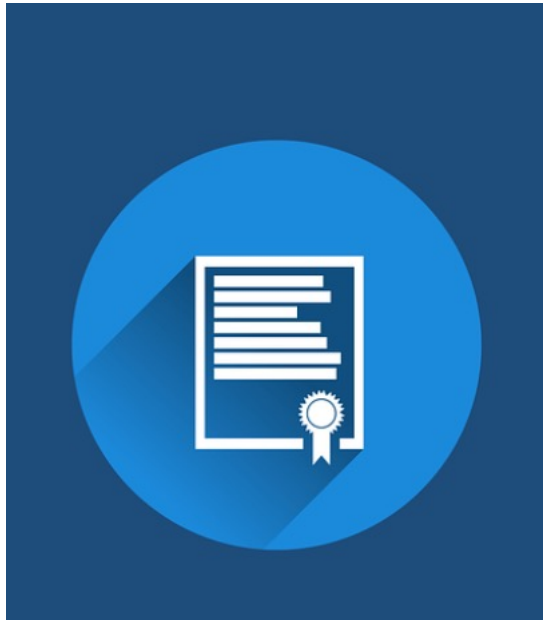
- Effective utilization of skills in society
- Matching employment – skills – qualifications
- In the ongoing period of great transformation: more workers will need to adapt to change – new jobs, changed skill profile of jobs, automation and digitalization, greening
- Skills adjacency!
  - ✓ Where can workers go with current portfolio of skills?
  - ✓ What are the critical skills workers need to develop and adapt to change?
  - ✓ Career progression – link skills to changing occupational requirements.



Between the world of work and the world of education and training

Work
Employment
Activities

Qualifications



Skills development (education, initial training, LLL)

Information on demand in labour market	Professional standards	Qualifications standards	Develop Training Programmes	Delivery training	Assessment and certification	M&E - performance

02

Occupations, skills, classifications

Jobs, occupations

Types of skills: occupational / job specific; basic; transversal…

Policy issues: skill mismatch: skills gaps, shortage; over- & under-qualification;

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Classifications (taxonomies) of occupations (and skills)

- **ISCO-08 (ILO)**
- **ESCO (EU)**
- **O*Net (US)**
- Others: at national level
  - ➢ Interrelations, correspondence

ISCO 08:

Jobs & Occupations

❖ **Jobs**

- A set of tasks or duties performed by a person (for an employer or in self-employment)

❖ **Occupations**

- The kind of work performed in a job
- A set of jobs whose main tasks and duties are characterized by a high degree of similarity.

Occupations – ISCO 08: 9 groups

1.Managers

2.Professionals

3.Technicians and associate professionals

4.Clerical support workers

5.Service and sales workers

6.Skilled agricultural, forestry and fishery workers

7.Craft and related trades workers

8.Plant and machine operators and assemblers

9.Elementary occupations

https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf

Classifications, taxonomies

ESCO
(Europe)

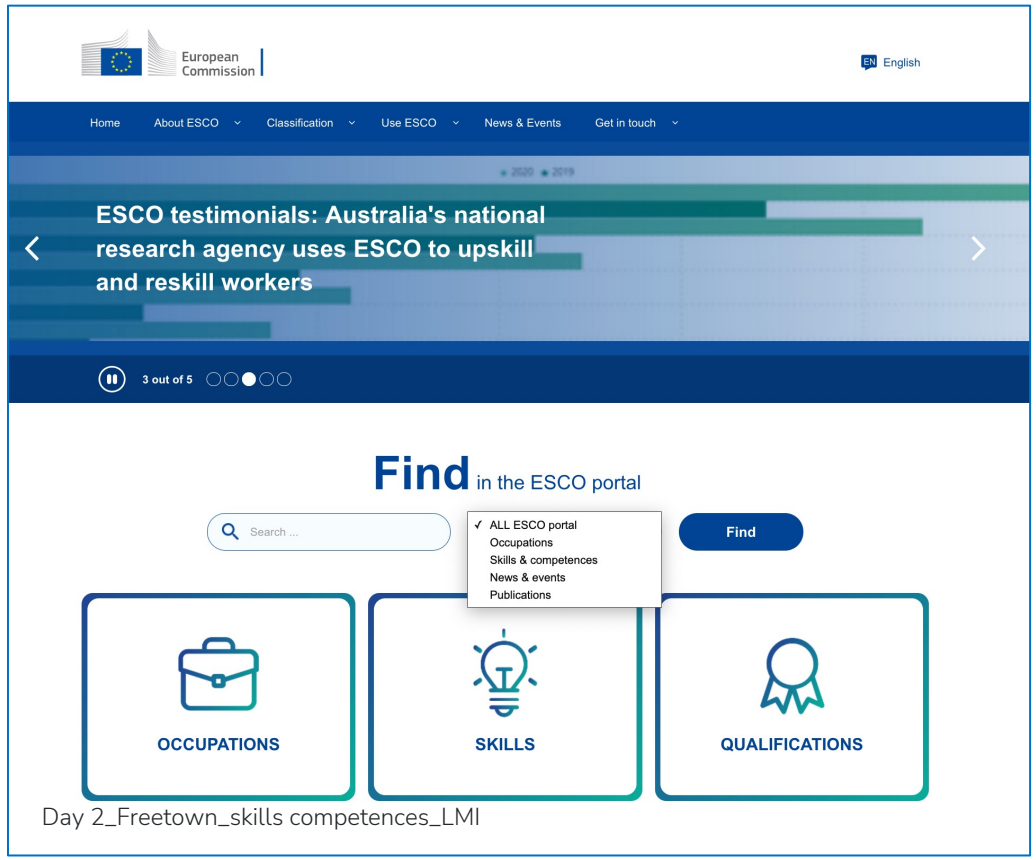
https://esco.ec.europa.eu/en

O*Net
(United States)

What is ESCO?
European Skills/Competences, Qualifications and Occupations

The ESCO classification identifies and categorises skills, competences, and occupations relevant for the EU labour market and education and training. It systematically shows the relationships between the different concepts.

Available in 28 languages (incl. Arabic)



- New ESCO portal launched (03/2022): https://esco.ec.europa.eu/en/home
- New version ESCO (V1.1) (02/2022): many novelties in skills taxonomy. New version with many new occupations and skills in consultation
- All Public Employment Services in the EU adopting ESCO
- Cooperation with other countries: Australia, Canada, Chile, USA
- Cooperation with O*Net and Canadian Skill and Knowledge glossary. Crosswalk with O*Net

ESCO

European reference language to:

- ESCO works as a **dictionary,** describing, identifying and classifying professional occupations and skills relevant for the EU labour market and education and training.
- Those concepts and the relationships between them can be understood by **electronic systems**, which allows different online platforms to use ESCO for services like matching jobseekers to jobs on the basis of their skills, suggesting trainings to people who want to reskill or upskill etc.
- Communicate between labour market and education/training
- Reduce “noise” in the labour market
- Exchange information supply & demand – Labour market information systems
- Match CVs of candidates with job vacancies
- Cooperate across borders / languages

ESCO V1.1: What does it contain?

The latest version of the classification can be downloaded or retrieved through the ESCO API.

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Occupations

Select an ESCO version

ESCO dataset - v1.1.1

Search occupations

Search ...

Find

Show filters

- 0 - Armed forces occupations +
- 1 - Managers +
- 2 - Professionals +
- 3 - Technicians and associate professionals +
- 4 - Clerical support workers +
- 5 - Service and sales workers +
- 6 - Skilled agricultural, forestry and fishery workers +
- 7 - Craft and related trades workers +
- 8 - Plant and machine operators and assemblers +
- 9 - Elementary occupations +

3008

Occupations

The ESCO occupations pillar is built on ISCO-08 which serves as the hierarchical structure for the occupations pillar. ISCO-08 provides the top four levels for the occupations pillar and ESCO occupations are located at level 5 and lower. In ESCO, each occupation is mapped to exactly one ISCO-08 code. Any occupation concept relevant to the European labor market is allocated within this hierarchy.

All occupation concepts contain one preferred term and any number of non-preferred terms and hidden terms in each of the 28 ESCO languages. ESCO as well provides an explanation (metadata) for each occupation profile such as description, scope note, reusability level and relationships between concepts. Furthermore, each occupational profile lists the knowledge, skills and competences that experts considered relevant terminology for this occupation on a European scale.

- 0. Armed forces occupations
- 1. Managers
- 2. Professionals
- 3. Technicians and associate professionals
- 4. Clerical support workers
- 5. Service and sales workers
- 6. Skilled agricultural, forestry and fishery workers
- 7. Craft and related trades workers
- 8. Plant and machine operators and assemblers
- 9. Elementary occupations

Skills & competences

Select an ESCO version

ESCO dataset - v1.1.1

Search skills

Search ...

Find

Show filters

- T - transversal skills and competences +
- S - skills +
- K - knowledge +
- L - language skills and knowledge +

13890

Skills

The skills pillar provides a comprehensive list of knowledge, skills and competences relevant to the European labor market.
It contains 13,890 concepts structured in a hierarchy which contains four sub-classifications:

- **Knowledge**
- **Language skills and knowledge**
- **Skills**
- **Transversal skills**

The ESCO skills pillar distinguishes between i) skill/competence concepts and ii) knowledge concepts by indicating the skill type. There is however no distinction between skills and competences..
Each of these concepts come with one preferred term and a number of non-preferred terms in each of the 28 ESCO languages. ESCO as well provides an explanation (metadata) for each skill profile such us a description, scope note, reusability level and relationships (with other skills and with occupations).
The ESCO skill hierarchy is in a continuous process of improvement. Please share your feedback regarding the quality of the skills and skill groups through our contact page.

Practical exercice: Professional profile ESCO

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ESCO professional profile: example

ICT network technician

Technicians and associate professionals
Information and communications technicians
Information and communications technology operations and user support technicians
Computer network and systems technicians
ICT network technician

Description

Code

3513.2

Description

ICT network technicians install, maintain and troubleshoot networks, data communications equipment and network installed devices such as printers and storage area networks. They also analyse and fix network-related problems reported by users.

Alternative Labels

assistant network administrator
IT network technician
network engineer
network maintenance professional
networks technician
network technician
network technicians
system engineer

Regulatory Aspect

To see if and how this occupation is regulated in EU Member States, EEA countries or Switzerland please consult the Regulated Professions Database of the Commission.
Regulated Professions Database:
http://ec.europa.eu/growth/single-market/services/free-movement-professionals/qualifications-recognition_en

Skills & Competences

Essential Skills and Competences

adjust ICT system capacity | analyse network bandwidth requirements | create solutions to problems | identify suppliers | implement ICT network diagnostic tools | install electronic communication equipment | install signal repeaters | maintain internet protocol configuration | provide technical documentation | use precision tools

Essential Knowledge

ICT network cable limitations | ICT network routing | ICT network security risks | ICT networking hardware

Optional Skills and Competences

migrate existing data | perform security vulnerability assessments | solder electronics

Optional Knowledge

Cisco | ICT communications protocols | ICT debugging tools | ICT security legislation | ICT system programming | concepts of telecommunications | electronics principles | network management system tools | procurement of ICT network equipment

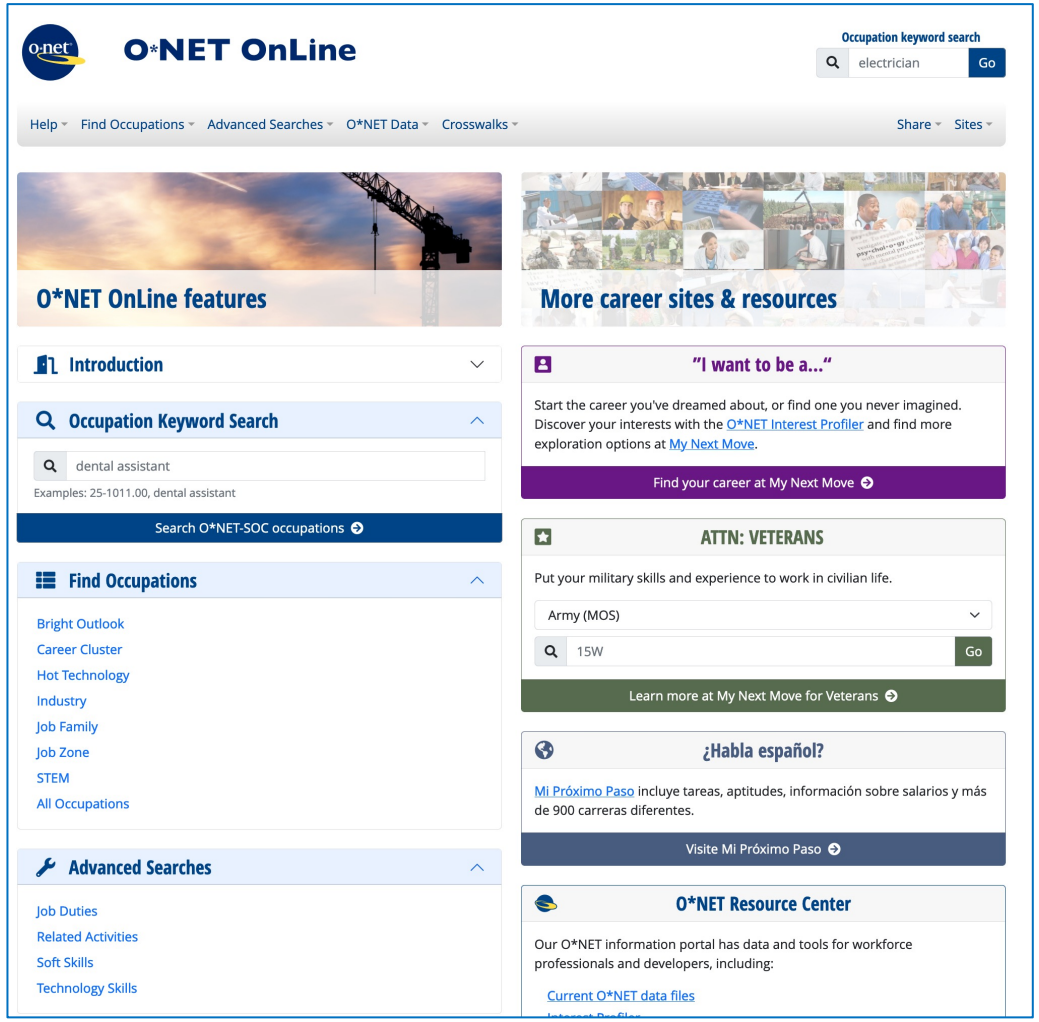
O*Net – U.S.A

- The O*NET Program is the country's **primary source of occupational information.**
- **Valid data** are essential to understanding the rapidly changing nature of work and how it impacts the workforce and U.S. economy.
- From this information, **applications are developed to facilitate the development and maintenance of a skilled workforce**.
- Central to the project is the **O*NET database**, containing hundreds of standardized and occupation-specific descriptors on almost 1,000 occupations covering the entire U.S. economy. The database, which is available to the public at no cost, is continually updated from input by a broad range of workers in each occupation.

O*NET (U.S.A)

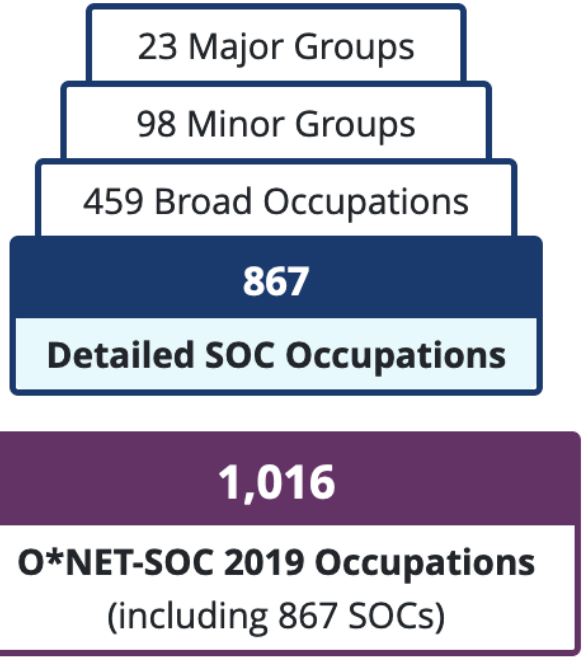
https://www.onetonline.org/

O*NET OnLine has detailed descriptions of the world of work for use by job seekers, workforce development and HR professionals, students, education, developers, researchers.



O*Net Taxonomy structure (2019)

Based on the
2018 SOC System



Data-Level

722	SOC Level **without** detailed O*NET-SOCs
52	SOC Level **with** detailed O*NET-SOCs
149	Detailed O*NET-SOCs

923 Titles and Data

Non Data-Level

19	SOC Military Specific and Military "All Other"
24	SOC "All Other" with detailed O*NET-SOCs
50	SOC "All Other" without detailed O*NET-SOCs

93 Titles Only

The new (2019) O*NET-SOC taxonomy includes 1,016 occupational titles, 923 of which represent O*NET data-level occupations.

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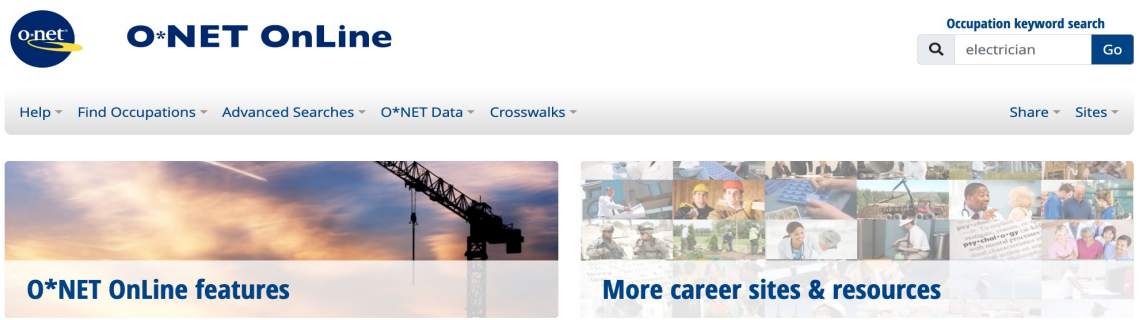
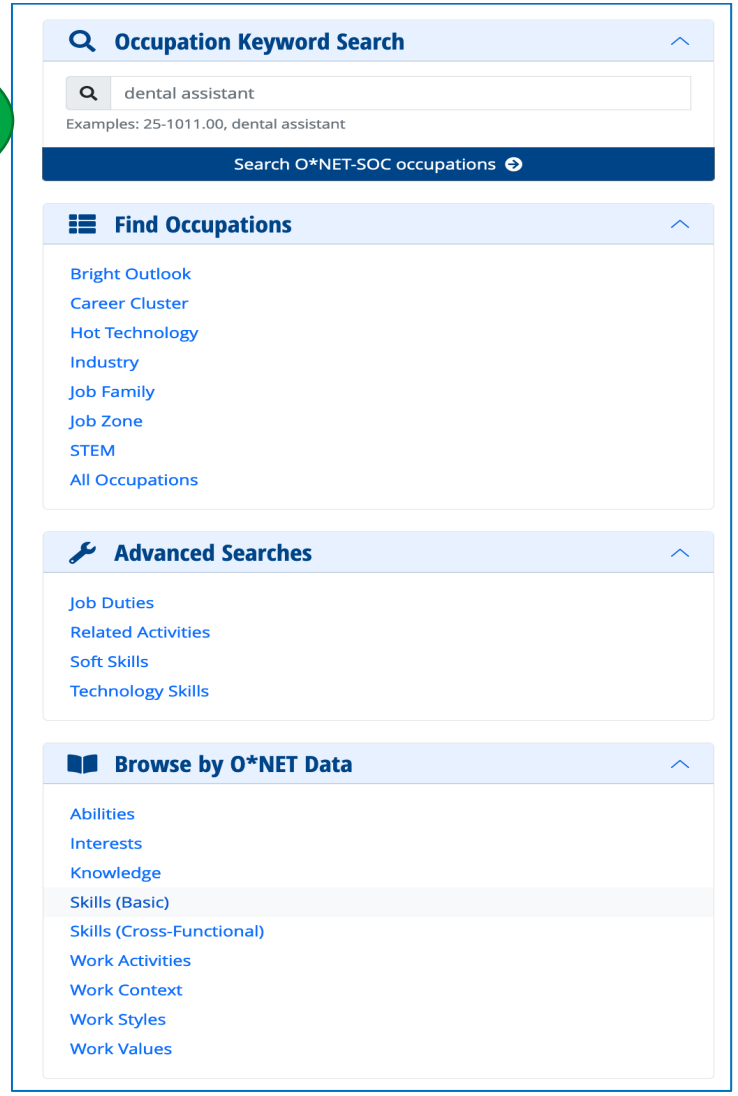
O*NET

1. Find occupations





https://www.onetonline.org/

Occupational listing
O*NET-SOC and SOC Structure

2. Occupational listings

Occupational Listings

O*NET-SOC and SOC structure

← See more: Occupation Taxonomy

596 occupations Save table

Major Group	Minor Group	Broad Occupation	Detailed Occupation	Detailed O*NET-SOC	SOC or O*NET-SOC 2019 Title
11-0000					Management Occupations
	11-1000				Top Executives
		11-1010			Chief Executives
			11-1011		Chief Executives
				11-1011.03	Chief Sustainability Officers
		11-1020			General and Operations Managers
			11-1021		General and Operations Managers
		11-1030			Legislators
			11-1031		Legislators
	11-2000				Advertising, Marketing, Promotions, Public Relations, and Sales Managers
		11-2010			Advertising and Promotions Managers
			11-2011		Advertising and Promotions Managers
		11-2020			Marketing and Sales Managers
			11-2021		Marketing Managers
			11-2022		Sales Managers
		11-2030			Public Relations and Fundraising Managers
			11-2032		Public Relations Managers
			11-2033		Fundraising Managers
	11-3000				Operations Specialties Managers
		11-3010			Administrative Services and Facilities Managers

O*NET occupational listings

2. O*Net occupations

Occupational Listings

O*NET-SOC 2019 occupations

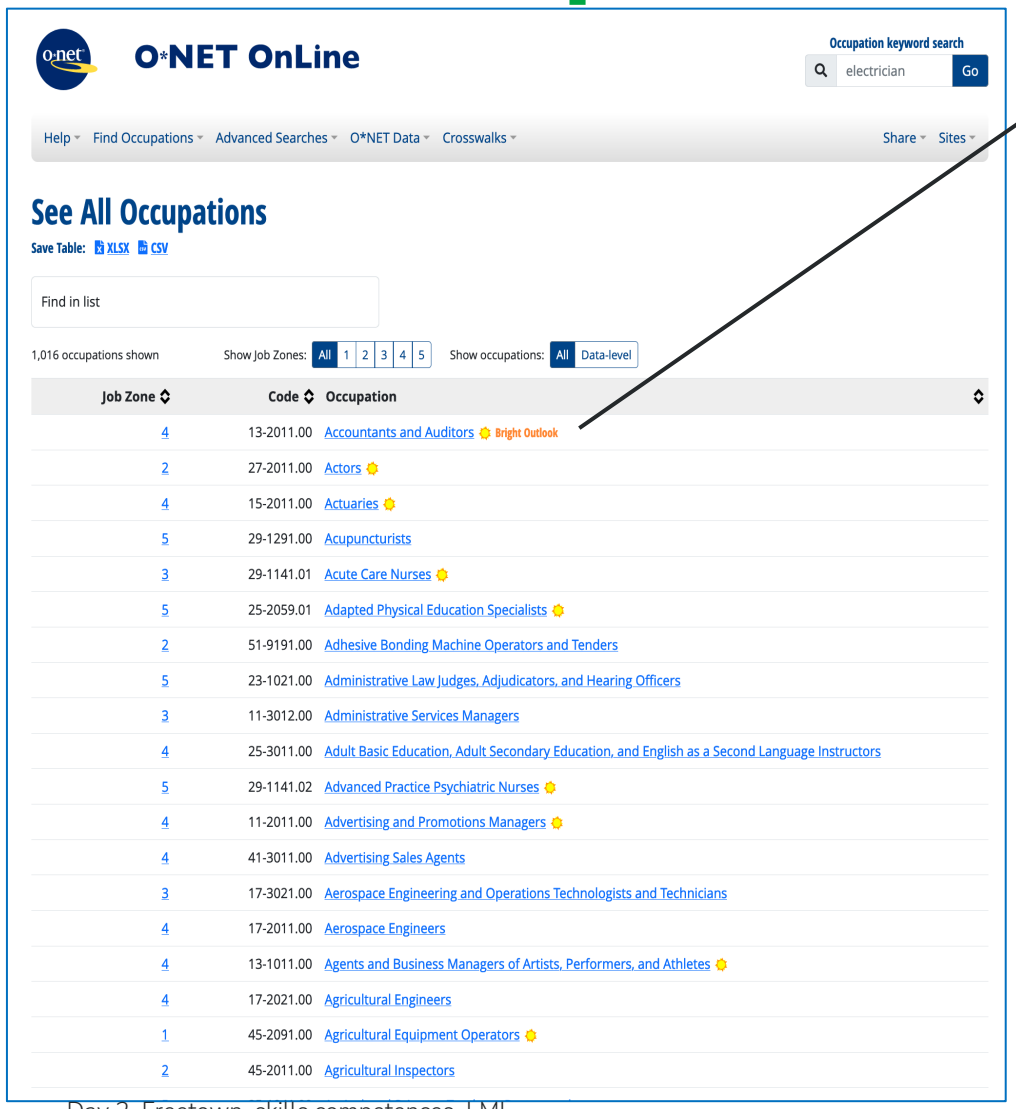
See more: Occupation Taxonomy

1016 occupations | Save table | Hide descriptions

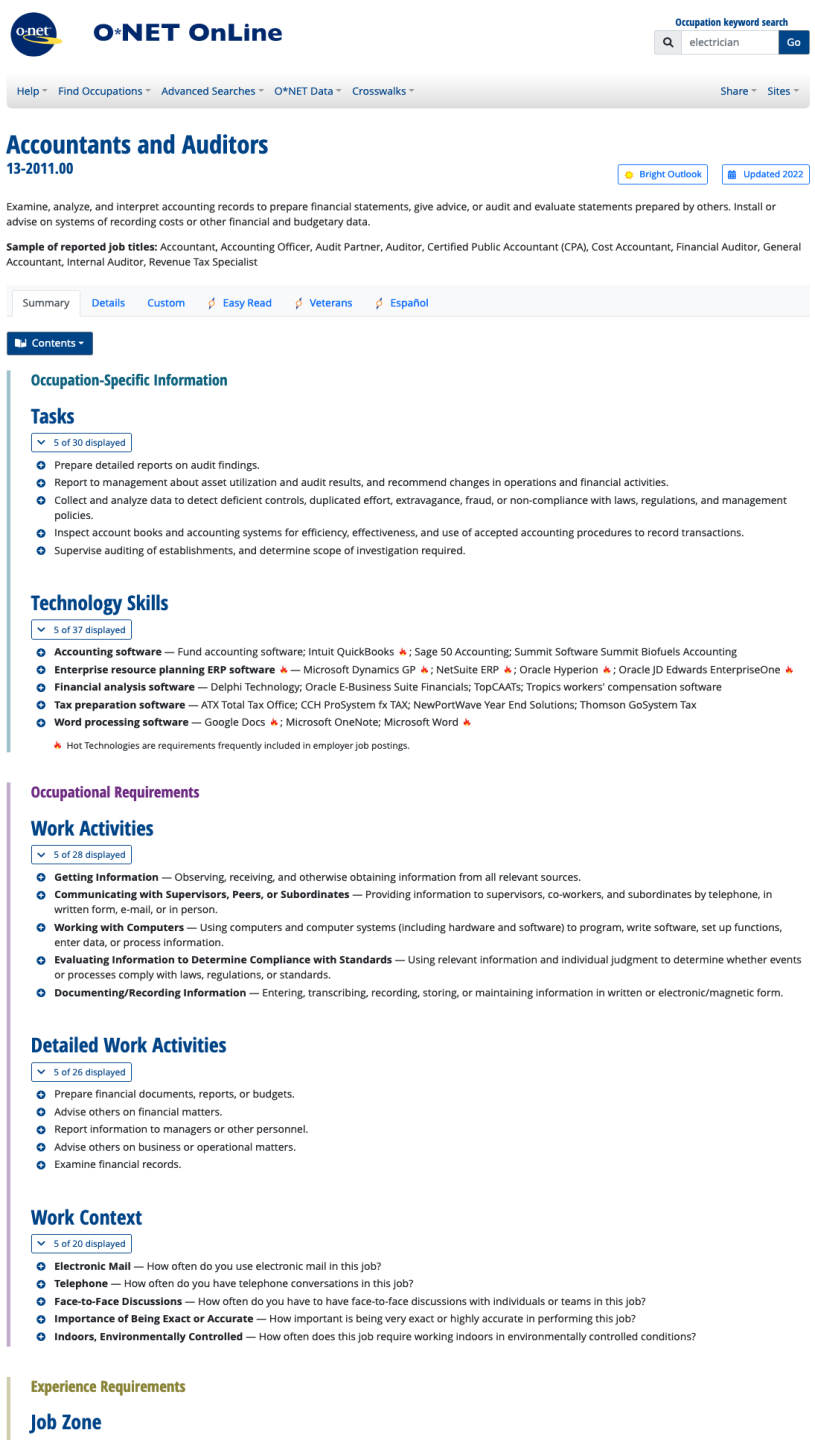
O*NET-SOC 2019 Code	O*NET-SOC 2019 Title
11-1011.00	Chief Executives Determine and formulate policies and provide overall direction of companies or private and public sector organizations within guidelines set up by a board of directors or similar governing body. Plan, direct, or coordinate operational activities at the highest level of management with the help of subordinate executives and staff managers.
11-1011.03	Chief Sustainability Officers Communicate and coordinate with management, shareholders, customers, and employees to address sustainability issues. Enact or oversee a corporate sustainability strategy.
11-1021.00	General and Operations Managers Plan, direct, or coordinate the operations of public or private sector organizations, overseeing multiple departments or locations. Duties and responsibilities include formulating policies, managing daily operations, and planning the use of materials and human resources, but are too diverse and general in nature to be classified in any one functional area of management or administration, such as personnel, purchasing, or administrative services. Usually manage through subordinate supervisors. Excludes First-Line Supervisors.
11-1031.00	Legislators Develop, introduce, or enact laws and statutes at the local, tribal, state, or federal level. Includes only workers in elected positions.
11-2011.00	Advertising and Promotions Managers Plan, direct, or coordinate advertising policies and programs or produce collateral materials, such as posters, contests, coupons, or giveaways, to create extra interest in the purchase of a product or service for a department, an entire organization, or on an account basis.
11-2021.00	Marketing Managers Plan, direct, or coordinate marketing policies and programs, such as determining the demand for products and services offered by a firm and its competitors, and identify potential customers. Develop pricing strategies with the goal of maximizing the firm's profits or share of the market while ensuring the firm's customers are satisfied. Oversee product development or monitor trends that indicate the need for new products and services.
11-2022.00	Sales Managers Plan, direct, or coordinate the actual distribution or movement of a product or service to the customer. Coordinate sales distribution by establishing sales territories, quotas, and goals and establish training programs for sales representatives. Analyze sales statistics gathered by staff to determine sales potential and inventory requirements and monitor the preferences of customers.

https://www.onetcenter.org/taxonomy/2019/list.html

O*NET: find all occupations



https://www.onetonline.org/find/all



https://www.onetonline.org/link/summary/13-2011.00

03

Skills and Competences frameworks

Skills, competences

- **Skills**: A bundle of knowledge, attributes and capacities that can be learnt and that enable individuals to successfully and consistently perform an activity or task and can be built upon and extended through learning.

OECD, http://www.oecd.org/education/47769000.pdf

- '**Skills**' means the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).

EQF Recommendation 2017

- **Competence** means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development.

EQF Recommendation 2017. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32017H0615(01)&from=EN#d1e32-20-1

Skills…several types and uses

Some types of skills

- Basic skills
- Career management skills
- Emerging skills
- Employability skills
- Entrepreneurial skills
- Entry-level skills
- Essential or foundation skills
- Generic skills
- Green skills
- Hard skills
- Hybrid skills
- ICT skills
- Job-relevant skills
- Life skills
- Livelihood skills
- Portable skill
- Soft skills
- Specialised skills
- Transversal skills

Uses

- Low-skilled person
- Multi-skilling
- Occupational skills profile
- Overskilling
- Skills eco-system
- Skills shortage
- Skills analysis
- Skills anticipation
- Skills development
- Skills gap
- Skills matching
- Skills passport
- Skills utilisation rate
- Underskilling
- Upskilling
- Reskilling

UNEVOC: https://unevoc.unesco.org/home/TVETipedia+Glossary/lang=en/id=422

Some definitions

UNEVOC:
https://unevoc.unesco.org/home/TVETipedia+Glossary/lang=en/id=422

Green skills

- Abilities needed to live in, develop and support a society which aims to reduce the negative impact of human activity on the environment.
- Technical skills, knowledge, values and attitudes needed in the workforce to develop and support sustainable social, economic and environmental outcomes in business, industry and the community.

Transversal skills

- Skills that are typically considered as not specifically related to a particular job, task, academic discipline or area of knowledge and that can be used in a wide variety of situations and work settings (for example, organizational skills).

Multi-skilling

- Training of workers in a number of skills which enables them to perform a variety of tasks or functions across traditional boundaries. Multiskilling may be horizontal (broad skilling), vertical (upskilling) or diagonal (contributory skilling).

Hybrid skills

- A mixture of the skills and knowledge, possibly from different disciplines, generally required in sectors applying high technology.

Transversal skills and competences

"Towards a structured and consistent terminology on transversal skills and competences", Cedefop, 2021

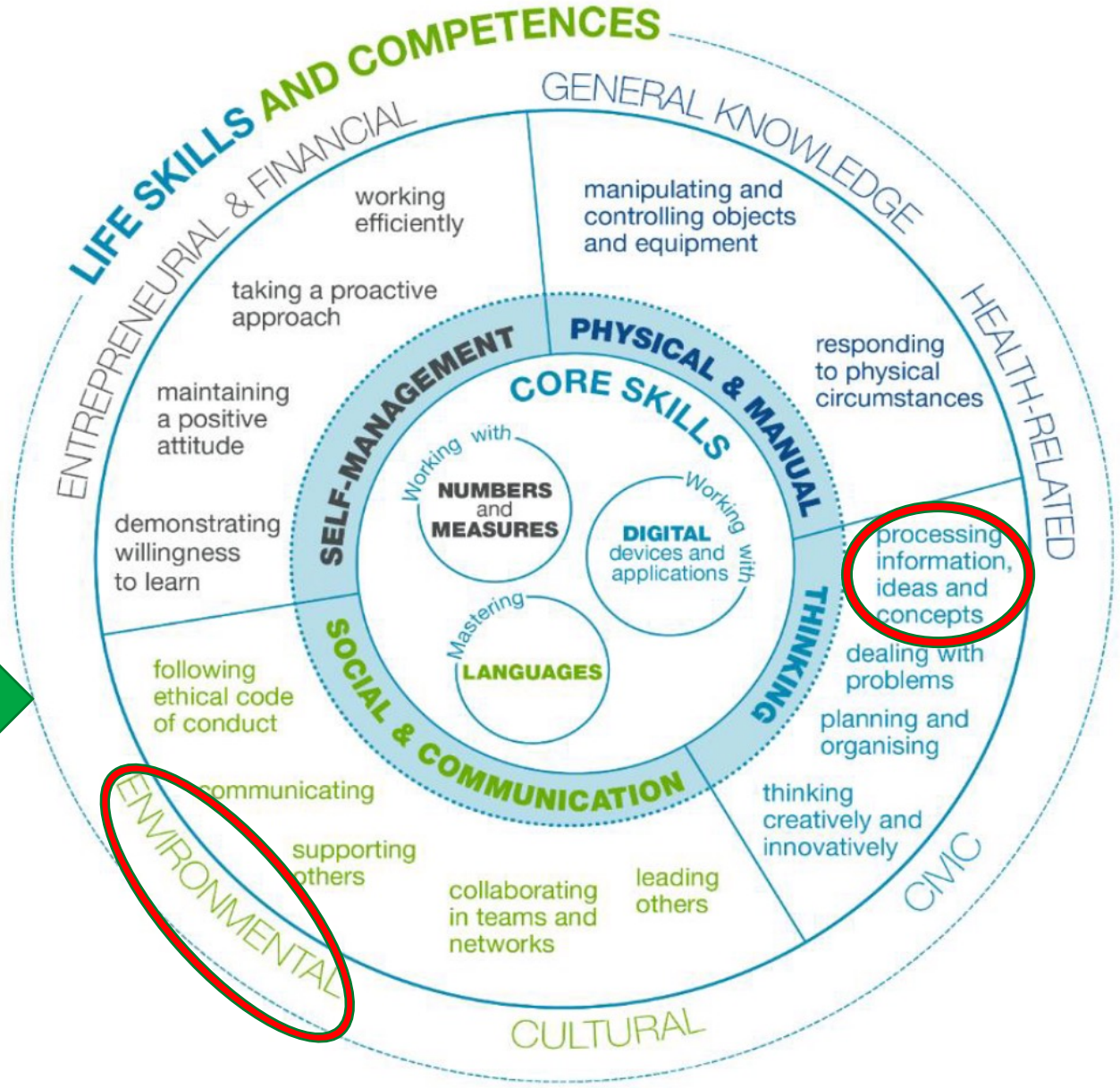
In a world facing rapid technological and social change, transversality - and implied transferability - is seen as increasingly important.

"Transversal skills and competences (TSCs) are learned and proven abilities which are commonly seen as necessary or valuable for effective action in virtually any kind of work, learning or life activity. They are "transversal" because they are not exclusively related to any particular context (job, occupation, academic discipline, civic or community engagement, occupational sector, group of occupational sectors, etc.)."

TSC Model:

- **6 main TSC Categories**
  - Core S&C, thinking S&C, self-management S&C, physical and manual S&C, social and communication S&C, life S&C
- Each Category is unpacked in **Clusters** and these – in Concepts
- Relationship between Concepts

TRANSVERSAL SKILLS AND COMPETENCES (TSC MODEL)



TSC Model: Category “Life Skills & Competences”

6 Clusters:

1. ➢ Applying entrepreneurial and financial skills and competences
2. ➢ Applying health-related skills and competences
3. ➢ Applying cultural skills and competences
4. ➢ Applying civic skills and competences
5. ➢ Applying general knowledge
6. ➢ Applying environmental skills and competence

Each Cluster: Concepts

Each Cluster: Concepts

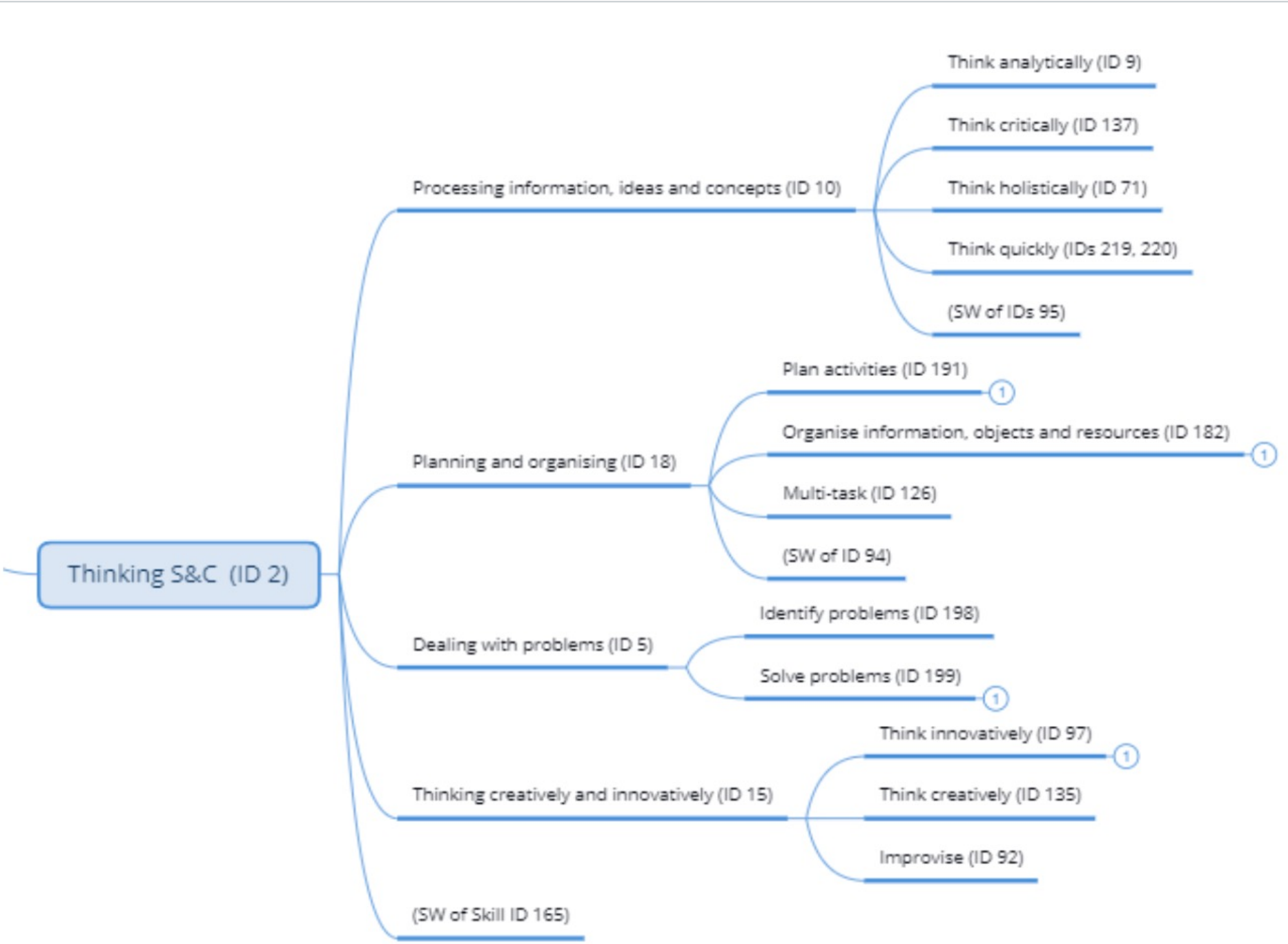
Each Cluster: Concepts

Each Cluster: Concepts

Each Cluster: Concepts

Each Cluster: Concepts

TSC Model: Category "Thinking skills"



Regional / continental Competence frameworks

European Union

- Key competences for Lifelong Learning
- Entrepreneurship competence framework
- **Digital competence framework 2.0 (DigComp 2.0)**
- **GreenComp: European Sustainability Competence Framework (2022)**
- **LifeComp:** The European Framework for Personal, Social and Learning to Learn Key Competence. Joint Research Center (JRC) (2020). https://publications.jrc.ec.europa.eu/repository/bitstream/JRC120911/lcreport_290620-online.pdf

UNESCO, Asia-Pacific

- ERI-Net's Framework on transversal competencies in education policy and practices (2015).

Digcomp 2.0 (5 areas and 8 proficiency levels)

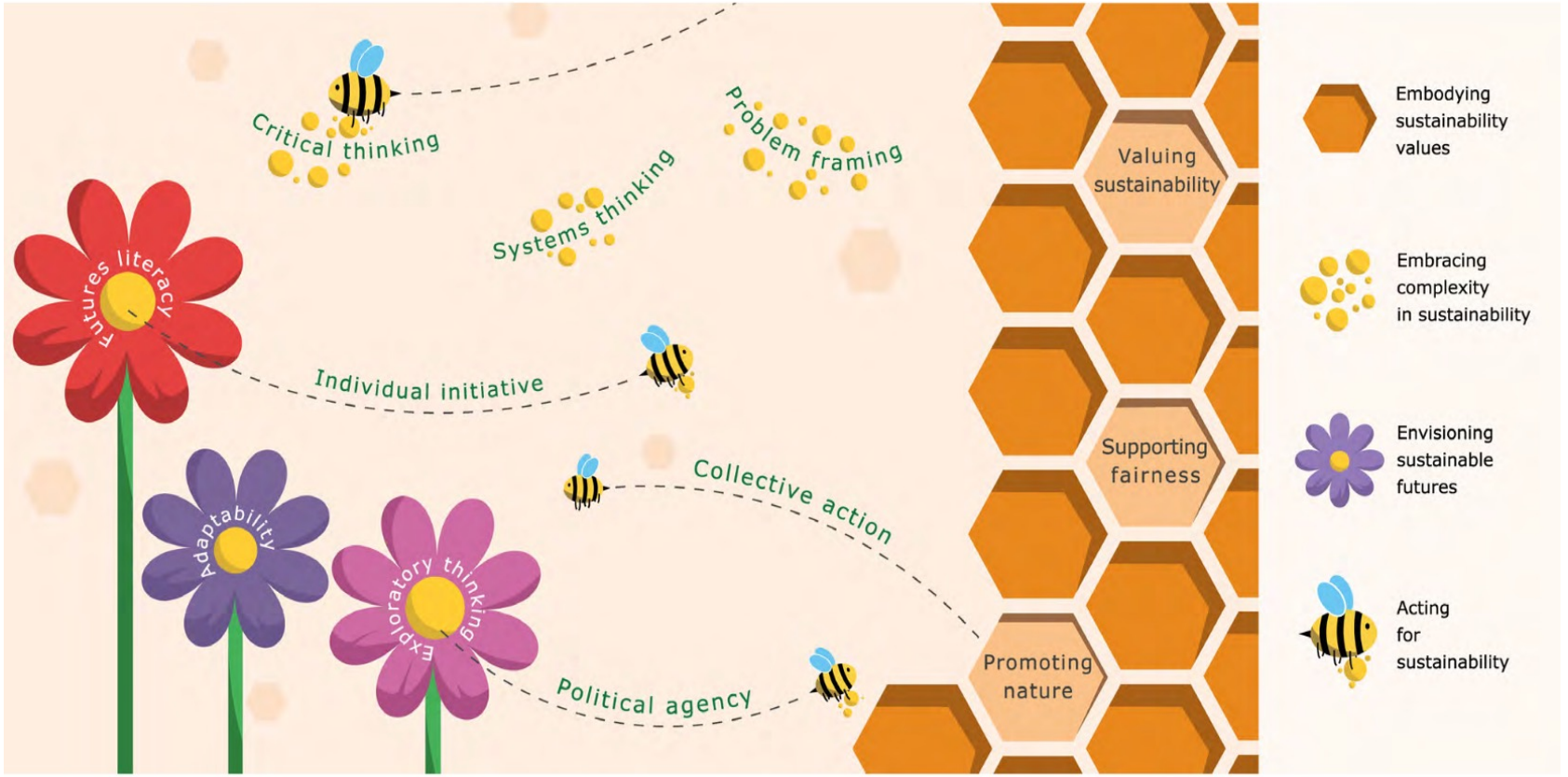
1. Information and data literacy	**1.1 Browsing, searching and filtering data, information and digital content** To articulate information needs , to search for data, information and content in digital environments, to access them and to navigate between them. To create and update personal search strategies. **1.2 Evaluating data, information and digital content** To analyse, compare and critically evaluate the credibility and reliability of sources of data, information and digital content. To analyse, interpret and critically evaluate the data, information and digital content. **1.3 Managing data, information and digital content** To organise, store and retrieve data, information and content in digital environments. To organise and process them in a structured environment.
2. Communication and collaboration	**2.1 Interacting through digital technologies** To interact through a variety of digital technologies and to understand appropriate digital communication means for a given context. **2.2 Sharing through digital technologies** To share data, information and digital content with others through appropriate digital technologies. To act as an intermediary, to know about referencing and attribution practices. **2.3 Engaging in citizenship through digital technologies** To participate in society through the use of public and private digital services. To seek opportunities for self-empowerment and for participatory citizenship through appropriate digital technologies. **2.4 Collaborating through digital technologies** To use digital tools and technologies for collaborative processes, and for co-construction and co-creation of resources and knowledge. **2.5 Netiquette** To be aware of behavioural norms and know-how while using digital technologies and interacting in digital environments. To adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments. **2.6 Managing digital identity** To create and manage one or multiple digital identities, to be able to protect one's own reputation, to deal with the data that one produces through several digital tools, environments and services.
3. Digital content creation	**3.1 Developing digital content** To create and edit digital content in different formats, to express oneself through digital means. **3.2 Integrating and re-elaborating digital content** To modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge. **3.3 Copyright and licences** To understand how copyright and licences apply to data, information and digital content. **3. 4 Programming** To plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task.

Digcomp 2.0

https://joint-research-centre.ec.europa.eu/digcomp/digital-competence-framework-20_en

4. Safety	**4.1 Protecting devices** To protect devices and digital content, and to understand risks and threats in digital environments. To know about safety and security measures and to have due regard to reliability and privacy. **4.2 Protecting personal data and privacy** To protect personal data and privacy in digital environments. To understand how to use and share personally identifiable information while being able to protect oneself and others from damages. To understand that digital services use a “Privacy policy” to inform how personal data is used. **4.3 Protecting health and well-being** To be able to avoid health-risks and threats to physical and psychological well-being while using digital technologies. To be able to protect oneself and others from possible dangers in digital environments (e.g. cyber bullying). To be aware of digital technologies for social well-being and social inclusion. **4.4 Protecting the environment** To be aware of the environmental impact of digital technologies and their use.
5. Problem solving	**5.1 Solving technical problems** To identify technical problems when operating devices and using digital environments, and to solve them (from trouble-shooting to solving more complex problems). **5.2 Identifying needs and technological responses** To assess needs and to identify, evaluate, select and use digital tools and possible technological responses to solve them. To adjust and customise digital environments to personal needs (e.g. accessibility). **5.3 Creatively using digital technologies** To use digital tools and technologies to create knowledge and to innovate processes and products. To engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments. **5.4 Identifying digital competence gaps** To understand where one’s own digital competence needs to be improved or updated. To be able to support others with their digital competence development. To seek opportunities for self-development and to keep up-to-date with the digital evolution.

GREENCOMP



Visual representation of *GreenComp*.

GreenComp consists of 12 competences (in **bold**) organised into the four areas (in *italics*) below:

- *Embodying sustainability values*, including the competences
  - **valuing sustainability**
  - **supporting fairness**
  - **promoting nature**
- *Embracing complexity in sustainability*, including the competences
  - **systems thinking**
  - **critical thinking**
  - **problem framing**
- *Envisioning sustainable futures*, including the competences
  - **futures literacy**
  - **adaptability**
  - **exploratory thinking**
- *Acting for sustainability*, including the competences
  - **political agency**
  - **collective action**
  - **individual initiative**

https://publications.jrc.ec.europa.eu/repository/handle/JRC128040

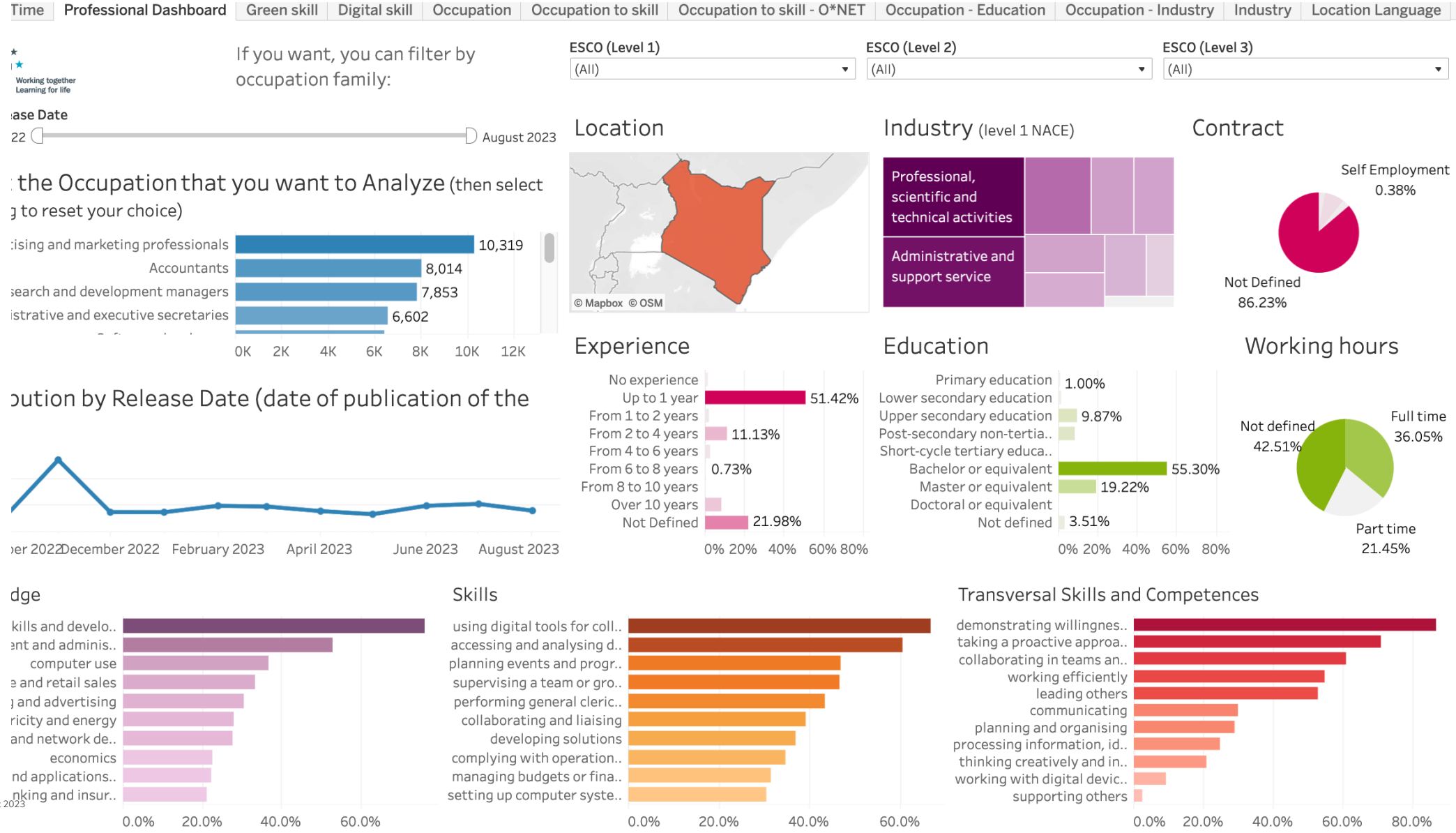
04

Alternative ways to anticipate and signal skills

LMI

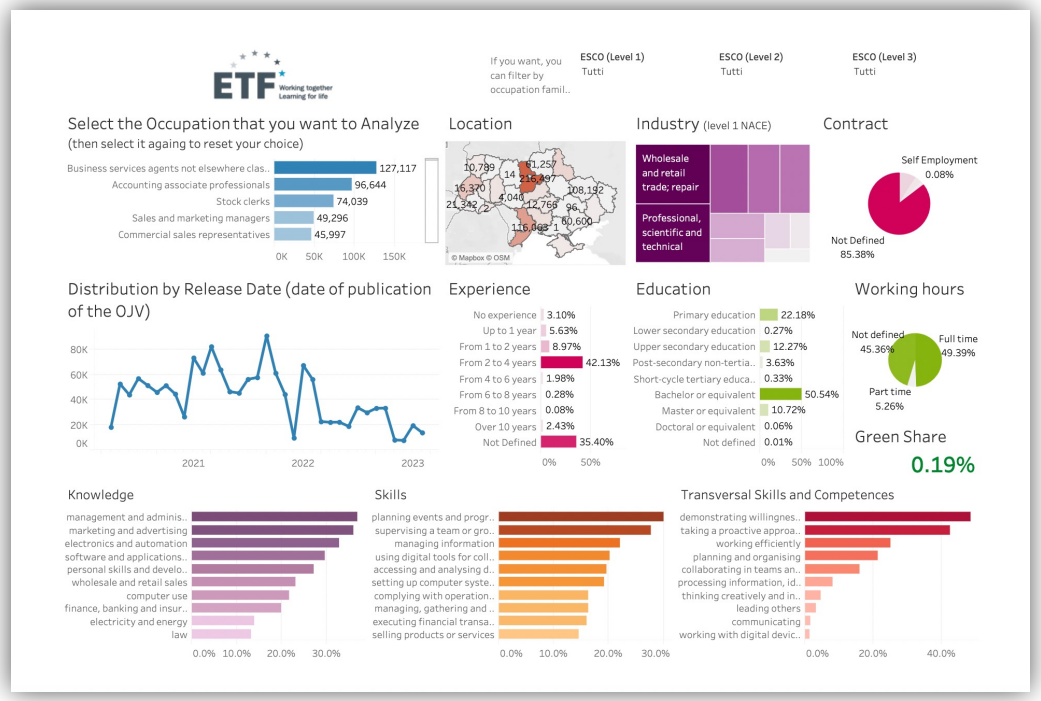
- **Not fly blind** – in education-training-skills; economic and employment policies; others…
- Combination of data sources and methods of analysis to cover all dimensions:
  - Short, medium and long term
  - Macro, meso, micro levels
    - Scope: sectoral, regional, national, multi-national
  - Questions and issues: transformation
  - Time!

Visit: Dashboards LMI



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 3 countries**
- 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: expansion new countries, new themes analysis: Egypt, Kenya; **2023**: Morocco. Selection – based on results of landscaping study.

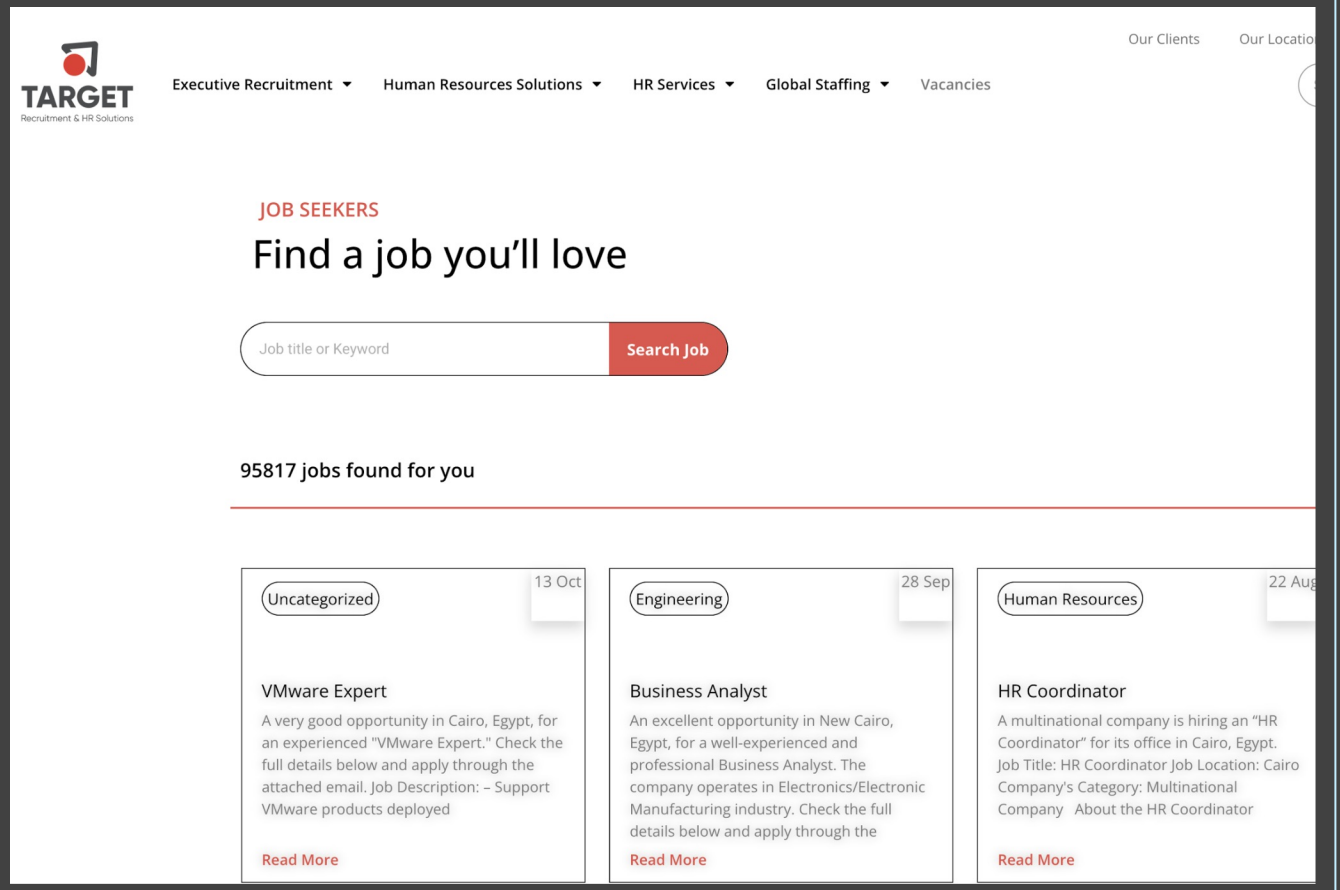
New themes: Supply side analysis.

- Training and capacity development programme: materials, PPTs, videos – all accessible online for free use and sharing

Online Job advertisements / vacancies

(OJV)

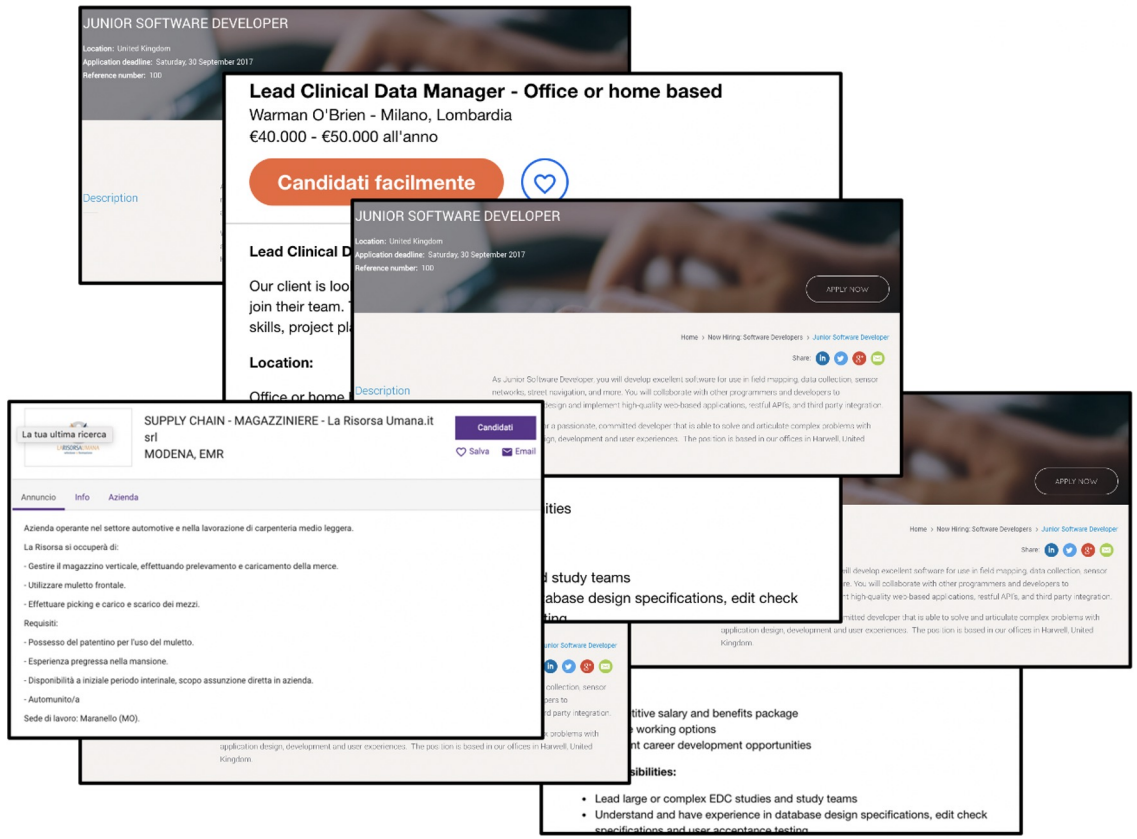
ONLINE JOB ADVERTISEMENTS



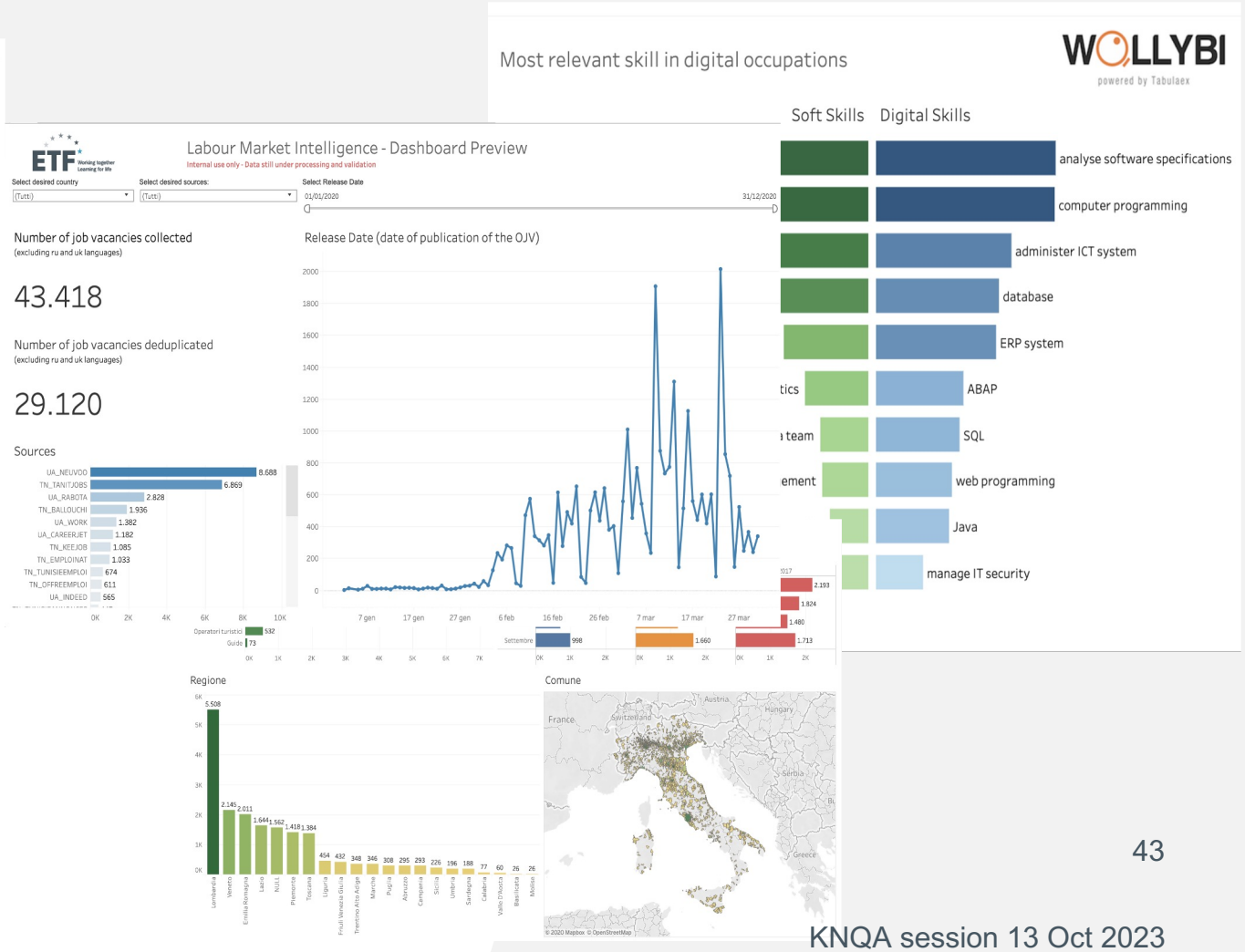
- Online job advertisements (OJAs) refer to advertisements published on the internet.
- Volume of OJAs is growing
- OJAs usually include data on the characteristics of the job (e.g. occupation and location), characteristics of the employer (e.g. economic activity) and requirements (e.g. education/skills).
- 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 (important to identify emerging skills).

THE GOAL OF OJV ANALYSIS IS…

To transform this…



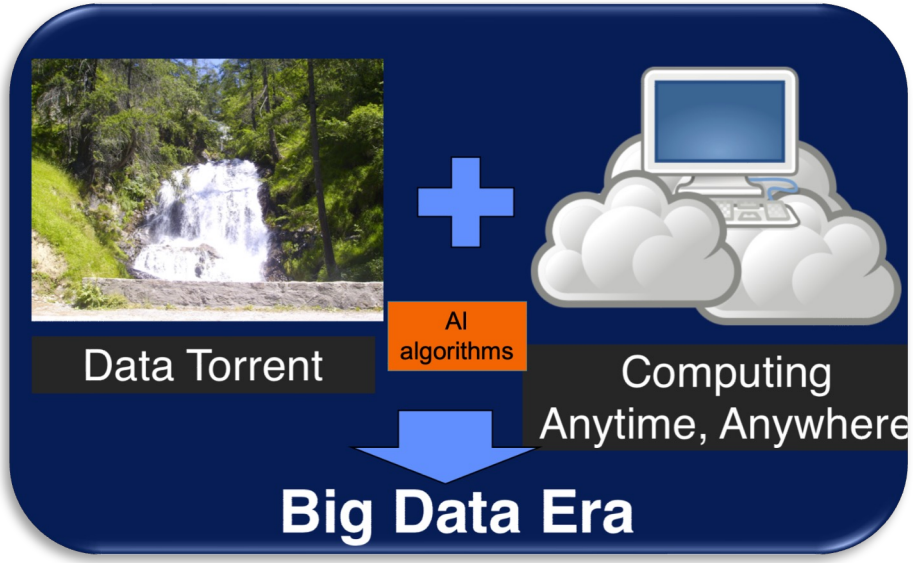
…into value

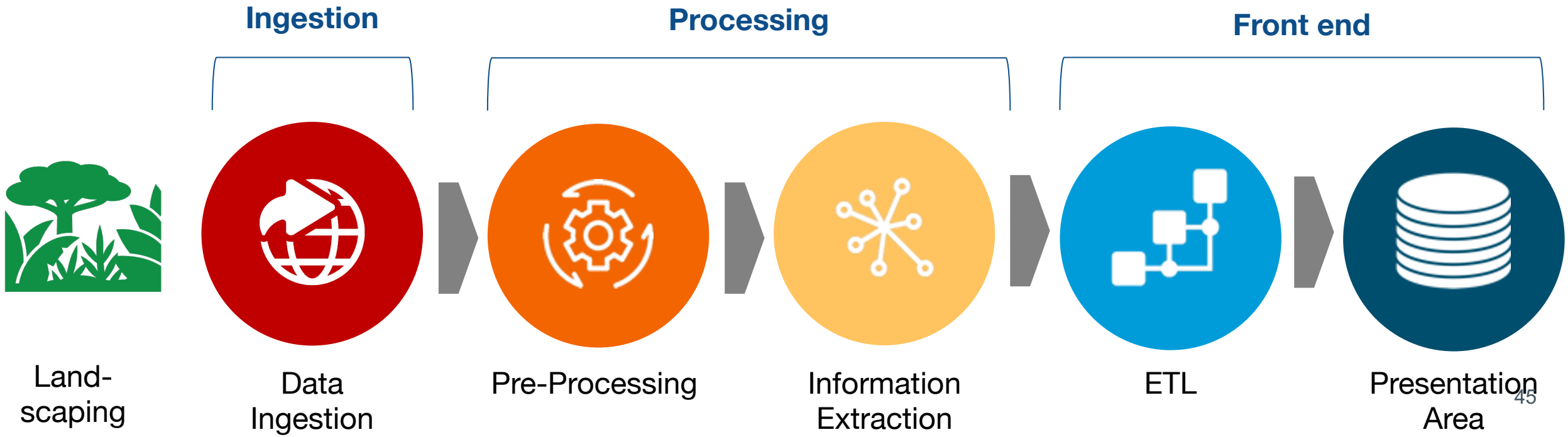


BIG DATA LMI: FOCUS ON OJV KEY FEATURES

- Data collected from the web, based on feasibility analysis (landscaping)
- 5 Vs of Big Data
- Data management flow: landscaping, ingestion, processing, extraction, ETL, presentation
- Several data quality steps and tools
- Data classification: a) AI-aided – with human in the loop; b) International classifications & taxonomies
- ISCED, ISCO, ESCO, NACE; CEN-CENELEC, Stackoverflow, GitHub; ETF green skills
- Big Data: complements conventional statistics ("*Trusted Smart Statistics*") – points topics and issues for further / wider analysis

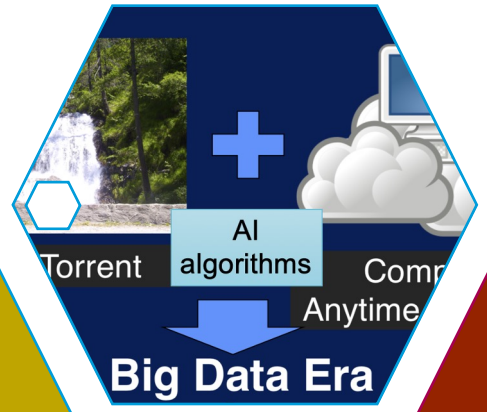
DATA FLOW


Data Torrent
AI algorithms
Computing Anytime, Anywhere
Big Data Era


Ingestion
Processing
Front end
Land-scaping
Data Ingestion
Pre-Processing
Information Extraction
ETL
Presentation Area

OJV analysis system

4. Visualisation Dashboard - variables



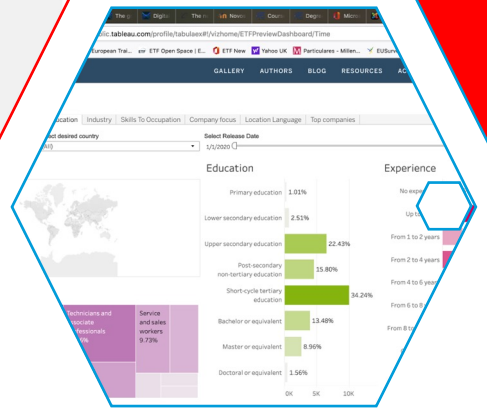
2. AI-aided data system

5. Let the data speak

1. Data from OJV

Complements statistics

3. International Classifications ESCO, ISCO, NACE…



6. Volume, Velocity, Variety, Veracity, Value

ETF PROJECT – Big Data for LMI OJV DATA

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

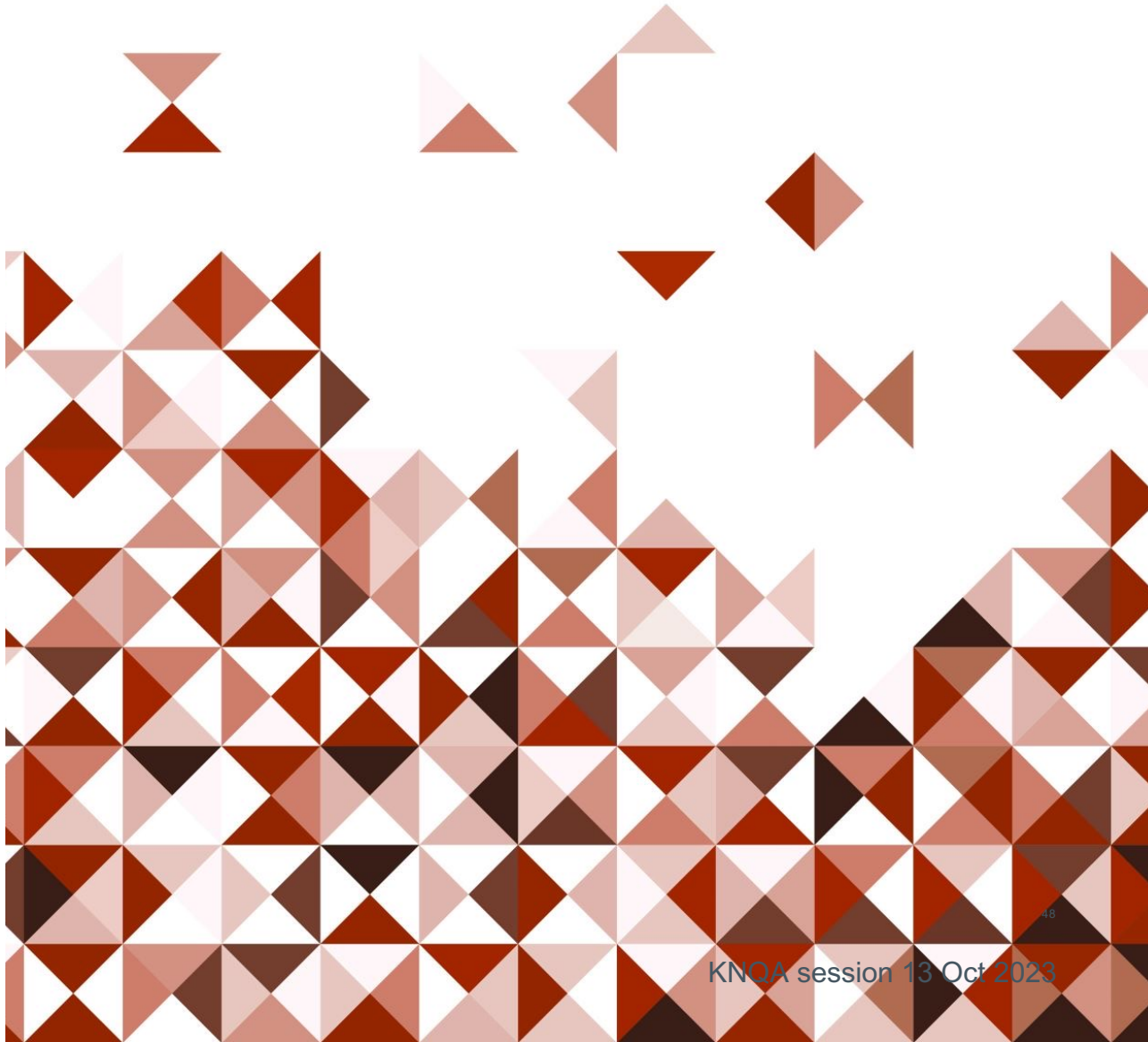
- Experimental project – data production system based on internet data
- Data science expertise Lightcast.
- Started: 2019
- Based on conceptual-technical approach OJV analysis project of EU-27

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 (summary all variables)

Kenya

Data production system



ETF Working together Learning for life

European Training Foundation

Analysis of demand for skills: online job vacancy data

Dashboards ETF project:

https://solutions.emsibg.com/?pc=x$fhADtD*cu$BjY9

ETF Working together Learning for life

European Training Foundation

Data – Kenya

- Collected: from October 2022 to August 2023
- By 30/08/2023:
  - 255,664 total collected OJV;
  - 213,926 thousand deduplicated.
  - English language sources
- ETF OJV Database
- Dashboard

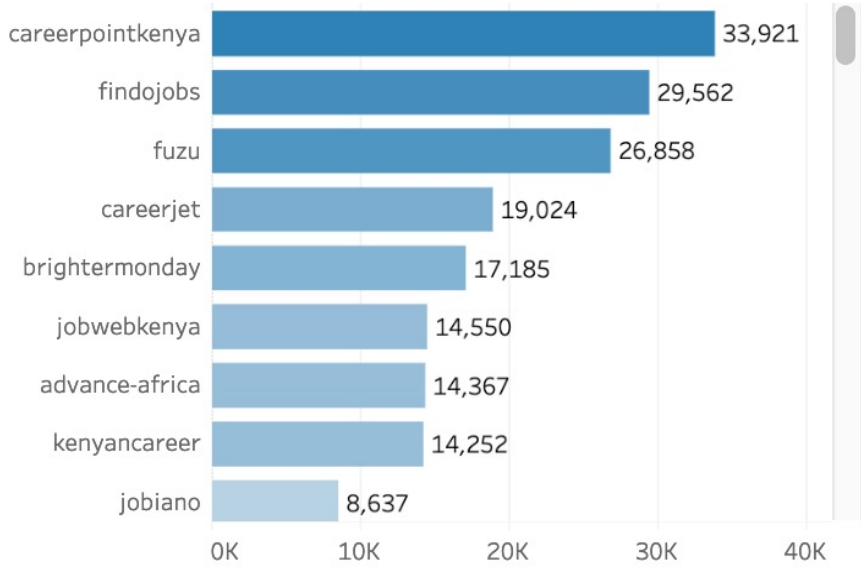
Number of job vacancies collected

255,664

Number of job vacancies deduplicated

213,926

Number of unique Vacancies by Web Source



ETF Working together Learning for life

European Training Foundation

Green skills Demand

ETF Data – Online Job Vacancies Kenya, Egypt

Definitions

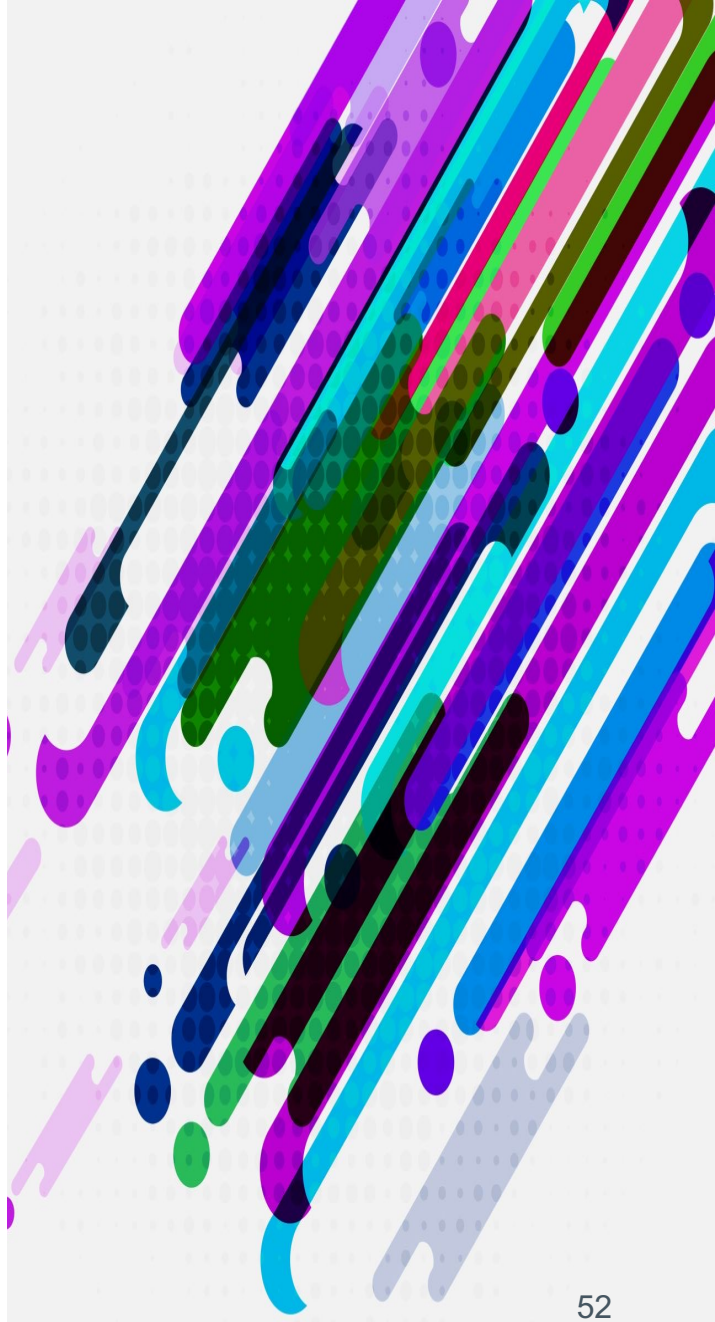
Green skills – an important area of debate and policy action and which has become a priority in research (quantitative and qualitative) and social communication. Several international organisations are working on the analysis and taxonomies related to green competences.

Cedefop defines green skills as "the knowledge, skills, values and attitudes needed to live, work and act in economies and societies that seek to reduce the impact of human activity on the environment".

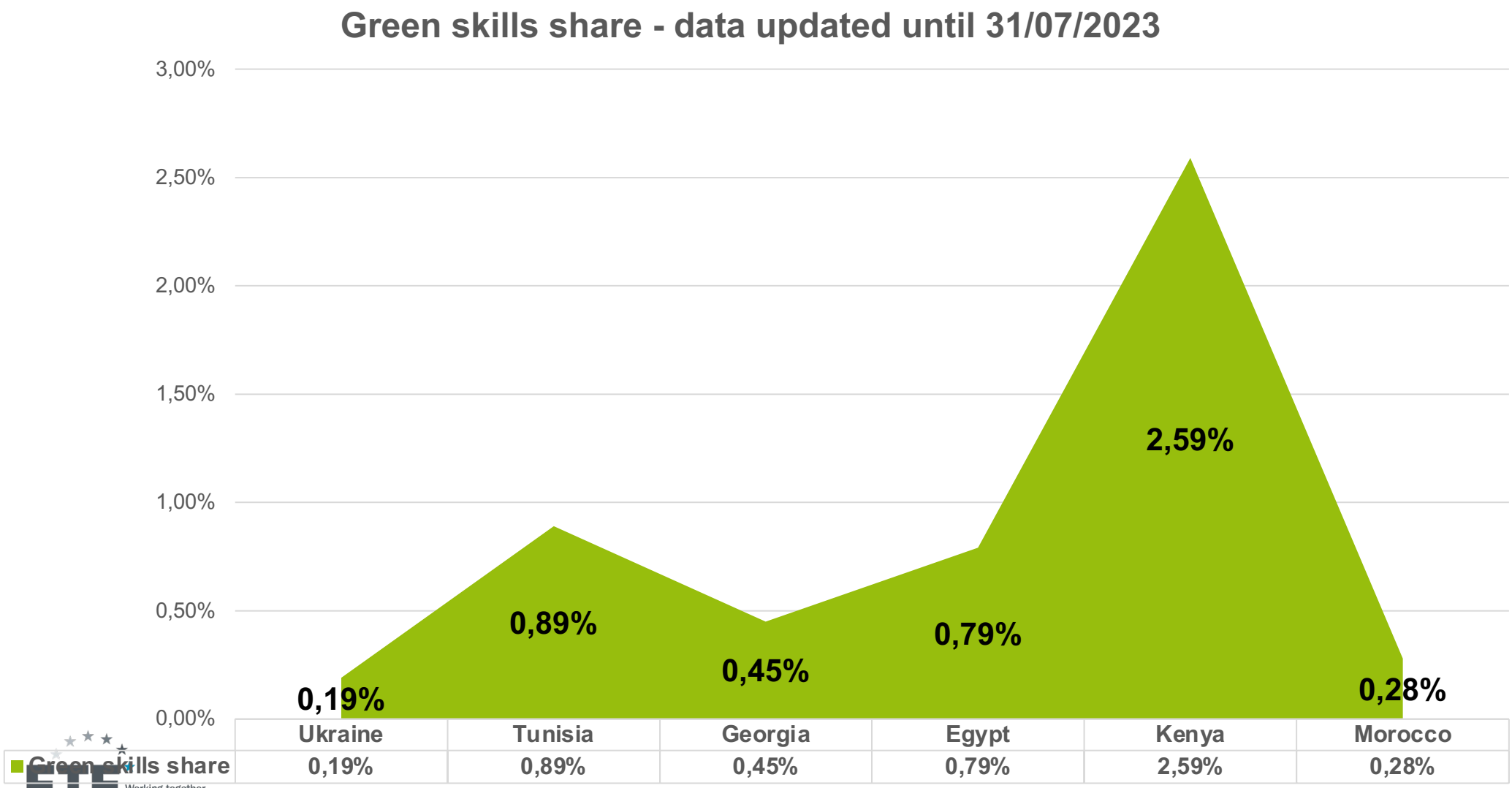
Skills for the green economy consist of:

- **transversal skills, linked to sustainable thinking and acting, relevant to all economic sectors and professions;**
- **specific skills needed to adapt or implement standards, processes and services to protect ecosystems and biodiversity and reduce energy, materials and water consumption;**
- **highly specialised skills needed to develop and implement green technologies such as renewable energy, wastewater treatment or recycling;**

Skills for the green economy are also referred to as skills for green jobs, skills for the green transition or green skills.



ETF project: Online job vacancy – Big data for LMI



Green skills share = share of online job vacancies that required at least 1 green skill

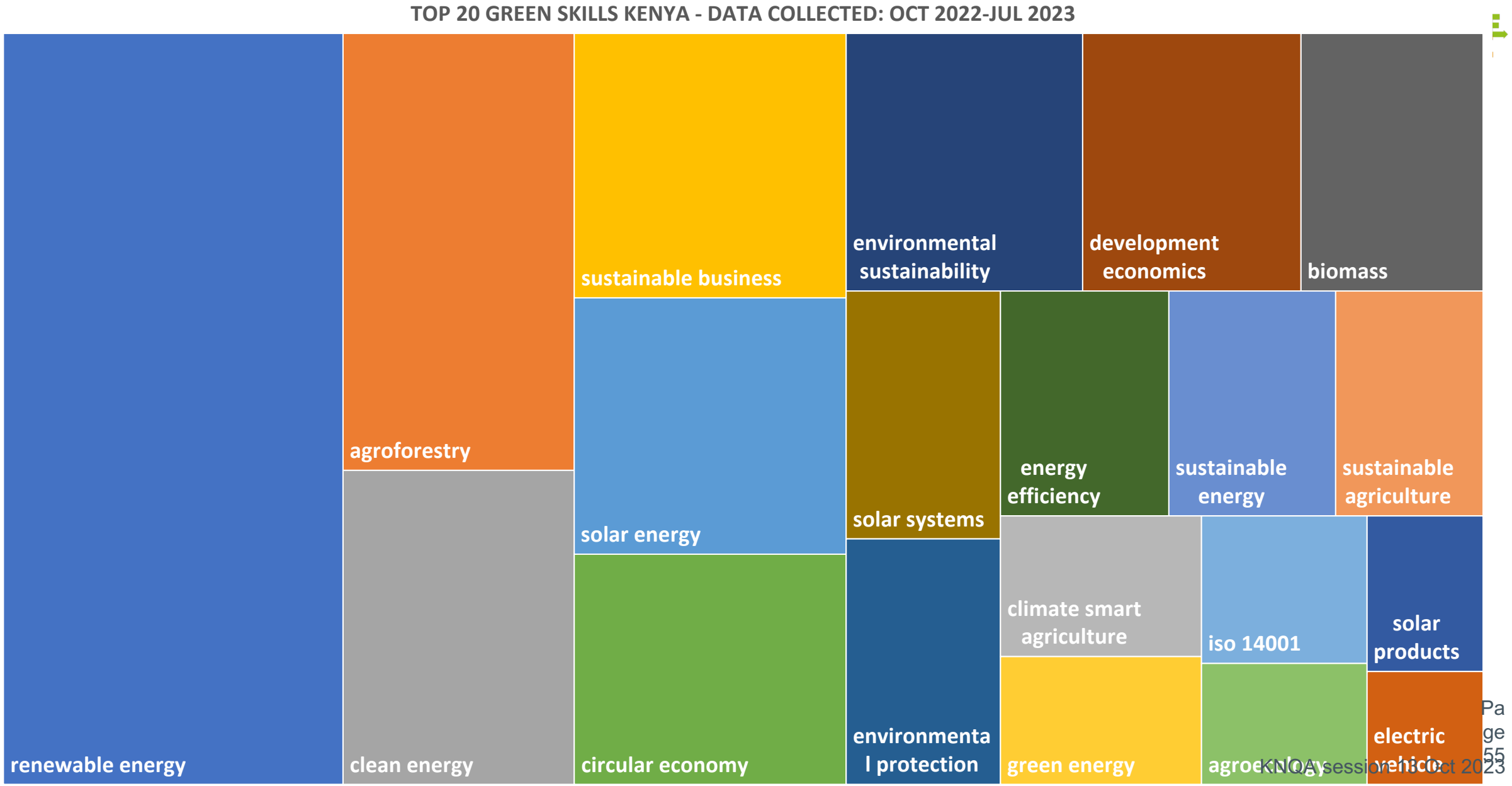
Kenya: highest green skills share, Ukraine – the lowest

Used green skills taxonomy: ETF (225 terms)

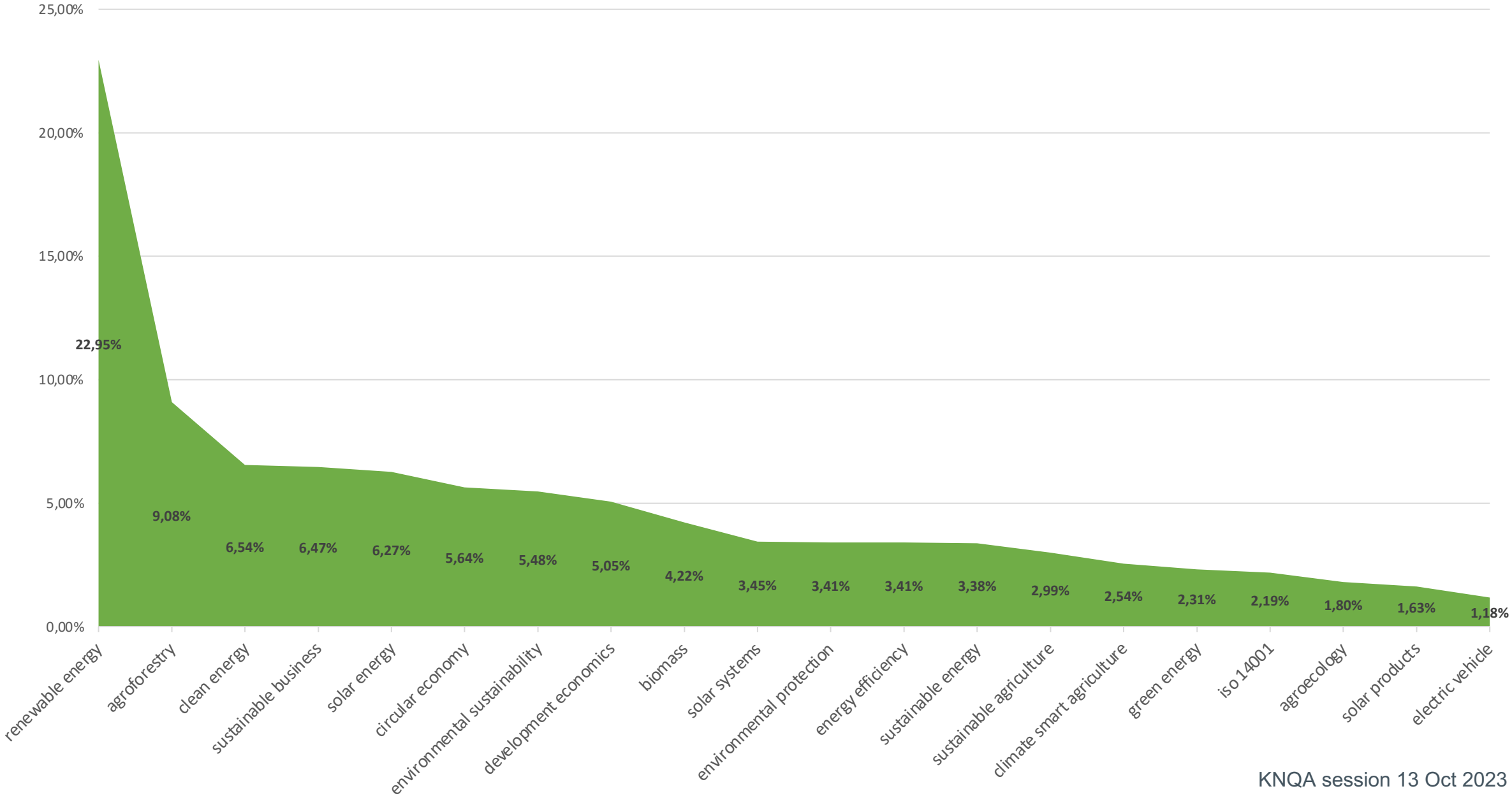
Top 20 Green Skills Kenya

Skills / skill set	% (from 20)	Nº unique job postings
renewable energy	22,95%	2.598
agroforestry	9,08%	1.028
clean energy	6,54%	740
sustainable business	6,47%	732
solar energy	6,27%	710
circular economy	5,64%	638
environmental sustainability	5,48%	620
development economics	5,05%	572
biomass	4,22%	478
solar systems	3,45%	390
environmental protection	3,41%	386
energy efficiency	3,41%	386
sustainable energy	3,38%	382
sustainable agriculture	2,99%	338
climate smart agriculture	2,54%	288
green energy	2,31%	262
iso 14001	2,19%	248
agroecology	1,80%	204
solar products	1,63%	184
electric vehicle	1,18%	134

Top 20 green skills in OJV: Kenya



Top 20 Green Skills Kenya (2)



KNQA session 13 Oct 2023

Kenya: Green skills required for selected occupations

Occupation	Green skill	Unique Job postings (Oct 22 - Jul 23)
Electronics mechanics and servicers	solar panels	7
	solar energy	2
	environmental protection	2
Environmental engineers	environmental sustainability	32
	environmental protection	19
	sustainable procurement	9
	renewable energy	9
	sustainable business	7
	energy efficiency	7
	sustainable energy	5
	circular economy	4
	development economics	3
	climate smart agriculture	3
	green energy	2
	ecotourism	2
	clean energy	2
	carbon footprint reduction	2
	sustainable agriculture	1
	sustainability performance	1
	iso 14001	1
	hydroponics	1
	clean technology	1
	agroforestry	1
Metal production process controllers	iso 14001	2
Statistical, mathematical and related associate professionals	environmental protection	18
	clean energy	18
	energy efficiency	11
	green building	9
	sustainable materials	6
	sustainable building	6
	sustainable agriculture	6
	renewable energy	5
	circular economy	5
	biomass	4
	agroforestry	4
	sustainable energy	3
	hydropower	1
	biofuels	1

KENYA

Home | Time | Professional Dashboard | Green skill | Digital skill | Occupation | Occupation to skill | Occupation to skill - O*NET | Occupation - Education | Occupation - Industry | Industry | Location Language

ETF Working together Learning for life

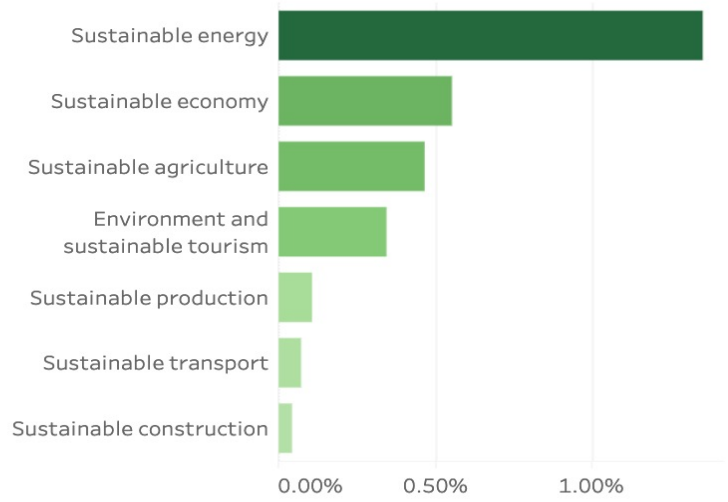
Select Release Date

October 2022 — August 2023

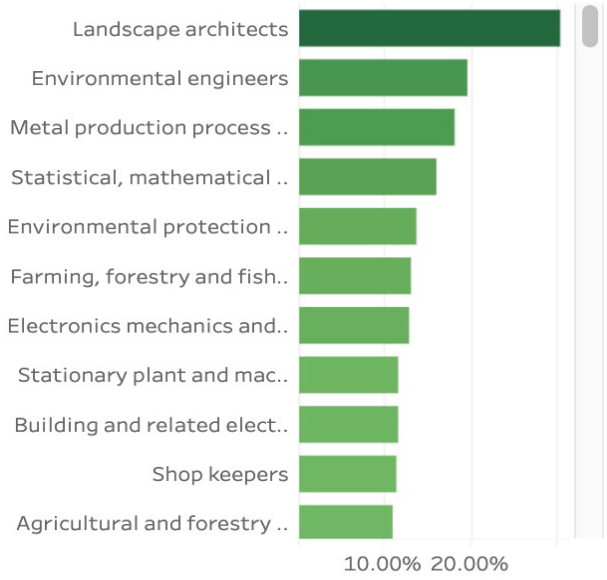
Green Share

2.64%

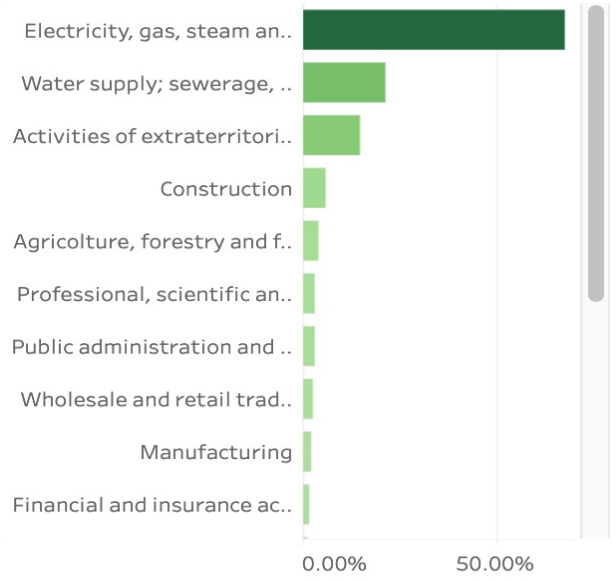
Select the Green skill family that you want to Analyze (then select it againg to reset your choose)



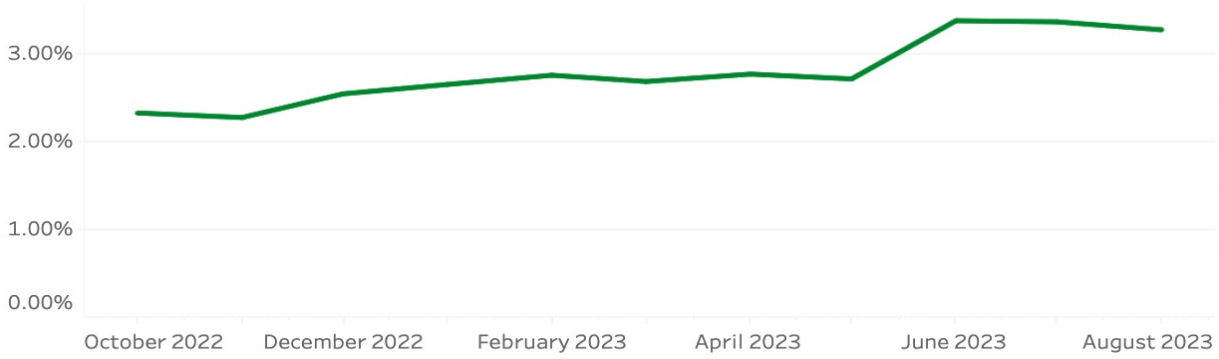
Share of green skill by occupation



Share of green skill by industry



Share of green skill by release date

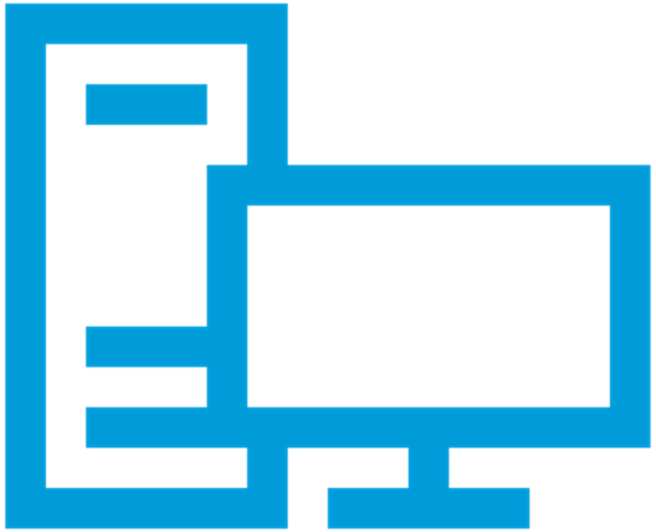


Most requested green skill

Digital skills – overview of some features of demand

Analysis based on ETF data Job Listings - Egypt

ACQF



Digital skills

Ability to use digital technologies confidently, critically and responsibly and engage with them for learning, at work and for participation in society.

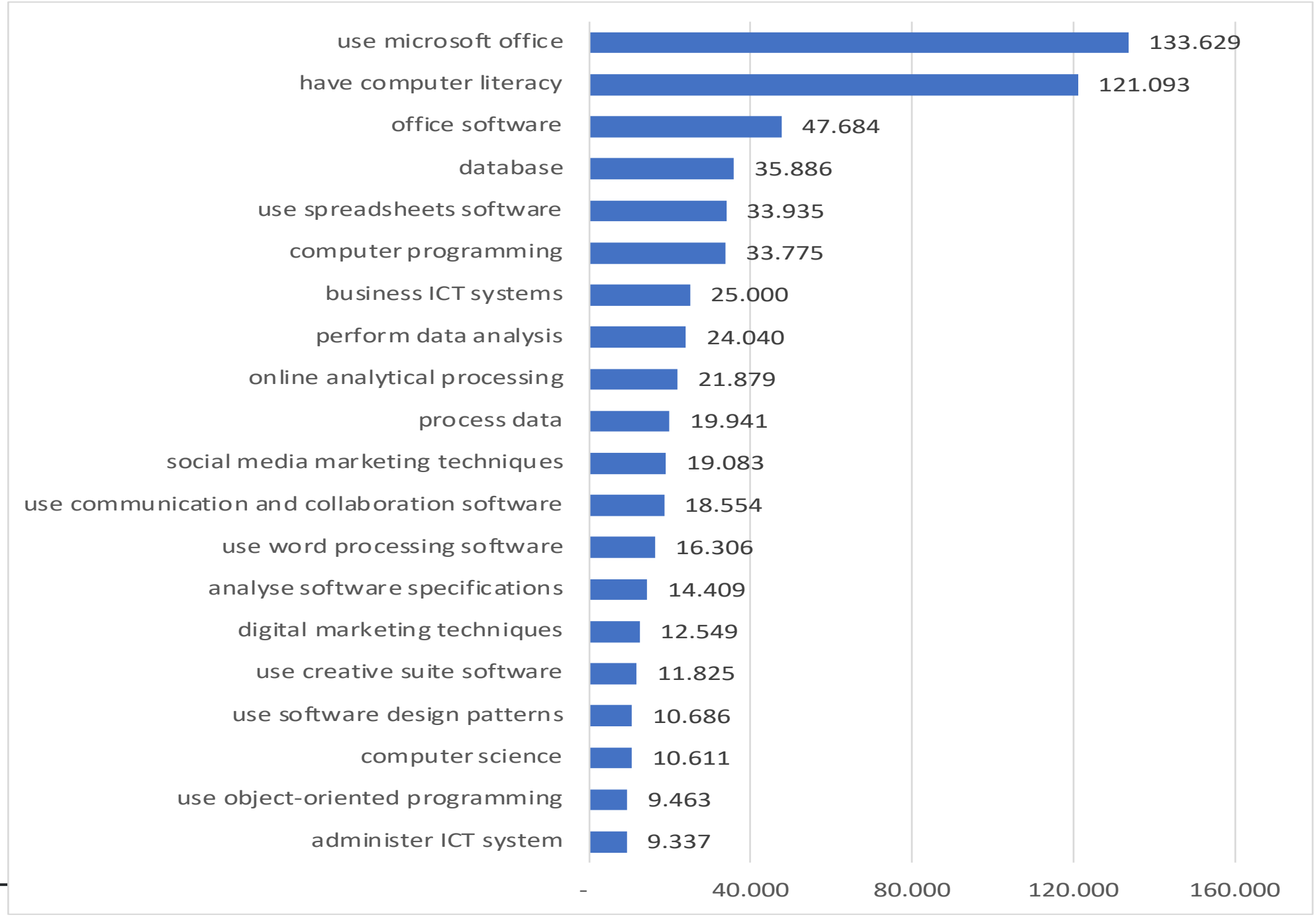
It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including coding), security (including digital wellbeing and cybersecurity-related skills), intellectual property issues, problem-solving and critical thinking.

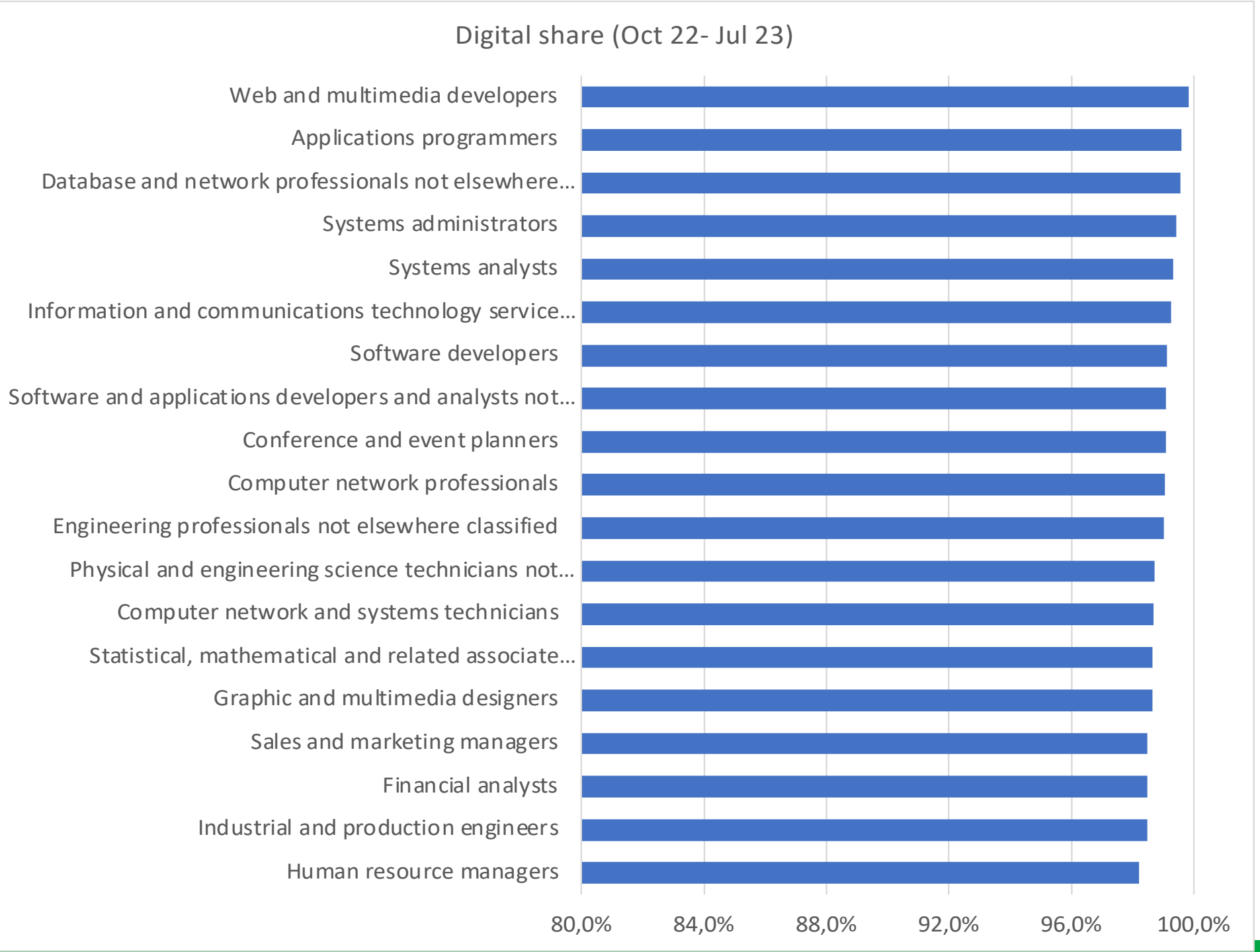
ACQF

Top 20 digital skills in Job Postings (online)

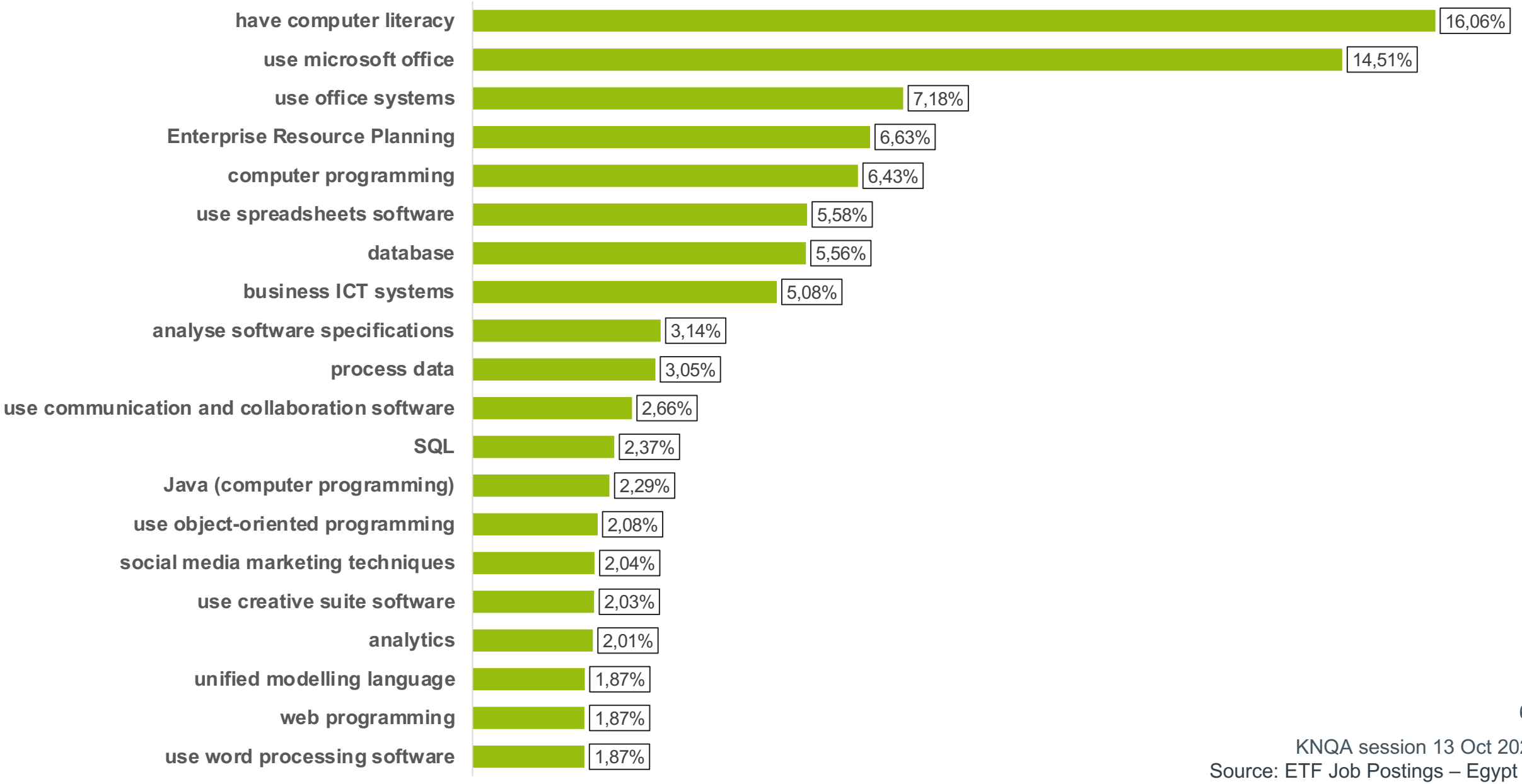
Digital skill		Unique Job postings (Oct 22-Jul 23)
use microsoft office	21,2%	133.629
have computer literacy	19,2%	121.093
office software	7,6%	47.684
database	5,7%	35.886
use spreadsheets software	5,4%	33.935
computer programming	5,4%	33.775
business ICT systems	4,0%	25.000
perform data analysis	3,8%	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

Top 20 Digital skills




Digital share (Oct 22- Jul 23)
Web and multimedia developers
Applications programmers
Database and network professionals not elsewhere...
Systems administrators
Systems analysts
Information and communications technology service...
Software developers
Software and applications developers and analysts not...
Conference and event planners
Computer network professionals
Engineering professionals not elsewhere classified
Physical and engineering science technicians not...
Computer network and systems technicians
Statistical, mathematical and related associate...
Graphic and multimedia designers
Sales and marketing managers
Financial analysts
Industrial and production engineers
Human resource managers
80,0%
84,0%
88,0%
92,0%
96,0%
100,0%

DIGITAL SKILLS: TOP 20



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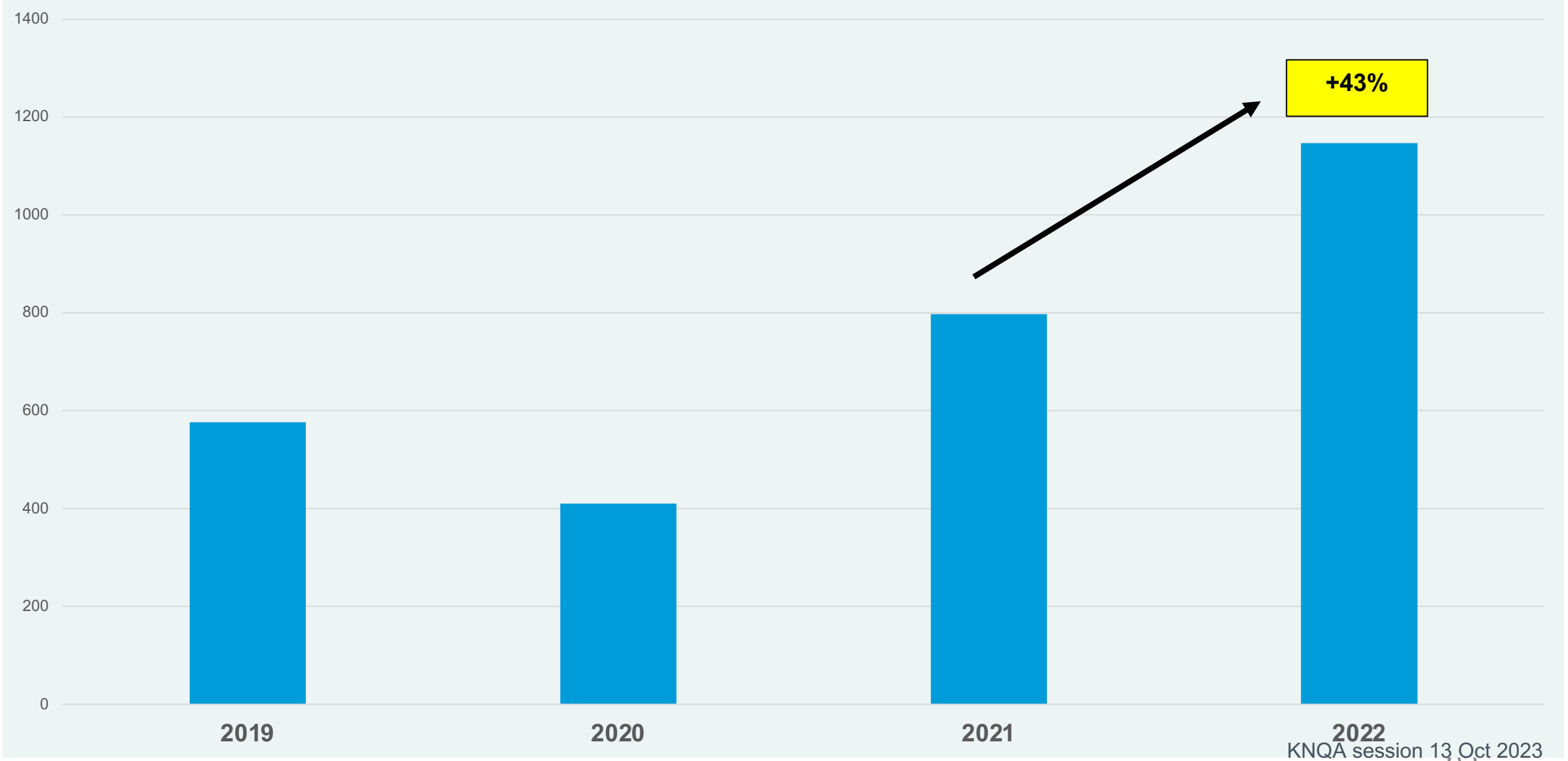
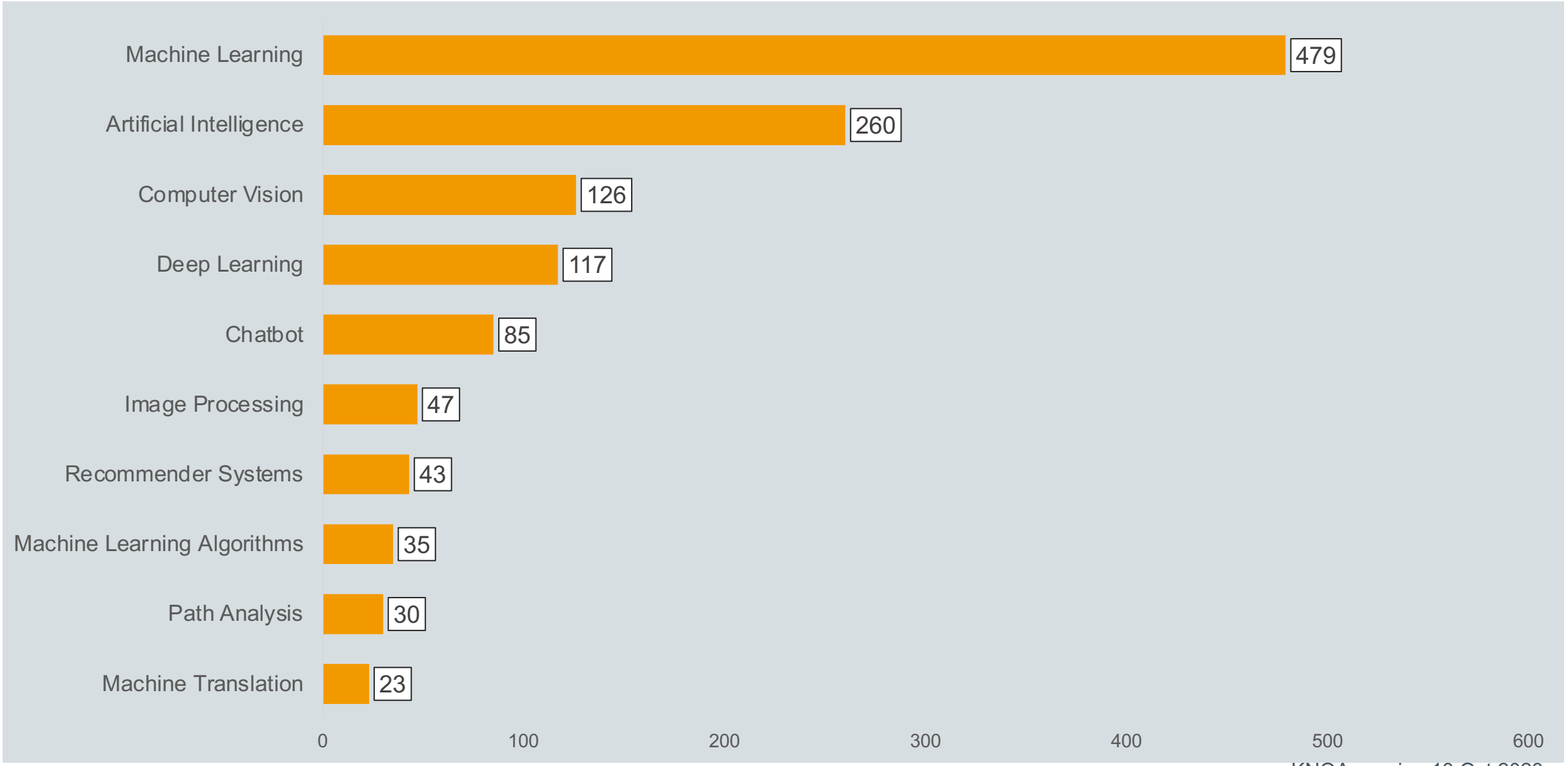
Source: ETF Job Postings – Egypt 2022

AI SKILLS: UNIQUE JOB POSTINGS



Source: ETF Job Postings – Egypt – Lightcast AI Skills list

AI SKILLS: TOP SKILLS IN OJV



Source: ETF Job Postings – Egypt – Lightcast AI Skills list

FINAL NOTES

1. Value of OJV data

- ***Near real-time data***
- ***Volume:*** allows different angles of analysis on skills and occupations; granularity
- ***Finder*!** Early spotting of new skills / new patterns of skills mix (digital, soft, technical, green…). For further analysis in combination with conventional statistical and other data sources
- ***Green and digital transition***: Identification of demanded skills; quantitative trends over time – by occupations and sectors; green and digital skills profiles of occupations; AI skills and occupations; and setting up international benchmarking / comparisons.
  - Identification of **green jobs** in high demand; lead industries and regions in green job creation; qualifications for green jobs
  - The evolution of the **digital skills** and new emerging occupations; growth in jobs requiring new knowledge & skills.
- ***Value-added to LMI and skills development policies and practices***: emerging trends in LM and skills; inform policy responses;

2. Limitations

- Over-representation of certain occupational groups (professionals – 55%); underrepresentation (in general occupations requiring lower level of skills and qualifications).
- Classification of OJV data: robust techniques, constant evolution, taxonomies in transformation.