Session 16
Use of Big Data and AI in Green Skills anticipation and qualifications management

3rd ACQF Forum: RPL for Practitioners

ACQF
African Continental
Qualifications Framework

Topics

- Measuring Green Skills and Jobs. A data-driven approach – data from African countries, based on employers' demand.
- Using AI in strategic management and comparison of qualifications.

Global job postings snapshot

	Africa	Global	Europe	North America	Asia	South America	Oceania
2023	2,796,104	165,390,867	74,645,707	48,593,581	22,516,258	14,957,862	1,881,355
2024	1,558,614	101,011,679	45,455,335	31,699,694	11,797,977	9,482,465	1,017,594
	4,354,718	266,402,546	120,101,042	80,293,275	34,314,235	24,440,327	2,898,949
2023 vs 2024	-17.07%	-10.20%	-10.21%	-7.77%	-18.36%	-3.58%	-23.79%
% vs Global 2023	1.69%	100.00%	45.13%	29.38%	13.61%	9.04%	1.14%
% vs Global 2024	1.54%	100.00%	45.00%	31.38%	11.68%	9.39%	1.01%

The comparison of Online Job Postings is based on January-August 2023 vs. the same period of 2024

Source: ETF & Lightcast Global Job Postings

Measuring Green Skills and Jobs. A data-driven approach – data from African countries, based on employers' demand

Lightcast

A green jobs definition

Concept of green jobs based on Eurostat methodology as Environmental Goods and Services Sector (EGSS)

It is heterogeneous set of producers of technologies, goods and services that prevent or minimise pollution and minimise the use of natural resources

Defining different green jobs

Primary Green Jobs: Jobs directly involved in the development, installation, or operation of renewable energy sources

Secondary Green Jobs: Working for a firm whose primary function is renewable energy, pollution reduction, or similar, but where the worker is not directly involved in one of the Primary Green Jobs described above.

Tertiary Green Jobs: Jobs with an emphasis on carbon reduction or similar in the description, not otherwise categorized above.

Potential Green Jobs: These jobs are such that workers would benefit from green skills for the greening to come.

Primary Green Jobs

Secondary Green Jobs

Tertiary Green Jobs

Potential Green Jobs

Source: Working Nations
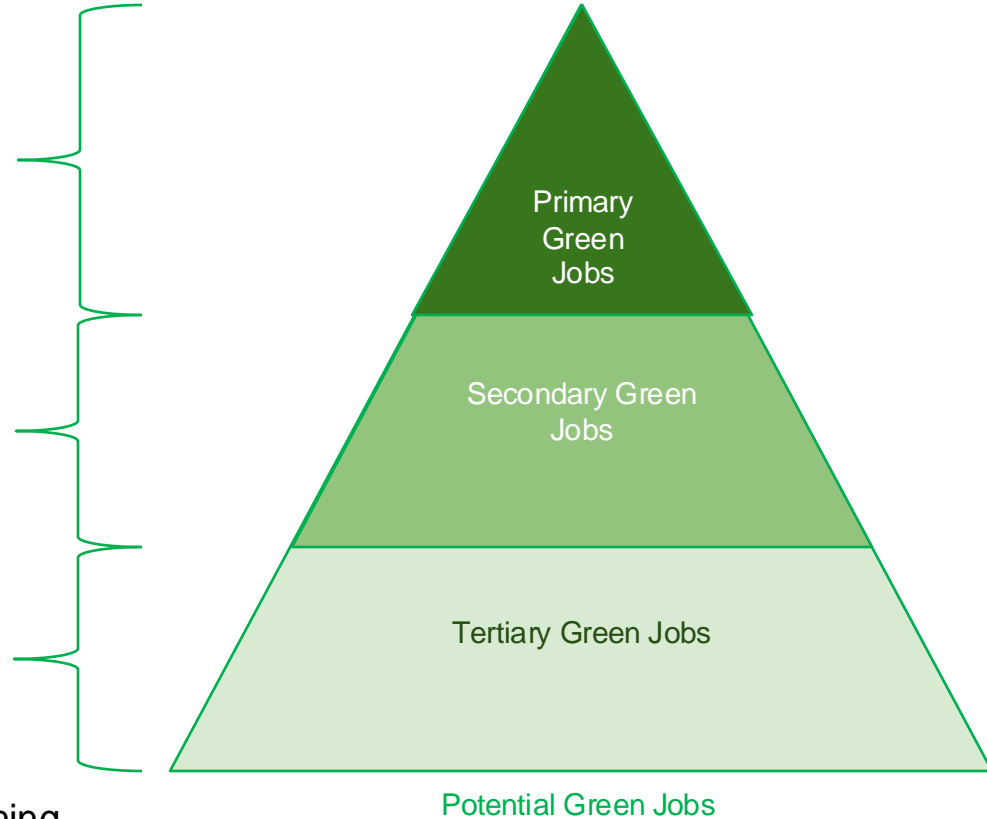
Green Skills clusters

Environment and Sustainable Tourism

This cluster encompasses skills related to managing natural ecosystems, such as forests and maritime areas, and includes competencies for promoting sustainable tourism.

Sustainable Agriculture

These skills focus on enhancing agricultural practices that are environmentally sustainable and beneficial for producers, consumers, and ecosystems.

Sustainable Construction

Skills under this cluster involve improving energy efficiency in buildings and aligning construction practices with the principles of a circular economy.

Sustainable Economy

This group refers to skills that support the broader concept of a circular economy, including resource efficiency and waste minimisation.

Sustainable Energy

Skills related to transforming energy production by integrating renewable sources, such as solar, wind, or hydro energy.

Sustainable Production

These skills are relevant for modifying existing production methods to reduce environmental impact and increase sustainability.

Sustainable Transport

This cluster involves competencies aimed at reducing emissions from transport, using alternative fuels and promoting mobility-sharing systems.

Green Skills - 279 unique skills

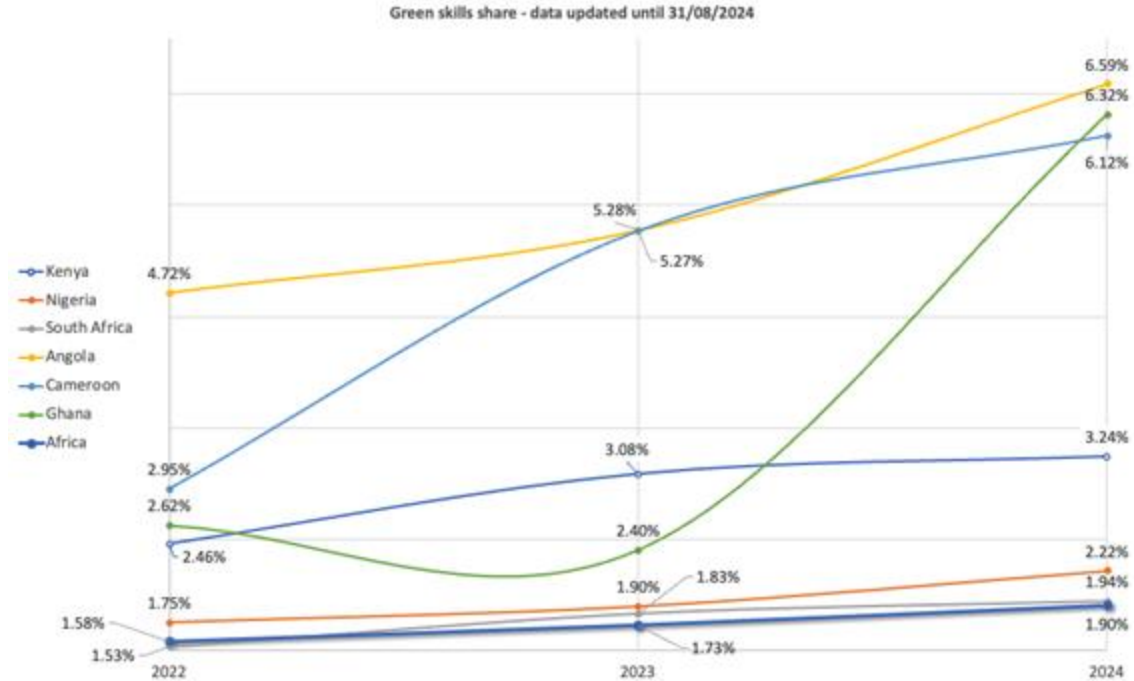# Green Jobs are on the rise, **but magnitude is different in different countries**

Green share is the share of OJAs containing at least one green skill on the total number of OJAs for a given occupation.

The green share in African countries shows a varied pace of growth. Angola, Cameroon, and Ghana led the growth trajectory, with notable increases by 2024, reflecting a significant focus on green initiatives.

Angola, for example, **moved from a mid-level share in 2022 to becoming a leader by 2024.**

Countries like Kenya, Nigeria, and South Africa exhibited slower growth, suggesting a need for enhanced green policy efforts to accelerate progress.

The overall green share for Africa rose only slightly, indicating **that broader continent-wide strategies are still required to support green transitions at scale**.

Green skills share - data updated until 31/08/2024

Legend:
- Kenya
- Nigeria
- South Africa
- Angola
- Cameroon
- Ghana
- Africa

Data points:
- 6.59%
- 6.32%
- 6.12%
- 4.72%
- 5.28%
- 5.27%
- 2.95%
- 2.62%
- 3.08%
- 3.24%
- 2.46%
- 2.40%
- 2.22%
- 1.75%
- 1.90%
- 1.83%
- 1.94%
- 1.58%
- 1.73%
- 1.90%
- 1.53%

X-axis: 2022, 2023, 2024

Source: ETF & Lightcast Global Job Postings

Demand for 'green' skills in Africa:
Rising demand for green skills reflects a shift towards sustainability

The data indicates a growing emphasis on green skills, with **Waste Management leading at over 10%**.

ISO 14000 standards and Renewable Energy skills also show strong demand, emphasizing the industry's move t**owards standardization and clean energy adoption**.

Climate-related skills, such as Climate Variability, Adaptation, and Photovoltaics, are gaining prominence, **showcasing a need for resilience in the face of climate change**.

These trends suggest that jobs across all sectors are increasingly incorporating green competencies, reflecting broader environmental awareness and a drive towards sustainability throughout the labor market.

Skills / skill set	%	Nº unique job postings
Waste Management	10.34%	20,494
ISO 14000 Series	8.90%	17,637
Renewable Energy	5.92%	11,743
Environmental Laws	5.30%	10,504
Environmental Protocols	5.08%	10,078
Climate Variability And Change	3.43%	6,807
Photovoltaics	2.40%	4,757
Energy Management	2.37%	4,696
Environmental Compliance	2.13%	4,220
Concentrix Solar	2.11%	4,189
Climate Change Adaptation	1.87%	3,716
Recycling	1.87%	3,704
Solar Systems	1.83%	3,623
Environmental Protection	1.78%	3,524
Energy Conservation	1.77%	3,514
Energy Consumption	1.48%	2,938
Environmentalism	1.30%	2,582
One-Line Diagram	1.27%	2,509
PVsyst	1.21%	2,397
Climate Resilience	1.15%	2,285

Source: ETF & Lightcast Global Job Postings

The leading green jobs in Africa reflect the continent's shift towards renewable energy and sustainability practices.
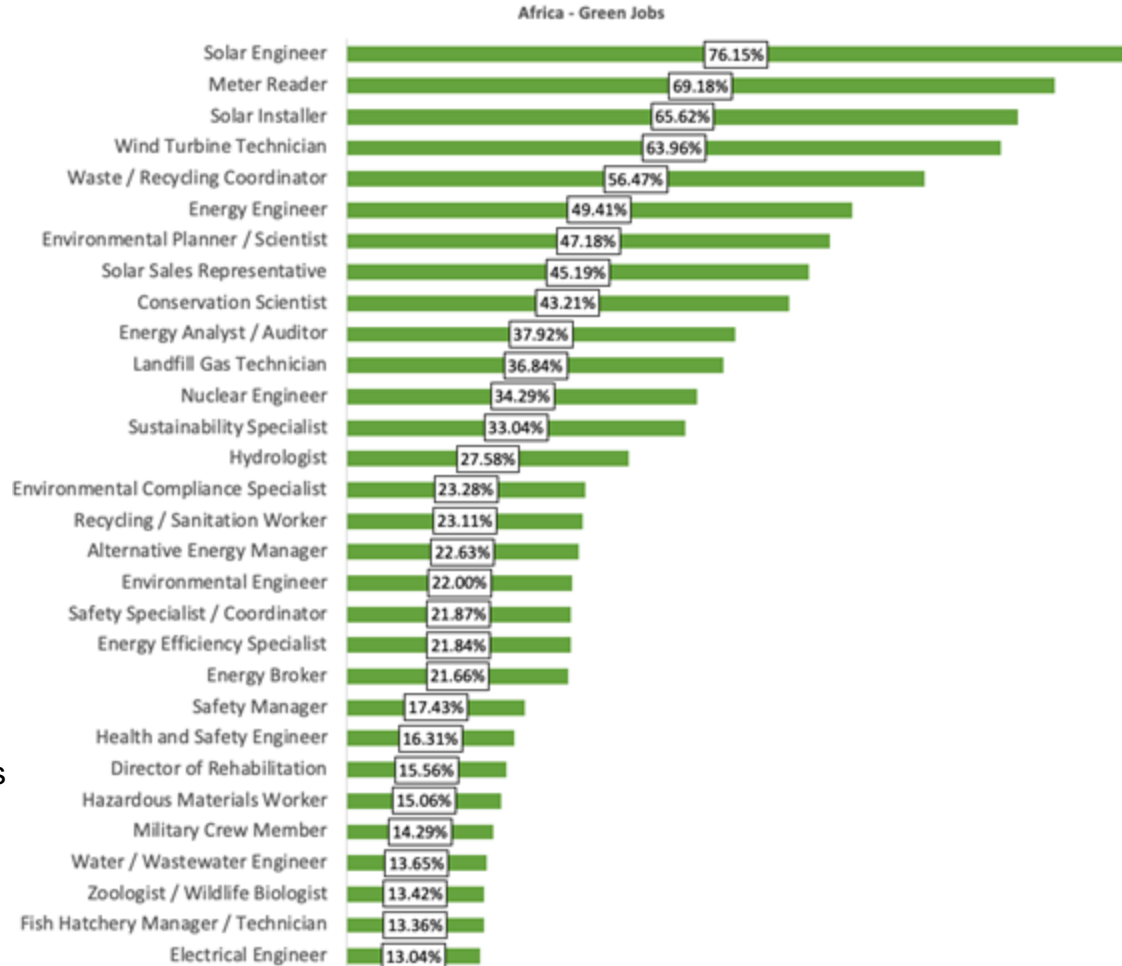
Solar Engineers have the highest green share at 76%, indicating significant demand for solar energy solutions.

Meter Readers, Solar Installers, and Wind Turbine Technicians also exhibit high green shares, ranging from 63% to 69%, emphasizing the f**ocus on energy transition**.

Waste/Recycling Coordinators and Energy Engineers show more than 45% green shares, suggesting a growing need for **waste management and energy efficiency**.

Environmental Planners and Conservation Scientists round out the top roles, indicating efforts to promote sustainable practices and environmental protection.
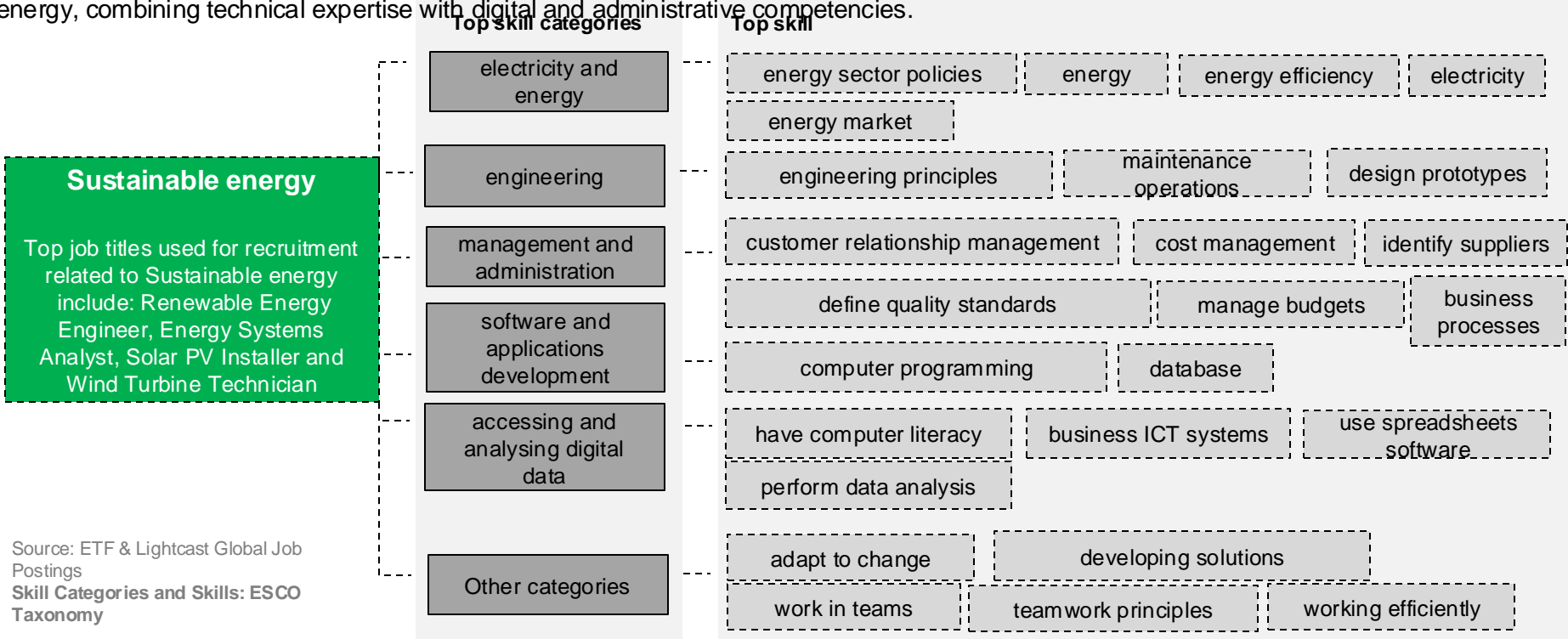
Top green jobs in Africa - Green Share

Africa - Green Jobs

Job	Green Share
Solar Engineer	76.15%
Meter Reader	69.18%
Solar Installer	65.62%
Wind Turbine Technician	63.96%
Waste / Recycling Coordinator	56.47%
Energy Engineer	49.41%
Environmental Planner / Scientist	47.18%
Solar Sales Representative	45.19%
Conservation Scientist	43.21%
Energy Analyst / Auditor	37.92%
Landfill Gas Technician	36.84%
Nuclear Engineer	34.29%
Sustainability Specialist	33.04%
Hydrologist	27.58%
Environmental Compliance Specialist	23.28%
Recycling / Sanitation Worker	23.11%
Alternative Energy Manager	22.63%
Environmental Engineer	22.00%
Safety Specialist / Coordinator	21.87%
Energy Efficiency Specialist	21.84%
Energy Broker	21.66%
Safety Manager	17.43%
Health and Safety Engineer	16.31%
Director of Rehabilitation	15.56%
Hazardous Materials Worker	15.06%
Military Crew Member	14.29%
Water / Wastewater Engineer	13.65%
Zoologist / Wildlife Biologist	13.42%
Fish Hatchery Manager / Technician	13.36%
Electrical Engineer	13.04%

Defining skill sets: bridging green skills demand with training and policy.
A framework skill set is a combination of abilities, knowledge, and expertise needed for specific tasks or roles. It helps align workforce skills with job demands and training needs.
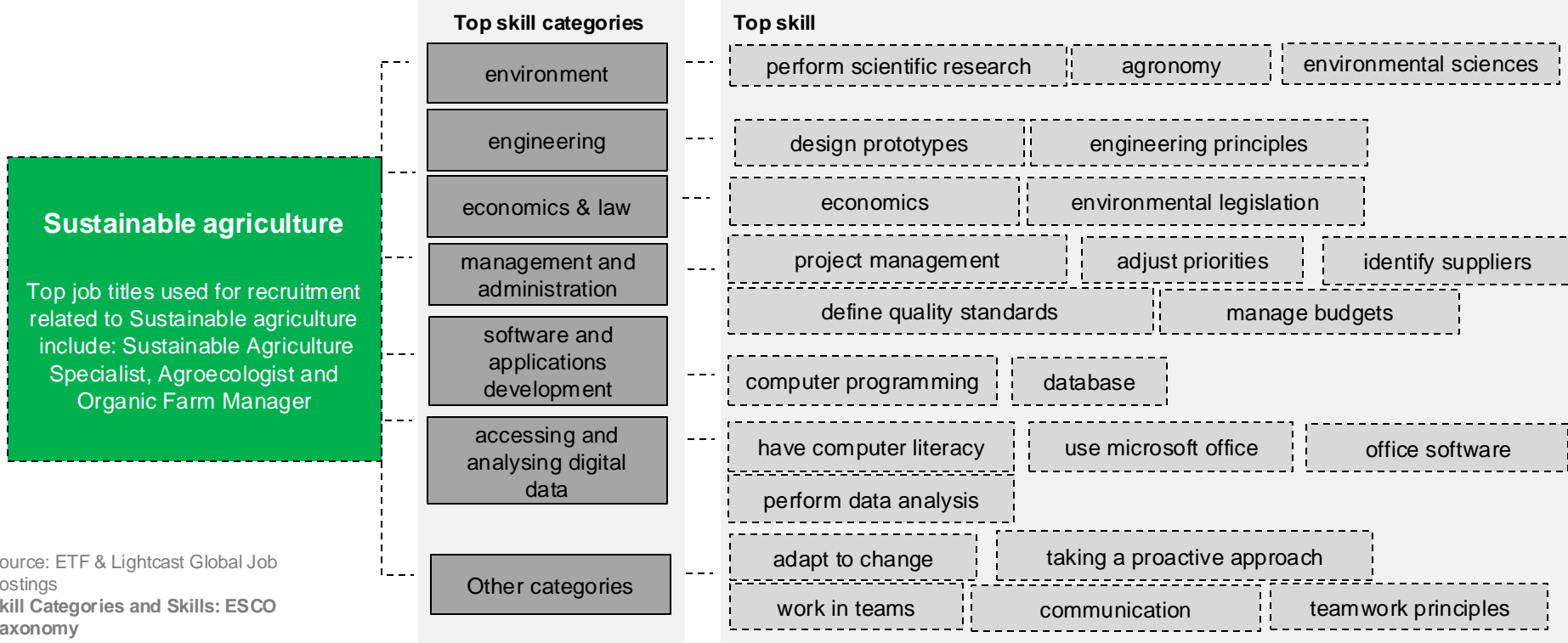
The sustainable energy framework highlights essential job roles and diverse skill categories, including technical knowledge (e.g., energy efficiency, engineering) and managerial skills (e.g., cost management, teamwork). It underscores the interdisciplinary nature of sustainable energy, combining technical expertise with digital and administrative competencies.

Top skill categories

Top skill

Sustainable energy

Top job titles used for recruitment related to Sustainable energy include: Renewable Energy Engineer, Energy Systems Analyst, Solar PV Installer and Wind Turbine Technician

- electricity and energy
  - energy sector policies
  - energy
  - energy efficiency
  - electricity
  - energy market
- engineering
  - engineering principles
  - maintenance operations
  - design prototypes
- management and administration
  - customer relationship management
  - cost management
  - identify suppliers
  - define quality standards
  - manage budgets
  - business processes
- software and applications development
  - computer programming
  - database
- accessing and analysing digital data
  - have computer literacy
  - business ICT systems
  - use spreadsheets software
  - perform data analysis
- Other categories
  - adapt to change
  - developing solutions
  - work in teams
  - teamwork principles
  - working efficiently

Skills Framework for sustainable agriculture jobs

This framework outlines key roles like Sustainable Agriculture Specialist and Organic Farm Manager, highlighting necessary skills across environmental sciences, engineering, economics, and digital data analysis to support sustainable agricultural practices.

Sustainable agriculture

Top job titles used for recruitment related to Sustainable agriculture include: Sustainable Agriculture Specialist, Agroecologist and Organic Farm Manager

Top skill categories

- environment
- engineering
- economics & law
- management and administration
- software and applications development
- accessing and analysing digital data
- Other categories

Top skill

perform scientific research	agronomy	environmental sciences
design prototypes	engineering principles	
economics	environmental legislation	
project management	adjust priorities	identify suppliers
define quality standards	manage budgets	
computer programming	database	
have computer literacy	use microsoft office	office software
perform data analysis		
adapt to change	taking a proactive approach	
work in teams	communication	teamwork principles

Forestry: Most In-Demand Green Skills in African countries

Top green skills in Africa - Green Share - **Forestry**

In the forestry sector, the data highlights several key skills in demand.

Climate Change Adaptation leads with a 7.25% share, followed by Climate Variability and Change (5.41%) and Reforestation (5.40%), indicating a focus on adapting to and mitigating climate impacts.

Forest Conservation is also high demand, with a 2.70% share, underscoring the importance of protecting forest ecosystems.

The skills in demand reflect a growing need for expertise in both climate resilience and conservation practices within the forestry industry.

Skills	Unique postings	Share%
Climate Change Adaptation	650	7.25%
Climate Variability And Change	485	5.41%
Reforestation	484	5.40%
Waste Management	465	5.19%
Climate Change Mitigation	464	5.17%
Environmental Laws	458	5.11%
Renewable Energy	316	3.52%
Environmental Protection	308	3.43%
Wildlife Conservation	295	3.29%
Climate Resilience	282	3.14%
Environmental Economics	251	2.80%
Forest Conservation	242	2.70%
Climate Policy	240	2.68%
Greenhouse Gas	233	2.60%
Water Conservation	224	2.50%
ISO 14000 Series	208	2.32%
Watershed Management	186	2.07%
Conservation Biology	176	1.96%
Environmental Protocols	162	1.81%
Environmental Compliance	148	1.65%

Green skills dashboard for African countries
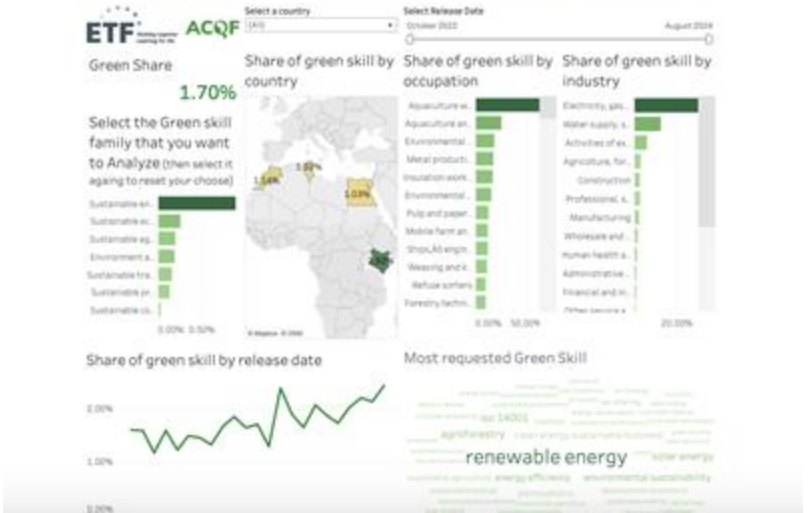
Using AI in strategic management and comparison of qualifications.

Impact of GenAI on Occupations and Organizations

GenAI

Effect on Current Tasks
GenAI has had, and will continue to have, an impact on the way work is done

*"Help build the future by designing **and leveraging Generative AI products** for our Cyber Security Teams to increase workplace efficiency and consistency"*
- Excerpt from Cybersecurity Analyst job posting, 2023

Future Additional Tasks
GenAI will change the profile of an organization and therefore add additional tasks for workers

*"As Company is ready to take the next step to advance **the company's adoption of generative AI**, this position will cover the information security […] assessment to ensure we have the right security control capabilities and roles integrated to achieve the company's AI objectives."*
- Excerpt from Cybersecurity Analyst job posting, 2023

Defining AI

Rich body of research and policy papers offering different definitions of AI

"*The science and engineering of making intelligent machines.*"

(Stanford University)

"*Systems and machines that mimic human intelligence to perform tasks and can iteratively improve themselves based on the information they collect.*"

(EUROSTAT)

"*Systems that show intelligent behaviour and can perform tasks with some degree of autonomy to achieve a given goal.*"

(European Commission)
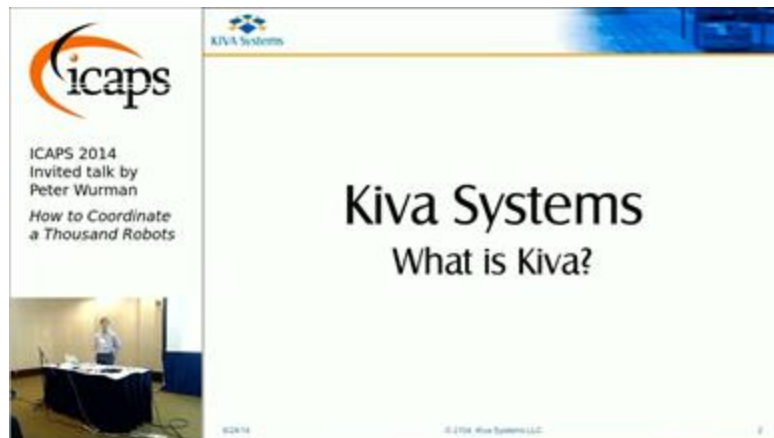
Big Data is the fuel of AI
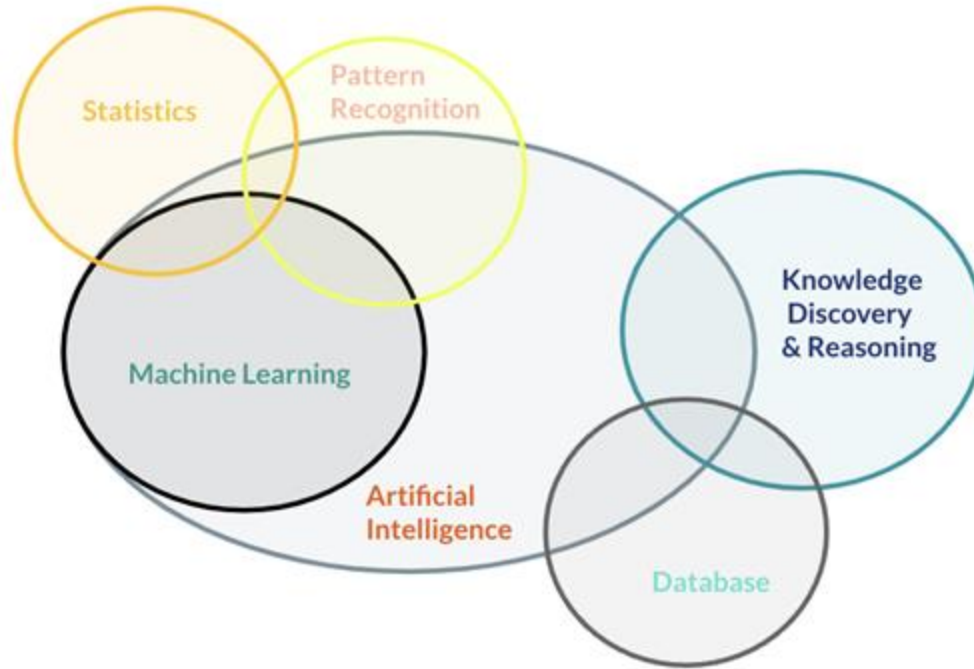
Big Data and AI (Source: ETF Big Data Capacity Development 2023-2024)

The evolution of AI

Rapid growth over the past 75 years - bigger models, faster developments
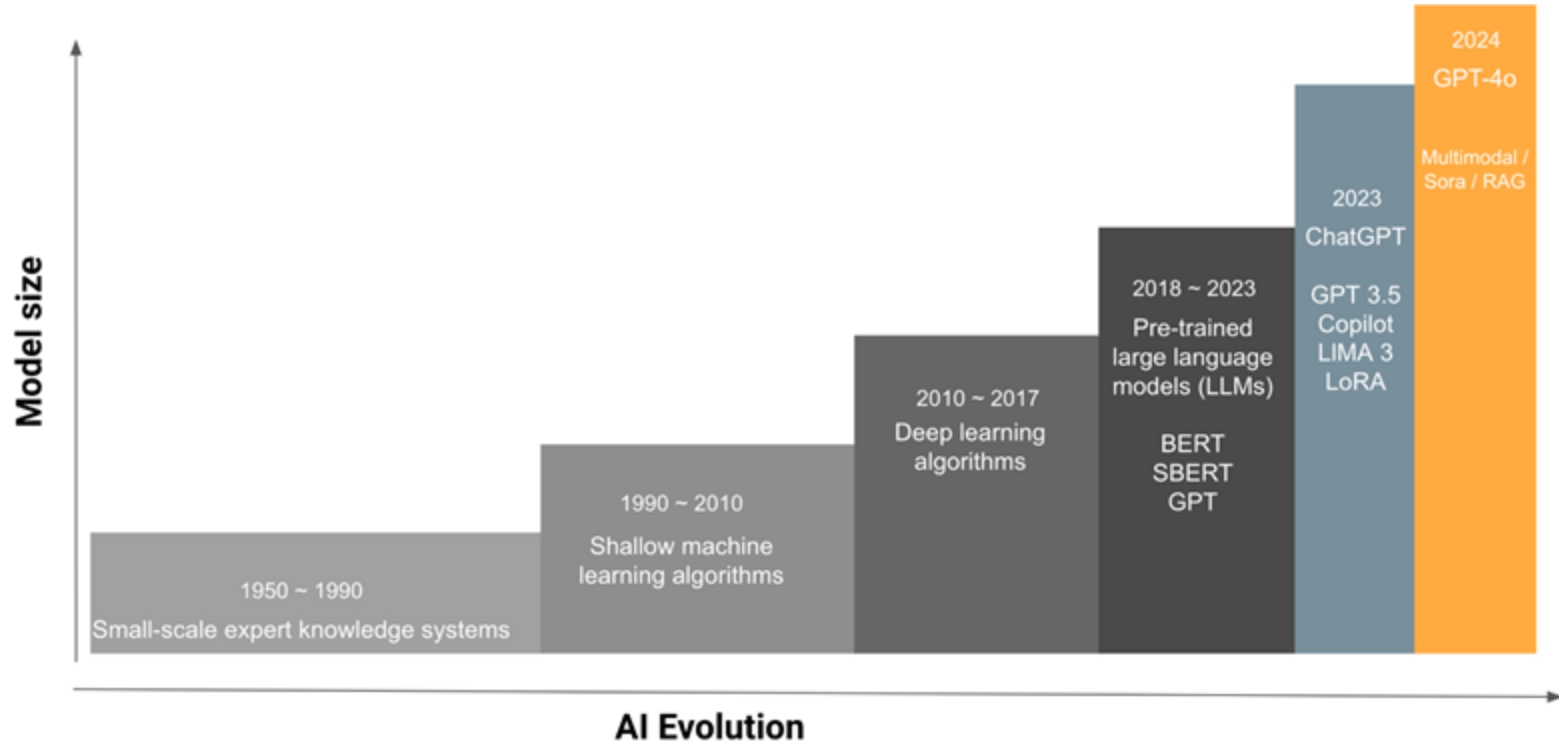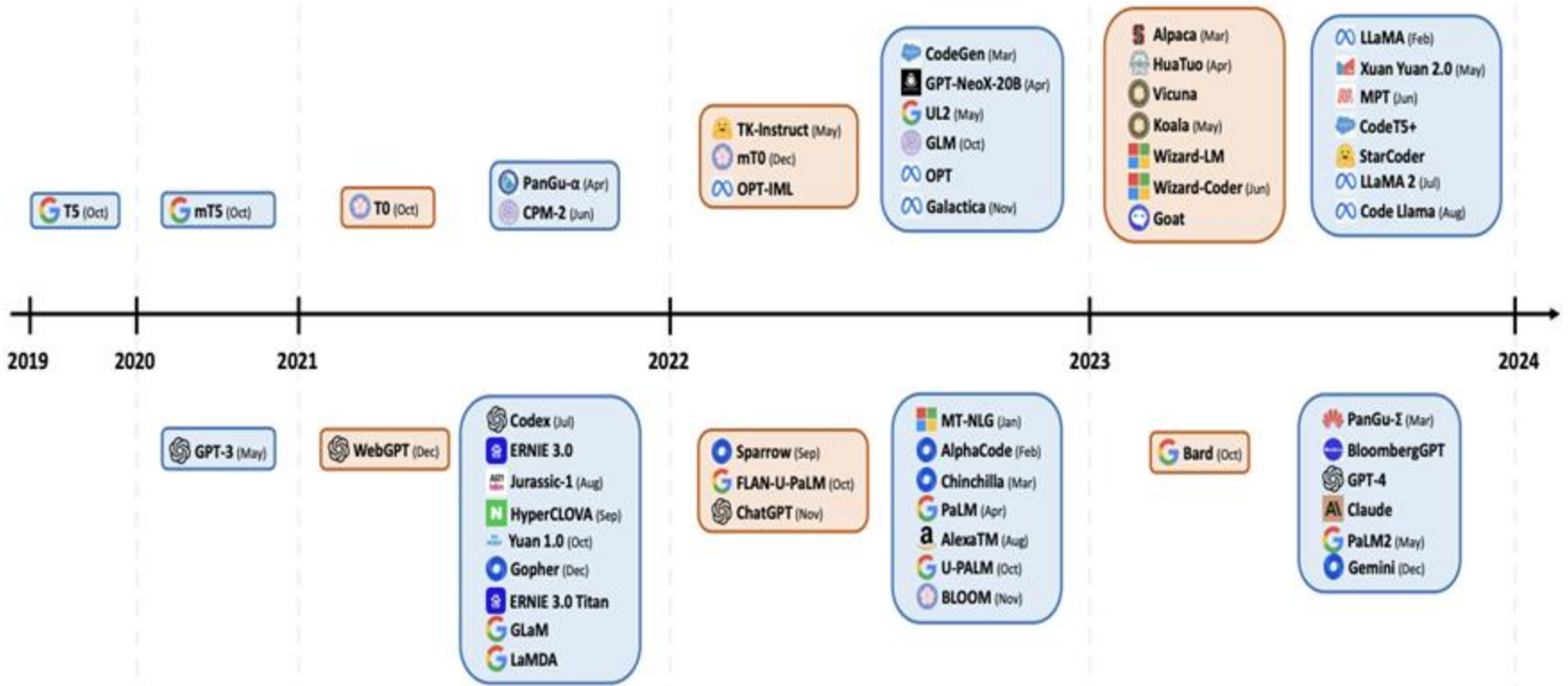
Naveed, Humza, et al. "A comprehensive overview of large language models." arXiv preprint arXiv:2307.06435 (2023).

Foundational concepts
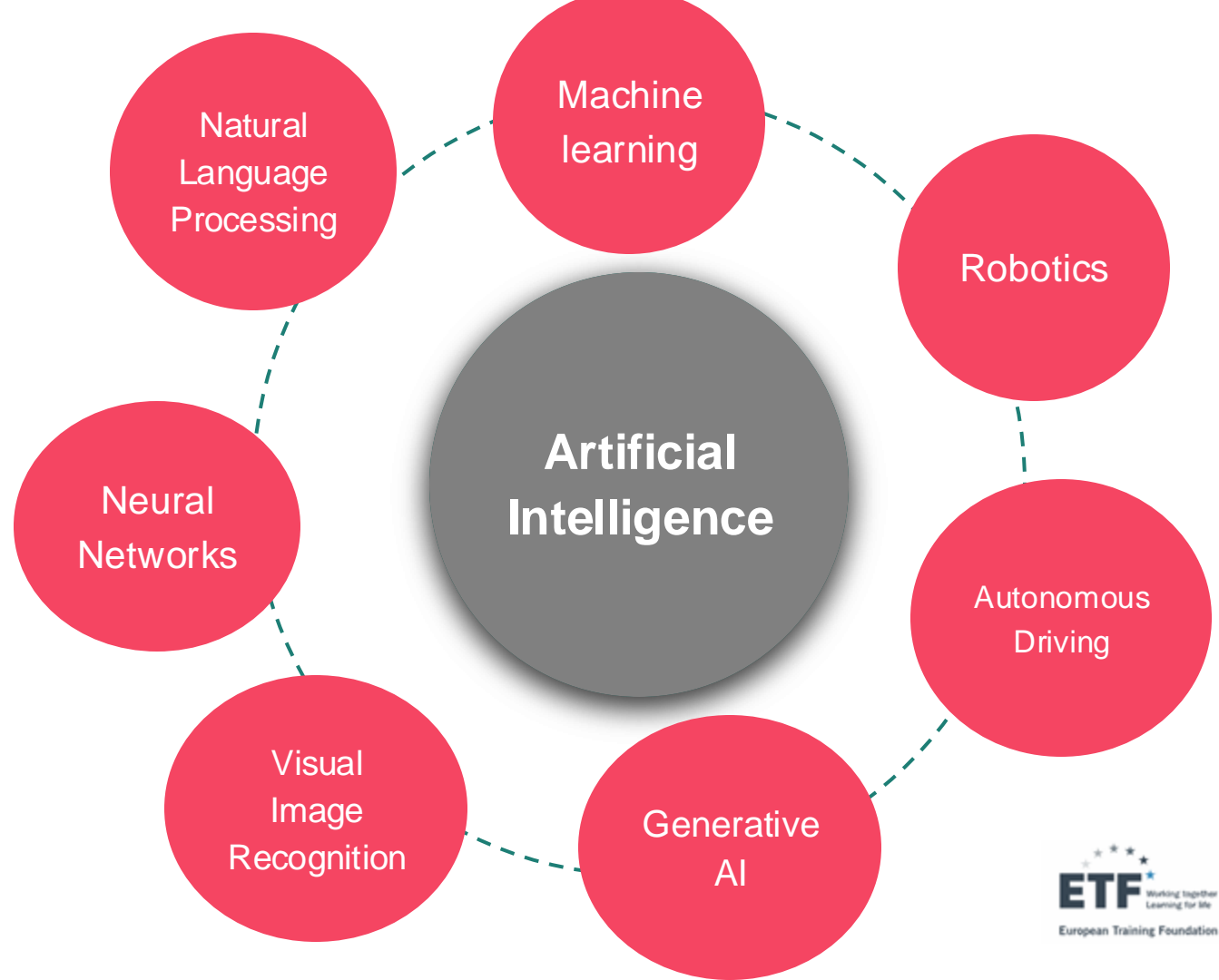
Generative AI

"*AI systems that **can create new content**, such as text, images or music, based on the data they have been trained on. These models use techniques such as neural networks and deep learning to generate outputs that mimic human-like creativity.*"

Generative AI

- Large Language Modeling
- ChatGPT
- Prompt Engineering
- Generative Adversarial Networks

ETF
Working together
Learning for life

European Training Foundation
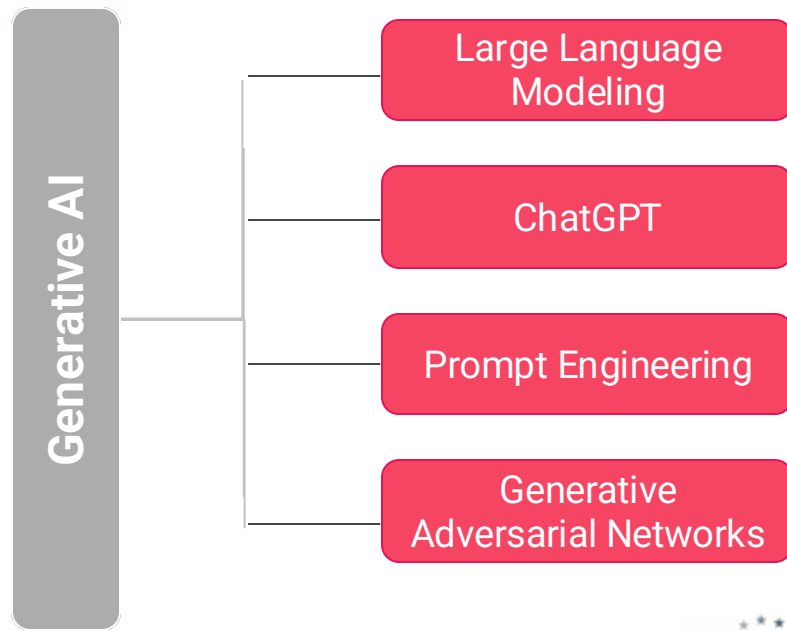
Labour market impact

Profound impact on jobs and the way we work

Job creation

- Prompt engineers
- AI engineers and technicians
- AI content writers
- …

Task augmentation

- AI virtual assistant supporting researchers with literature review
- ChatGPT for supporting writing an translations
- …

New career pathways

- A graphic designer into a UX designer
- An event planner into a PR agent
- A proofreader into a translator
- …

ETF Working together Learning for life
European Training Foundation

The prevalence of AI titles in online job postings has grown rapidly in recent years

The most common AI titles include **Artificial Intelligence Engineers, Architects, and Scientists**

There is a notable growth in writing-related positions such as **AI Content and Technical Writers**

Three areas where organizations utilize AI skills:
- **Building new products**
- **Enabling new processes**
- **Improving operations**

Job postings for AI titles as a % of total job postings

+21.2%

0.060%	
0.050%	
0.040%	
0.030%	
0.020%	
0.010%	
0.000%	2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024
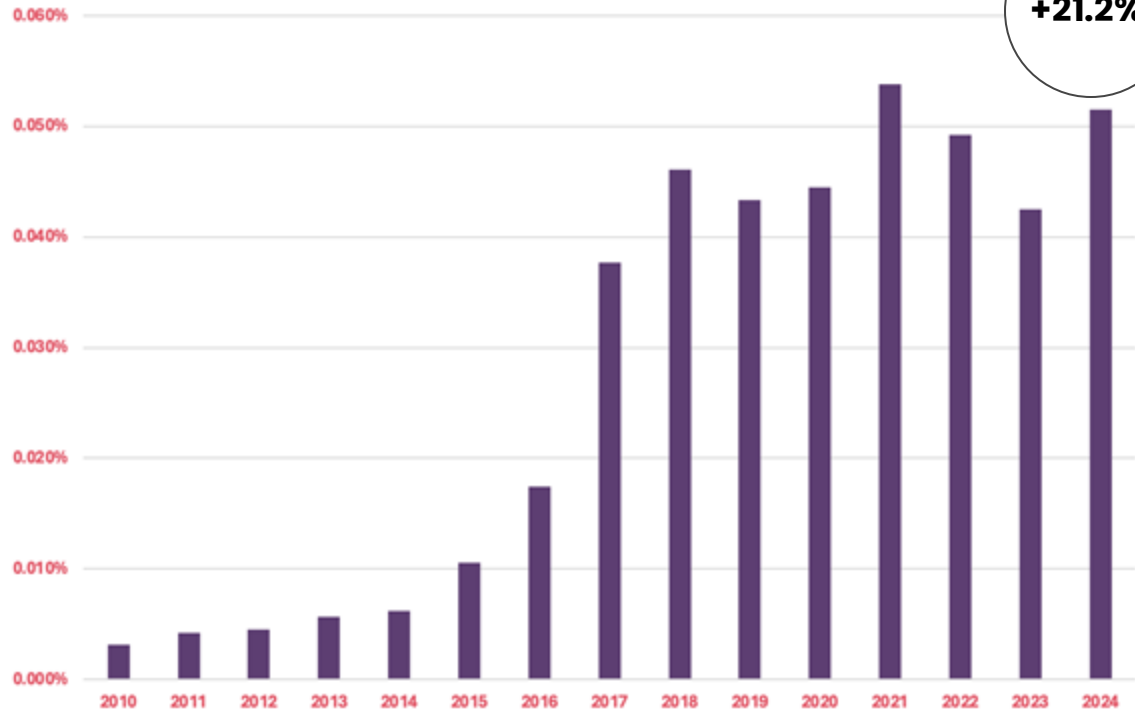
Source: Lightcast Global Job Postings

The AI skills most mentioned in the labour market

Globally, AI, Machine Learning, and Apache Spark are the most in-demand AI skills

Source: Lightcast Job Postings

Building new products: the emphasis is on job titles associated with computer programming, data science and robotics.
Machine learning and model training are the most in-demand skills.

Share of job postings requesting any AI skill - Distribution of AI job postings by AI skill cluster - 2023

Job Title	Share
Computer Vision Engineer	89.76%
Remote Sensing Technician	82.48%
Data Scientist	69.89%
Big Data Architect	50.53%
Computational Biologist	44.85%
Robotics Software Engineer	42.35%
Computational Chemist	41.02%
Data Engineer	33.72%
Robotics Engineer	27.38%
Bioinformatician	24.54%
Robotic Process Automation Developer	20.41%

AI skill cluster distribution:
- Artificial Intelligence — 26.96%
- Visual Image Recognition — 4.90%
- Autonomous Driving
- Natural Language Processing — 6.41%
- Machine Learning — 43.88%
- Robotics
- Neural Networks — 8.67%

Enabling new processes: among roles that are requesting AI, job postings imply that HR managers and Operations Managers are leveraging GenAI the most

Distribution of AI job postings by AI skill cluster, 2023

Managers

Operations Manager: 39.3% | 7.6% | 3.4% | 30.7% | 14.3%

Medical Office Manager: 33.2% | 0.5% | 35.3% | 15.4%

Marketing Manager: 46.1% | 6.2% | 33.0% | 9.1%

Human Resources Manager: 34.6% | 4.4% | 37.4% | 14.1%

Non-Managers

Training and Development Specialist: 33.7% | 2.8% | 36.9% | 11.0%

Technical Writer: 43.0% | 12.2% | 24.0% | 12.6%

Logistics Engineer: 45.0% | 12.0% | 25.0% | 6.0%

Graphic Designer: 69.1% | 7.4%

Legend:
- Artificial Intelligence
- Autonomous Driving
- Generative AI
- Machine Learning
- Natural Language Processing
- Neural Networks
- Robotics
- Visual Image Recognition

Improving operations: employers ask individual contributors to *use AI to augment tasks*, and managers to determine *how to use AI to augment processes*

Share of job postings requesting any AI skill by professional group

Legend:
- Armed Forces
- Craft & Maintenance
- Support
- Managers
- Operators
- Agriculture
- Technicians
- Elementary Occupations
- Service and Sales
- Professionals

Bar chart values: 11.58% | 9.98% | 12.21% | 31.09% | 23.75% | 1.49%
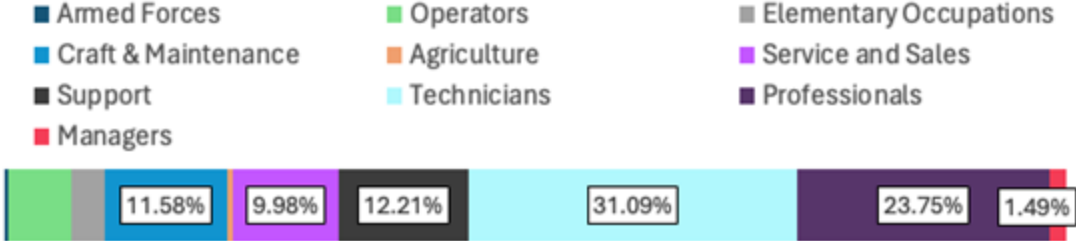
AI use-cases in job postings	
Productivity	Use software and platforms with embedded AI applications Use computer vision systems to inspect and identify defects in manufactured products
Analysis	Organize and analyze data sets to generate meaningful, actionable insights Using AI algorithms to analyze sensor data Utilizing AI techniques such as machine learning to detect fraudulent activities in financial transactions
Strategy	Develop and implement AI strategies Develop and implement process automation strategies Develop change management strategies for AI tools
Ethical AI	Evaluate the ethical implications of AI applications

Non-IT occupations are evolving

AI skills, especially Generative AI, are also demanded outside of tech roles

Share of job postings requesting Generative AI skills, 2023
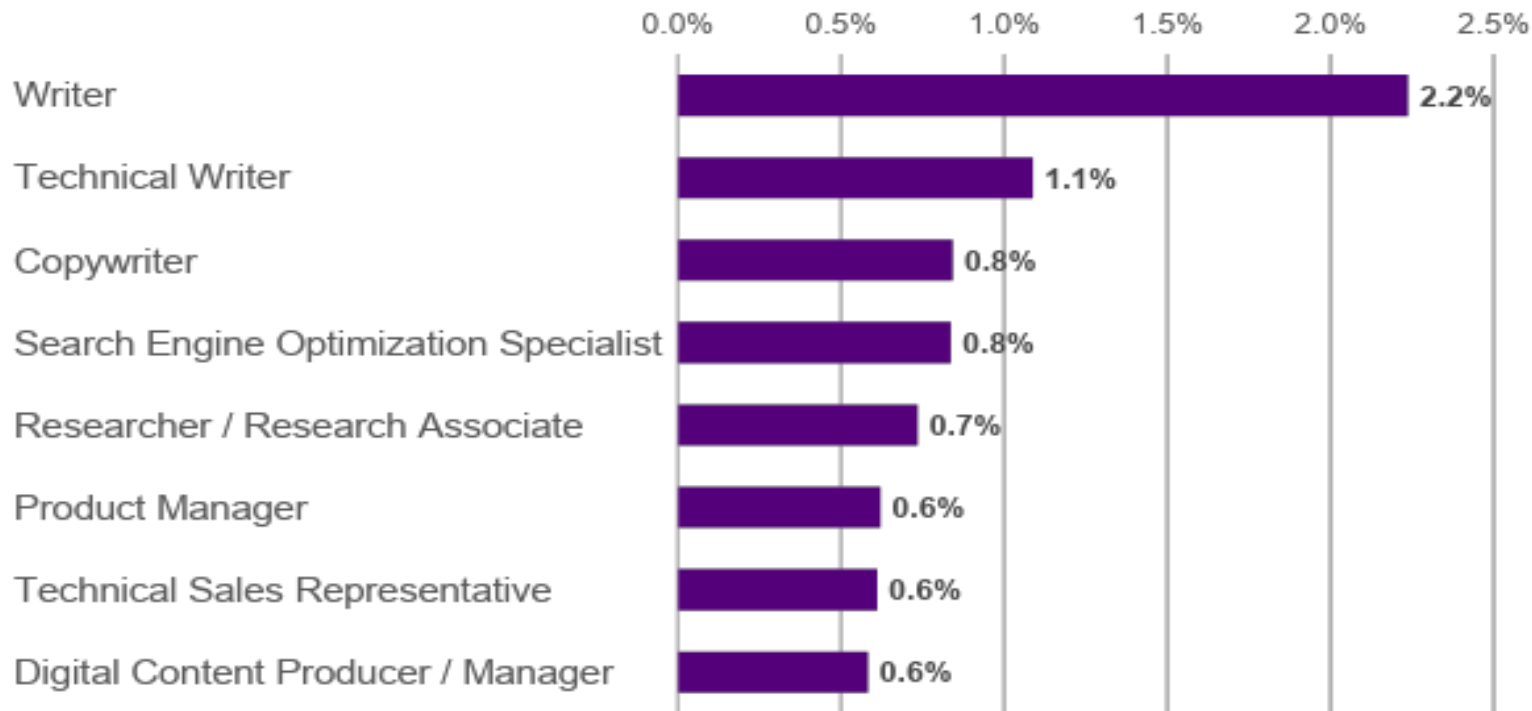
Source: Lightcast Job Postings

Artificial General Intelligence (AGI) has the potential to bring about enormous productivity gains for individual tasks, but the economic impacts at scale are still being determined.

Task level example

70%
productivity improvement for generating new code

Occupation level example

14%
improvement in call center agents' overall productivity

Economy level example

<1%
of occupations have more than 60% of their workload currently automatable by AI

**AI in education
two pillars:**

**1. Learning AI
2. Learning with AI**
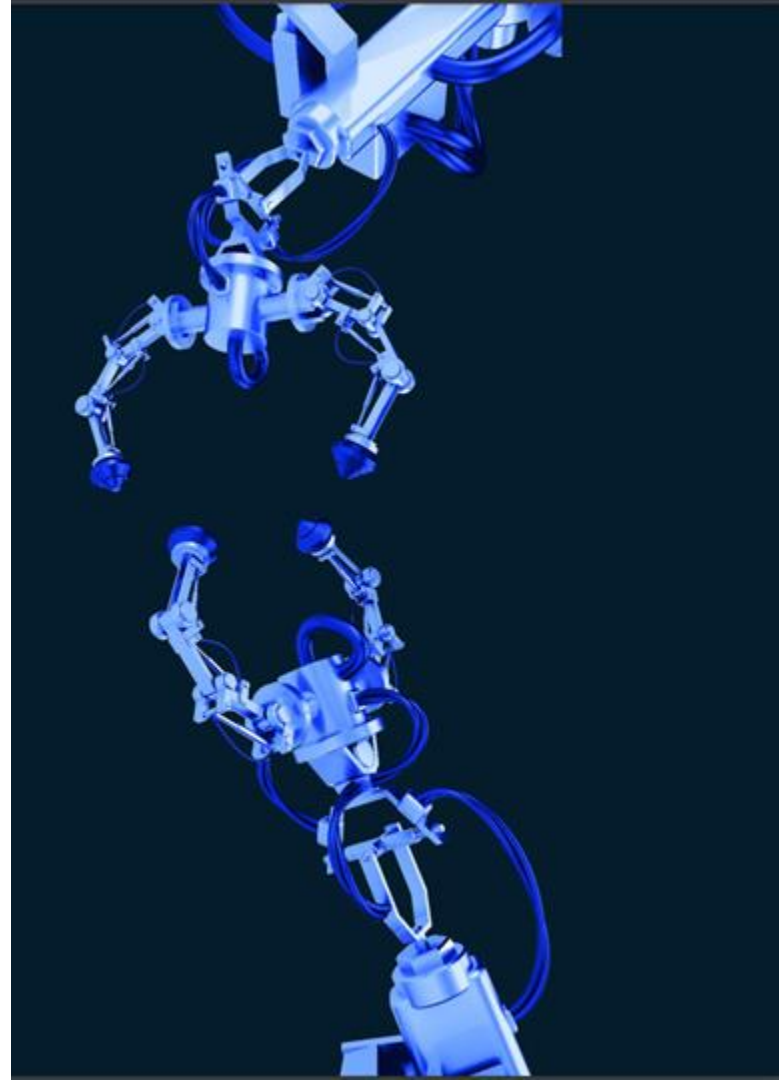
Learning AI: Graduate Career Explorer is a tool to support students in finding the best pathways from University courses to the labour market

«In our environment of AI acceleration and uncertainty, we need education systems that help our societies construct ideas about what AI is and should be, what we want to do with it, and where we want to construct guardrails and draw red lines. Too often we only ask how a new technology will change education.»

A more interesting question is: How will education shape our reception and steer the integration of new technology – both technology that is here today and technology that remains on the horizon? Our education systems can define a trajectory and establish norms for how we understand world-changing technology – and, by extension, how we allow it to influence us and our world. This is perhaps the 'raison d'être' of education: to help us make informed choices of how we want to construct our lives and our societies.»

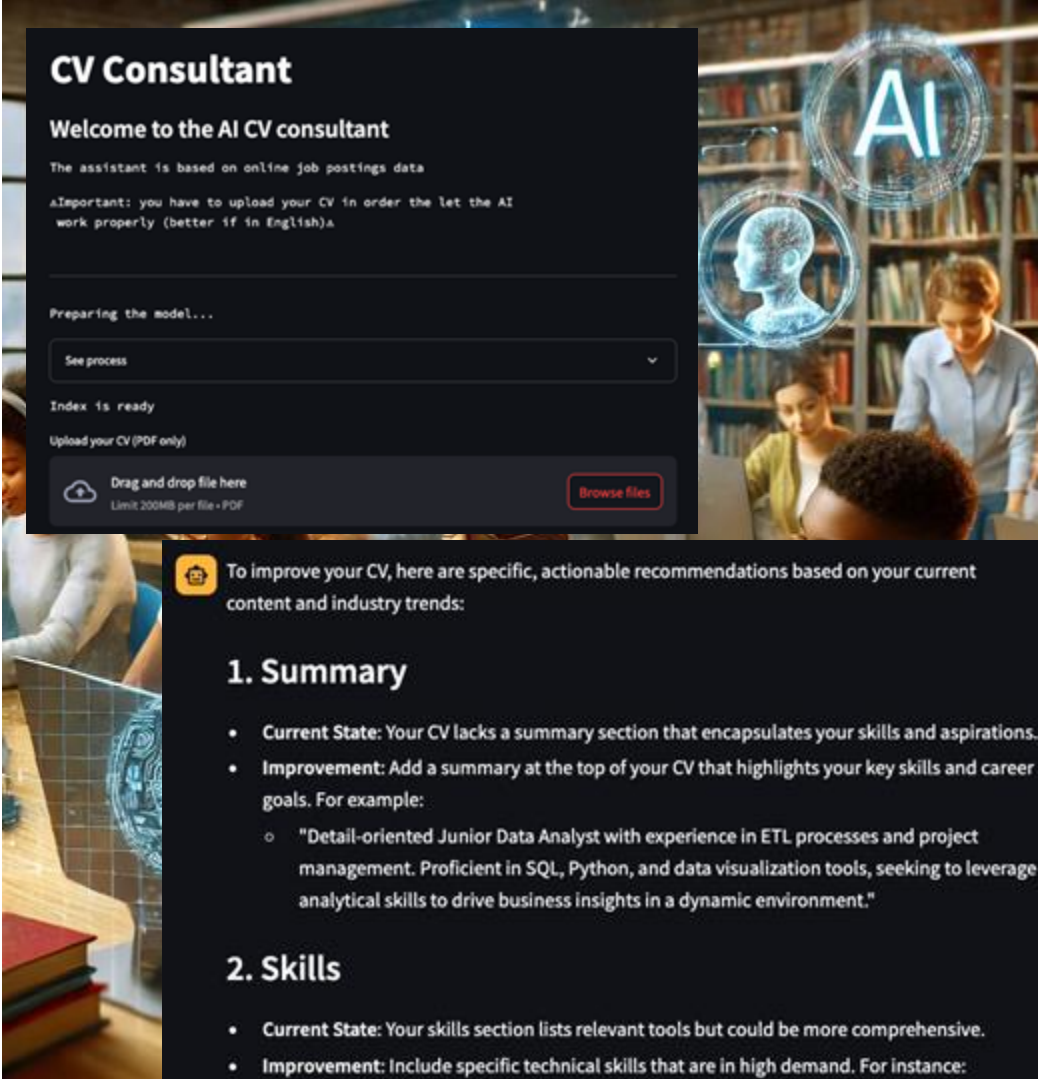UNESCO, 2023 – GAI and Education

Learning with AI: enhancing resumes using generative AI and online job postings data

Generative AI can be used to significantly improve resumes by tailoring them to the specific demands of the current job market.

By analyzing online job postings, AI can identify the most in-demand skills, qualifications, and keywords for a given role. Using this information, generative AI tools can automatically update a resume, adding relevant skills and phrasing to better match job descriptions. **The process helps job seekers understand which skills are most valued in their desired field, guiding them in upskilling efforts to align more closely with industry needs.**

By learning from and incorporating job posting data, AI ensures resumes are always current, tailored, and impactful in the competitive job market.

https://cv-consultant.streamlit.app/

CV Consultant

Welcome to the AI CV consultant

The assistant is based on online job postings data

≈Important: you have to upload your CV in order the let the AI work properly (better if in English)≈

Preparing the model...

See process

Index is ready

Upload your CV (PDF only)

Drag and drop file here
Limit 200MB per file • PDF

Browse files

Learning with AI: enhancing resumes using generative AI and online job postings data

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https://cv-consultant.streamlit.app/

Learning with AI: using occupation profiles as a new way to navigate qualifications and choose the best pathways

Common Occupational Profiles: A data-driven definition of a job, with the focus on skills insights.

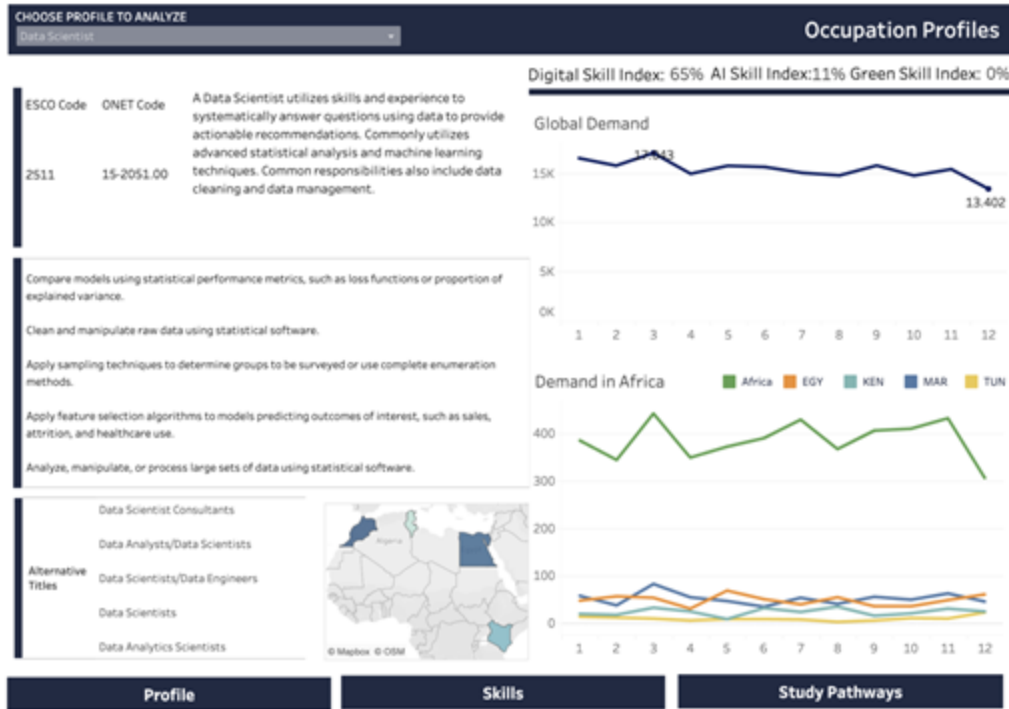They mix conventional data and new metrics to inform

about the demand and the possible study pathways to an occupation (qualification).

From skills data to common occupational profiles

Skills frequency and international taxonomies are the starting point…

The dashboard introduces the user with the possibility to choose a specific profile and get the following information regarding it:

- Description of the chosen profile
- Correspondence of chosen profile with profiles from ESCO and ONET taxonomies
- Task Description provided by ONET
- Alternative job titles the profile is presented on the market
- Global Demand (number of job postings) for the job profile within 2023
- Demand within all the African countries and 4 countries Egypt, Kenya, Morocco and Tunisia specifically

How to inform on skills trends?

Defining, distinguishing and necessary skills

1. Defining Skills represent the day-to-day tasks and responsibilities of the job. An employee needs these skills to qualify for and perform successfully in this occupation.

2. Distinguishing Skills are advanced skills that are called for occasionally. An employee with these skills is likely more specialised and able to differentiate themselves from others in the same role.

3. Necessary Skills are specialised skills required for that job and relevant across other similar jobs. An employee needs these skills as building blocks to perform the more complex Defining Skills.

From skills data to common occupational profiles

Capture and compare emerging trends

The Skills section in the dashboard analyzes skills for the selected job profile:

- Top Specialized skills by recall of skills within the available job postings Globally, within EU and among job postings of specific 4 countries in Africa. Recall is shown as a % share of available skills
- The data is color coded by the projected skill growth on the market. The exact value of the projected growth can be seen upon hovering on the skill in the skill Tooltip
- Tooltip also demonstrates the detailed description of the skill

Area: EU
Skill Name: Algorithms
Skill Growth: 7,82%
Frequency in the Market: 25,00%
Difficulty to Fill: High difficulty to fill
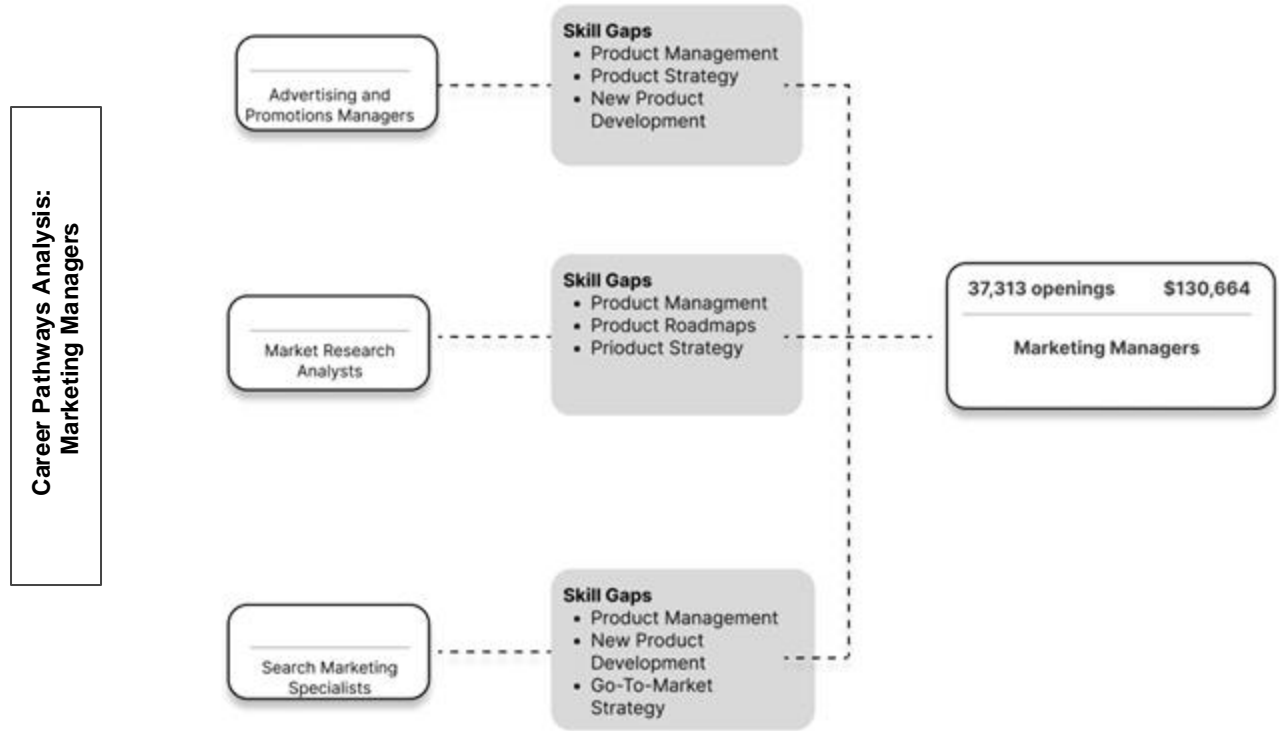ESCO Label:
algorithms

Description: Algorithms is a specialized skill that involves developing a logical process or a set of rules to solve a problem or perform a particular task. It entails identifying the steps required to solve a problem efficiently and optimizing them to minimize time complexity and maximize performance. Algorithms are used in various fields such as computer science, mathematics, and engineering, and require expertise in data structures, programming languages, and problem-solving techniques. Developing effective algorithms is a critical skill for software developers, data scientists, and other professionals who work with large datasets and complex systems.

Next-Step Jobs: Career and Study Pathways

Career Pathways enables education providers to identify common skills requirements to advance the local workforce into a need-to-fill role.

Pathways are built between roles with strong skill adjacencies, and specify the last-mile skill gaps that can be addressed with targeted training.

Career Pathways Analysis: Marketing Managers

Advertising and Promotions Managers

Skill Gaps
- Product Management
- Product Strategy
- New Product Development

Market Research Analysts

Skill Gaps
- Product Managment
- Product Roadmaps
- Prioduct Strategy

37,313 openings $130,664

Marketing Managers

Search Marketing Specialists

Skill Gaps
- Product Management
- New Product Development
- Go-To-Market Strategy

40

From skills data to common occupational profiles

Identifying career and study pathways

The section analyzes the pathways for the selected profile: **career pathways** related to the specific profile and **educational pathways** leading to them.

For the selected profile, list of occupations are presented, distributed by 4 different hierarchical categories: Advancement, Lateral Advancement, Lateral Transition or Similar level. For each of them, the index of similarity is given.

Upon selecting specific career, user can also see the skill gap existing from the chosen profile and the original profile of the analysis. The skills are color coded by the skill weight to analyze the gap.

User is also presented with the list of the degrees connected to the profile of analysis at various locations in African countries.

What does this mean for policy-makers and education providers?

Policy-makers and education providers need to work together to link qualifications and demanded skills to respond to a rapidly changing labour market.

- **Planning and development:** which courses are more likely to provide students a strong career outcome?

- **Inform students:** communicate to students how your courses will prepare them for their future.

- **Course design:** what knowledge, competencies and attributes does a course need to develop to prepare students for the world of work?

- **Careers advice:** empower careers advisors with detailed insights to enrich their guidance, unlocking new possibilities for students.

- **Civic engagement:** engage with wider stakeholders with a common language of data.

Thanks !

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Appendix

Lightcast

What are the impacts on the Labour Market?

Some of the 2024 Key Trends

Talent shortage

- Digitalization of professions

- Relevance of Soft skills

- New professions and skills emerging

- Green economy and sustainability

- Artificial intelligence

What a billion of job postings can tell us

Vs. traditional labour market information from official statistics

As a result, job postings data help us draw actionable insights

Greater speed and granularity compared to survey-based instruments

Insights into real world demand for skills directly from employers
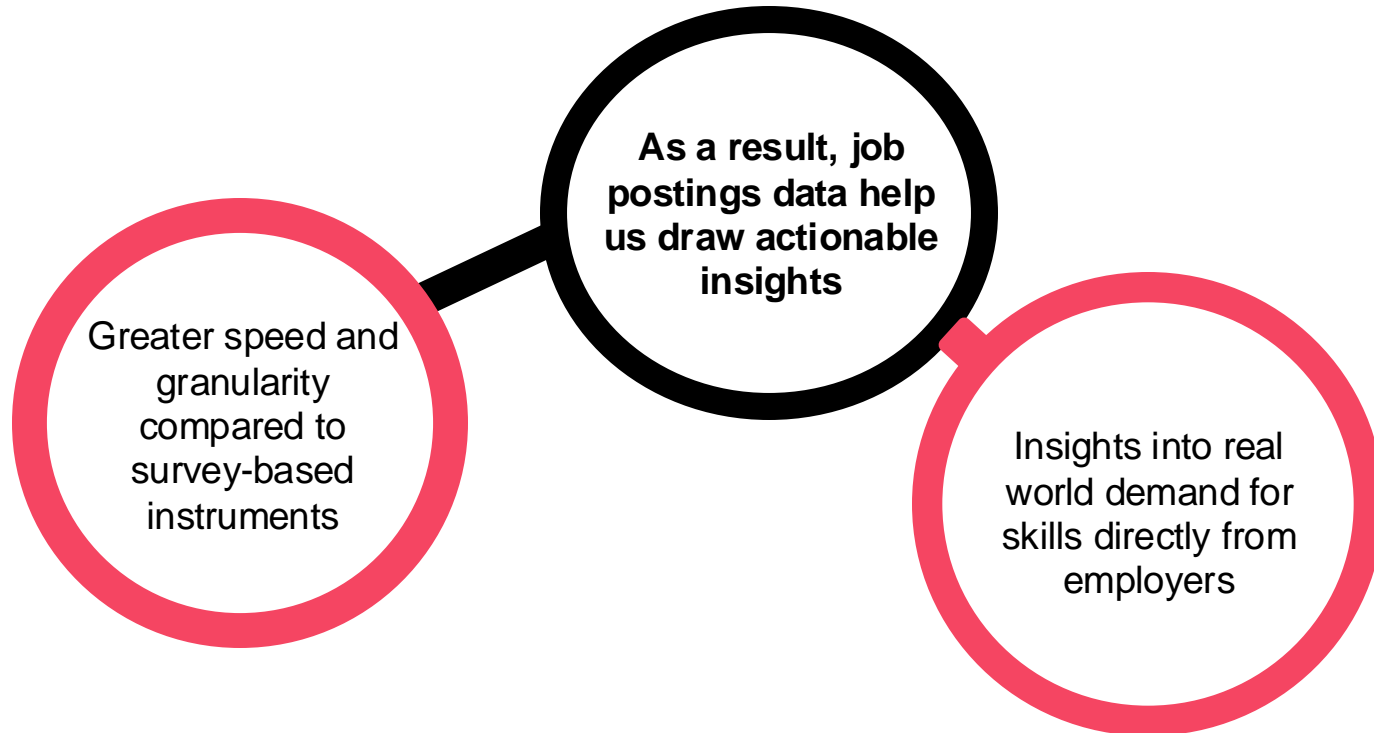
JUNIOR DATA SCIENTIST & ANALYST PLACEMENT

London • Hybrid remote

Internship

You must create an Indeed account before continuing to the company website to apply

Apply on company site

As at Data Scientist a[redacted] you will join the rapidly developing data team, who are responsible for measurement solutions and modelling expertise help a diverse client-set understand the true value of their media investment, create compelling data stories on how to drive growth, and automate the insights into the planning cycle through their advance and integrated tech stack.

We are looking for inquisitive, articulate, numerate and above-all, enthusiastic placement students to support the wider team in delivering these critical insights and building on the capabilities of our product.

You will be part of a close-knit and friendly team who share results and celebrate success together.

[redacted] s a media agency that's made differently. We're purpose-led, data-driven and proudly independent. Our independence means we can focus 100% on doing the right thing to secure success for our clients and our brilliant people. We are trusted to deliver that success for some of the UK's most ambitious and complex organisations, including SunLife, Guide Dogs, RNLI, Laithwaites and National Trust.

WHAT YOU'LL BE DOING

Work closely with business to identify issues that can be resolved using data solutions effectively for decision making

Machine learning tools and statistical methods to solve complex problems

Build algorithms and design experiments to merge, manage, interrogate, and extract data to supply tailored reports to colleagues, clients and wider areas in company

Support the account management and planning teams across all facets of campaign measurement across media channels

Develop automated data processes using Python/R

Ability to organise a variety of large data sets

Undertake regular analysis and reporting for retained clients

Maintain clear and coherent communication, both verbal and written, to understand data needs and report results

Working with the Datalab team and other senior business stakeholders to develop analytical propositions

THE SKILLS YOU WILL BRING

Highly numerate undergraduate studying a relevant degree in mathematics, statistics, econometrics or computer science

Pre-requisite skills: Strong Excel and MS Office usage
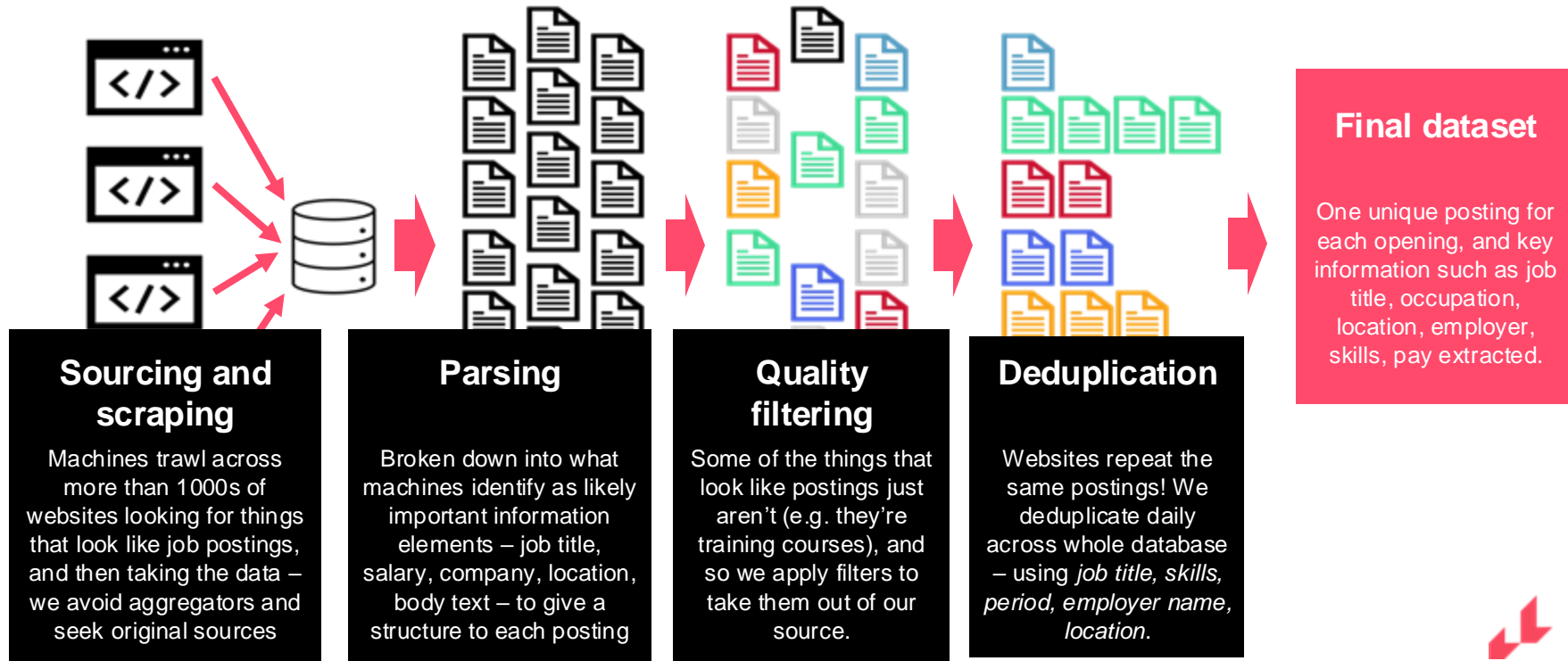
Experience of coding in Python, R or SQL

Experience of data visualisation tools like Tableau/Qlik/Power-BI/Google Data Studio would be useful but not essential

Theoretical understanding of statistical techniques such as regression and developing confidence measures.

Strong data manipulation skills and a keen eye for detail.

How we draw meaningful insights

Turning big noisy data on job postings into clear and actionable data points

Final dataset

One unique posting for each opening, and key information such as job title, occupation, location, employer, skills, pay extracted.

Sourcing and scraping

Machines trawl across more than 1000s of websites looking for things that look like job postings, and then taking the data – we avoid aggregators and seek original sources

Parsing

Broken down into what machines identify as likely important information elements – job title, salary, company, location, body text – to give a structure to each posting

Quality filtering

Some of the things that look like postings just aren't (e.g. they're training courses), and so we apply filters to take them out of our source.

Deduplication

Websites repeat the same postings! We deduplicate daily across whole database – using *job title, skills, period, employer name, location*.

Type of data	Years of data	Ease of time series analyses	Data representative-ness	Compatibility across economies	Real-time data access	Regular taxonomy (classification) updates	Data granularity
Traditional labor market data	~50	High	Apply statistical sampling methods and weights	✔			Low
Big data	~10	Medium	Captures digitized labor market; can benchmark against public data to gain insight	✔	✔	✔	High

Big Data for the Labor Market: Sources, Uses and Opportunities (APEC Secretariat, APEC Policy Support Unit)