# Big Data for Labour Market Intelligence

## Capacity development programme 2024:
## AI and the impact on Labour Market and Education

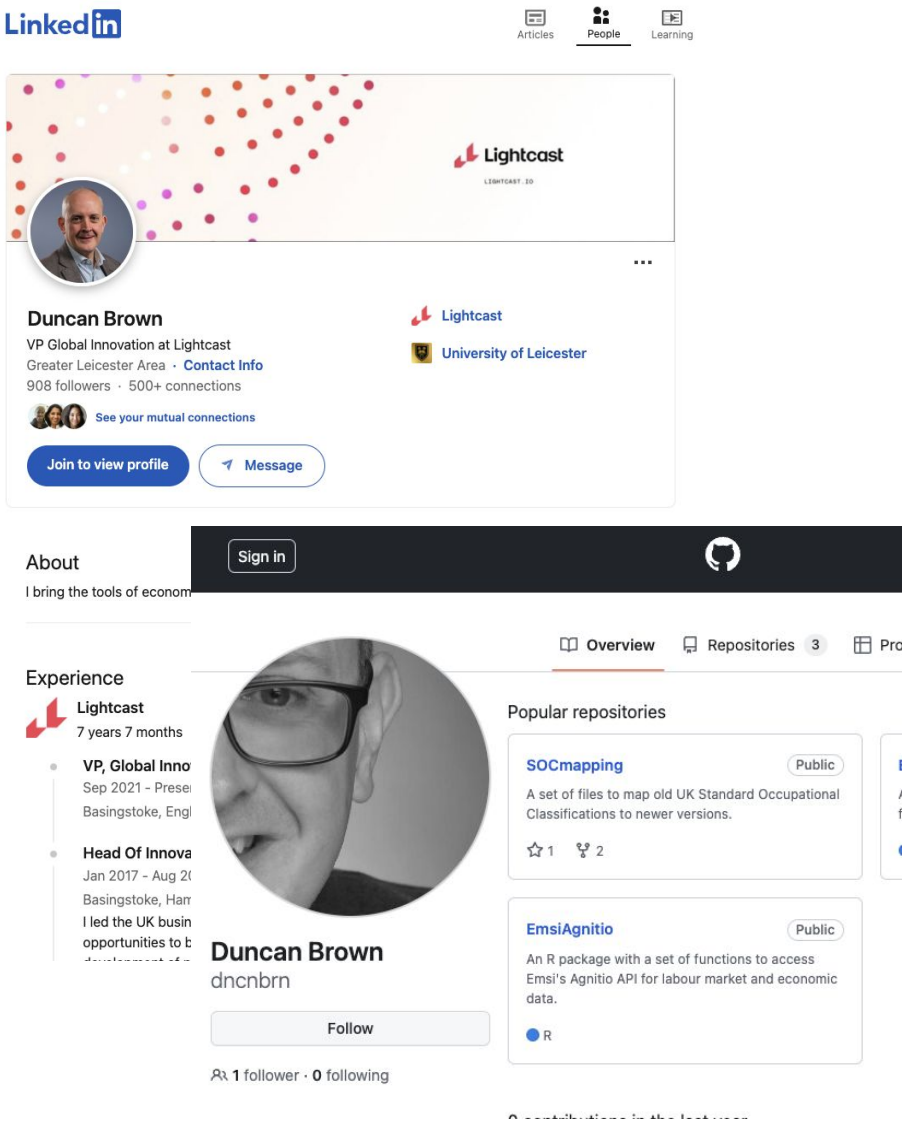
### Session 4
# Using social profiles for analytics

**Speaker: Duncan Brown**

**16/02/2024**

European Training Foundation

# Using social profiles for analytics




- LinkedIn
- GitHub
- Facebook / Twitter
- Recruitment Processing

- Why social profiles?
- Why … not social profiles? Info privacy…
- Insights from social profiles
- Limitations and biases
- Potential for analysis
- Synthesising with other sources

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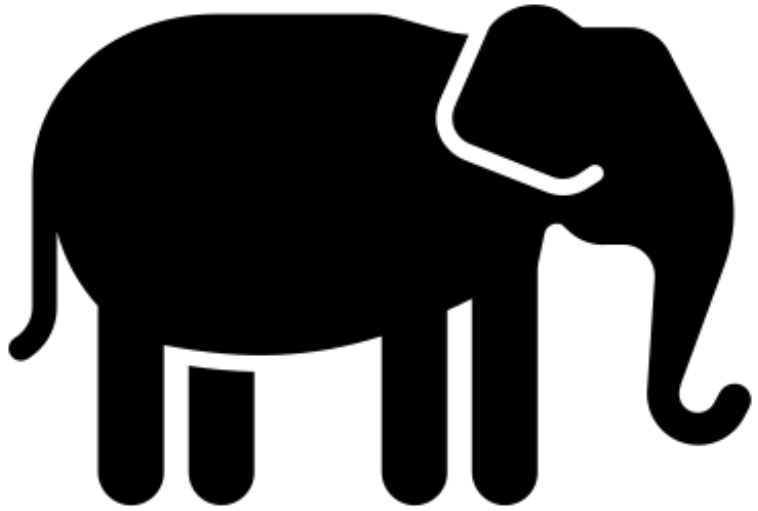
# Why social profiles?

- Online postings provide great insights into the demand for talent, but not its supply – especially rich data on the skill content of demand

- Traditional labour market information, from surveys or administrative data, can offer quantitative robustness but lack richness

- Social profiles offer the promise of similar richness on skill content, but about the *supply* of talent, rather than the demand

# Social profiles and information privacy



- Social profiles are *people*, and people have rights – GDPR in Europe, but similar elsewhere
- Social profiles need to be *sourced* properly – public sources, opt-in sources only
- Social profiles need to be *managed* properly – the right to be forgotten

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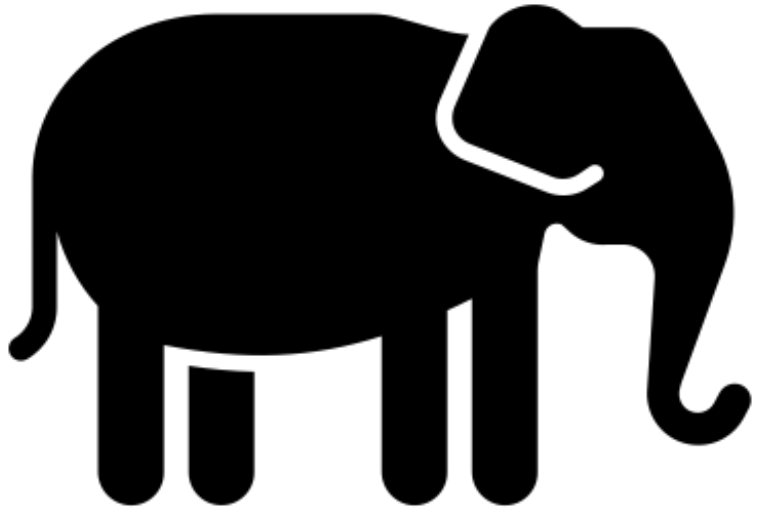
# Social profiles and information privacy



- Social profiles need to be *used* properly – only for analysis, not for individual sales and recruitment

- Social profiles need to be *analysed* properly – data shared only with tight controls to avoid disclosure of individual data

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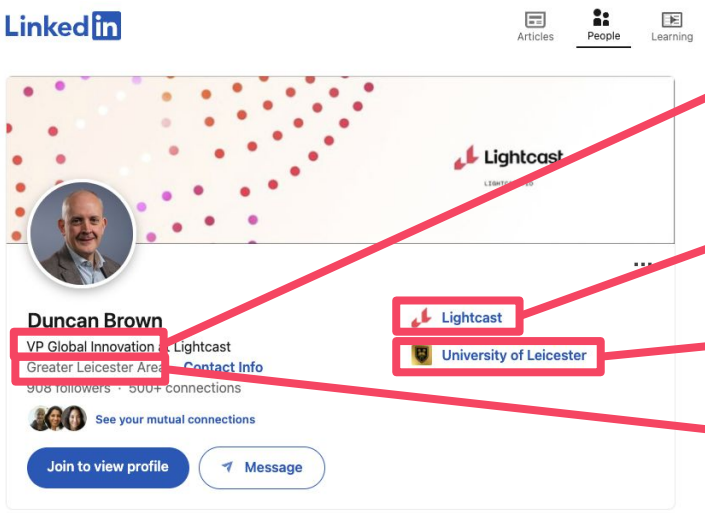
# Gaining insights from social profiles

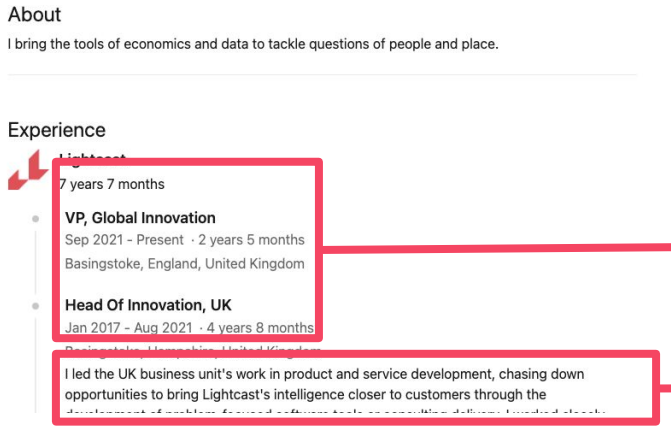



Job titles and occupations

Company

Education institutions

Locations




Past job titles and occupations, past companies

Descriptions allow for **skills**

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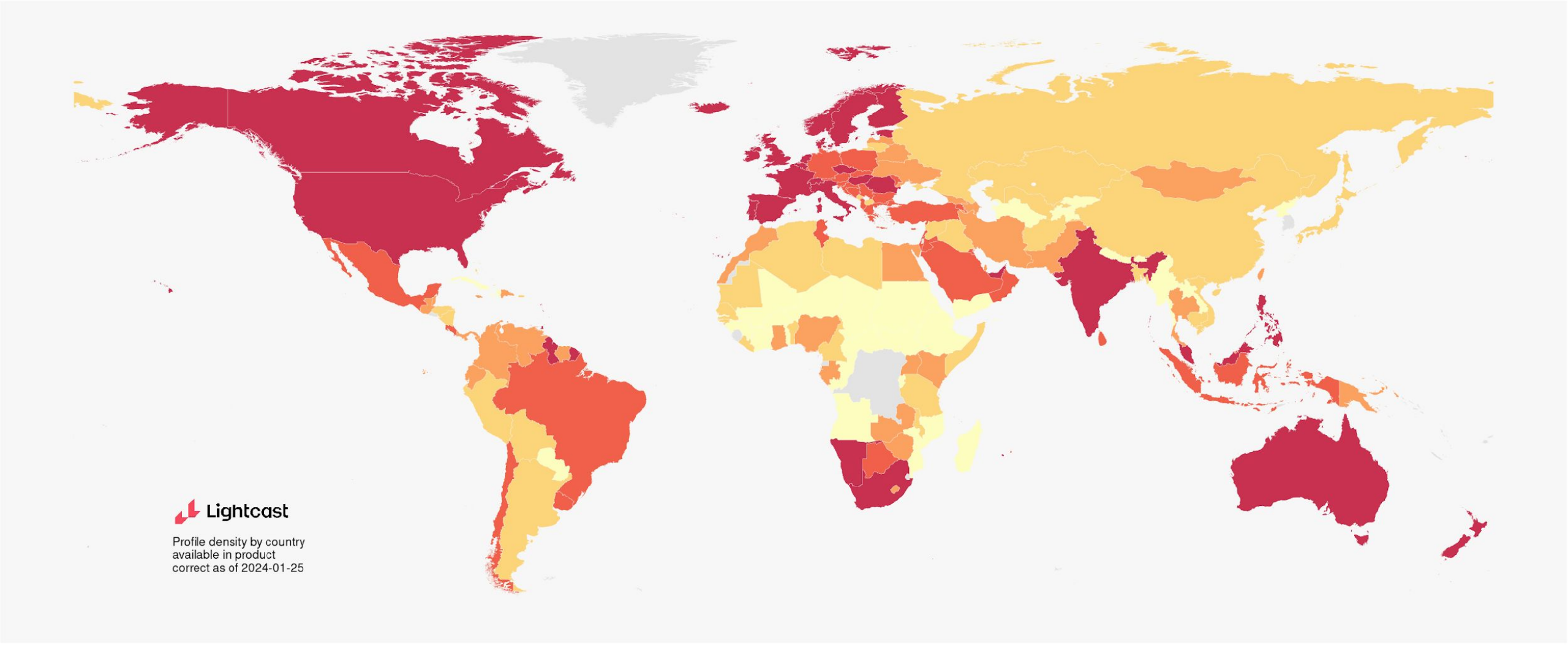
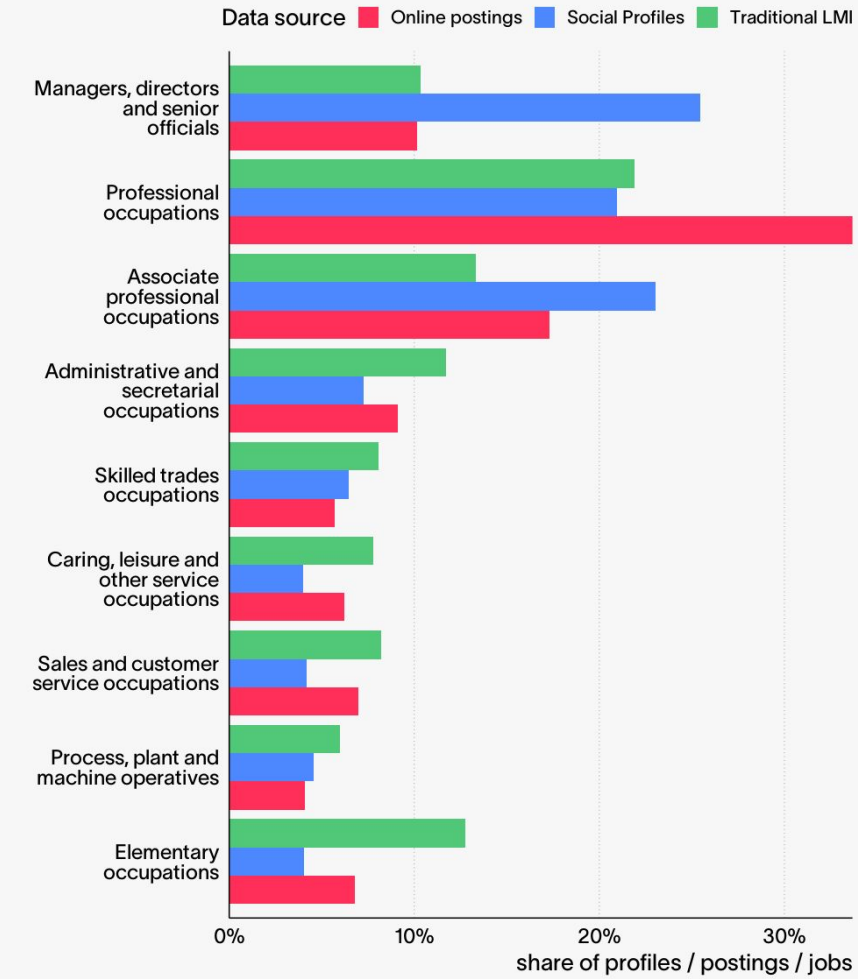
# 262m social profiles around the world



# Limitations and biases: occupation bias




Source: Lightcast data - Job Posting Analytics, Profile Analytics and Core LMI

- Social profiles are highly skewed to managerial and professional roles

- Even more than online postings: in UK data here
  - 70% of profiles are in managerial and professional categories
  - 61% online postings
  - 45% of jobs in traditional LMI

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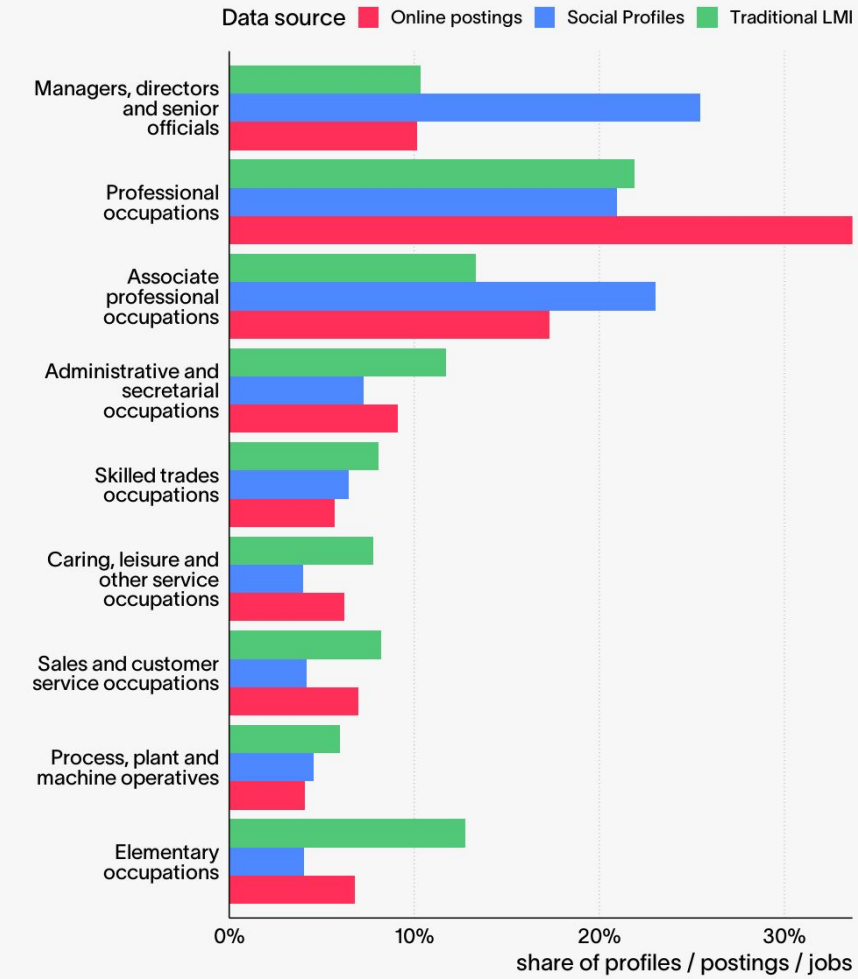
# Limitations and biases: geographic bias




Source: Lightcast data - Job Posting Analytics, Profile Analytics and Core LMI

- Social profiles are highly skewed to major urban centres

- Even more than online postings: in UK data here
  - Top 20 NUTS3 regions account for 42% of profiles
  - 41% of online postings
  - 29% of traditional LMI jobs data

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# Limitations and biases: other issues

## Careers aren't jobs

Every profile represents a person's career history, and people often have multiple jobs – and stories are rarely 'clean' with regard to the current role.

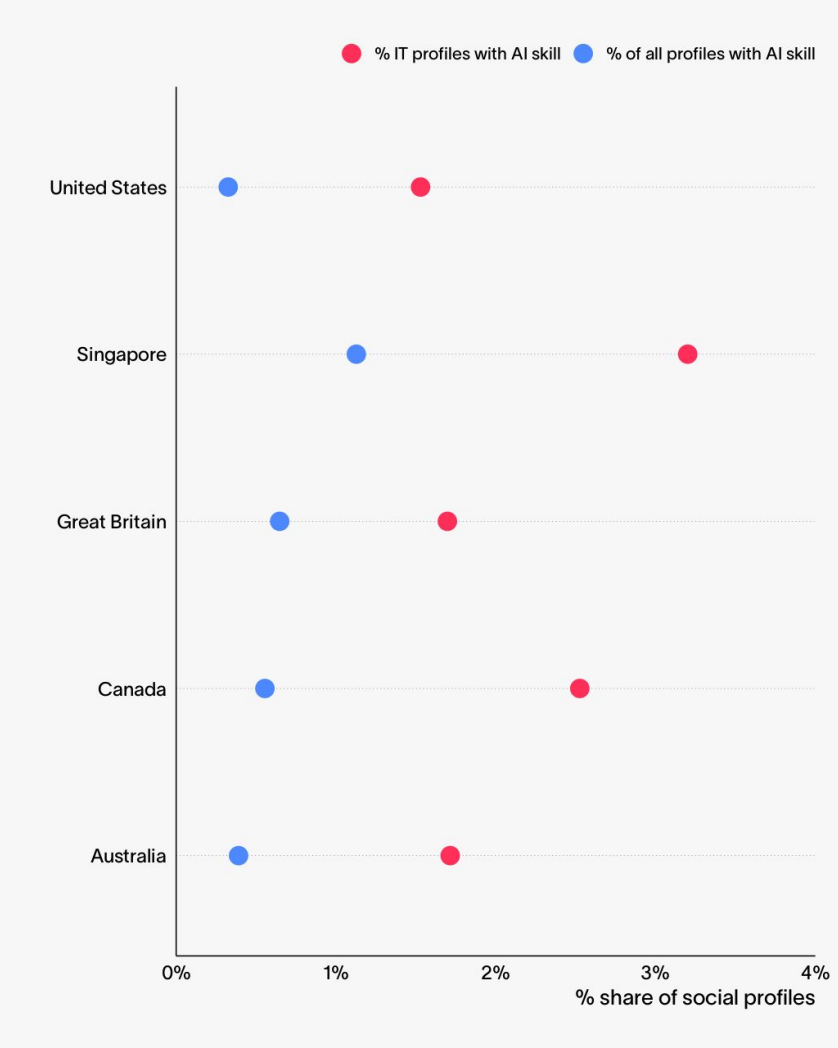
## Timeliness

People update their profiles occasionally and often driven by e.g. jobsearch reasons. At any one time, profiles data is a set of old and new information.

## Sharing and privacy

Cultural and legal differences mean variable levels of sharing across countries.

# Applications of social profiles data: measuring AI presence




- Social profiles allow straightforward quantification of rich questions
- Here we ask the % of social profiles mentioning AI skills for all profiles and only those in a current IT occupation

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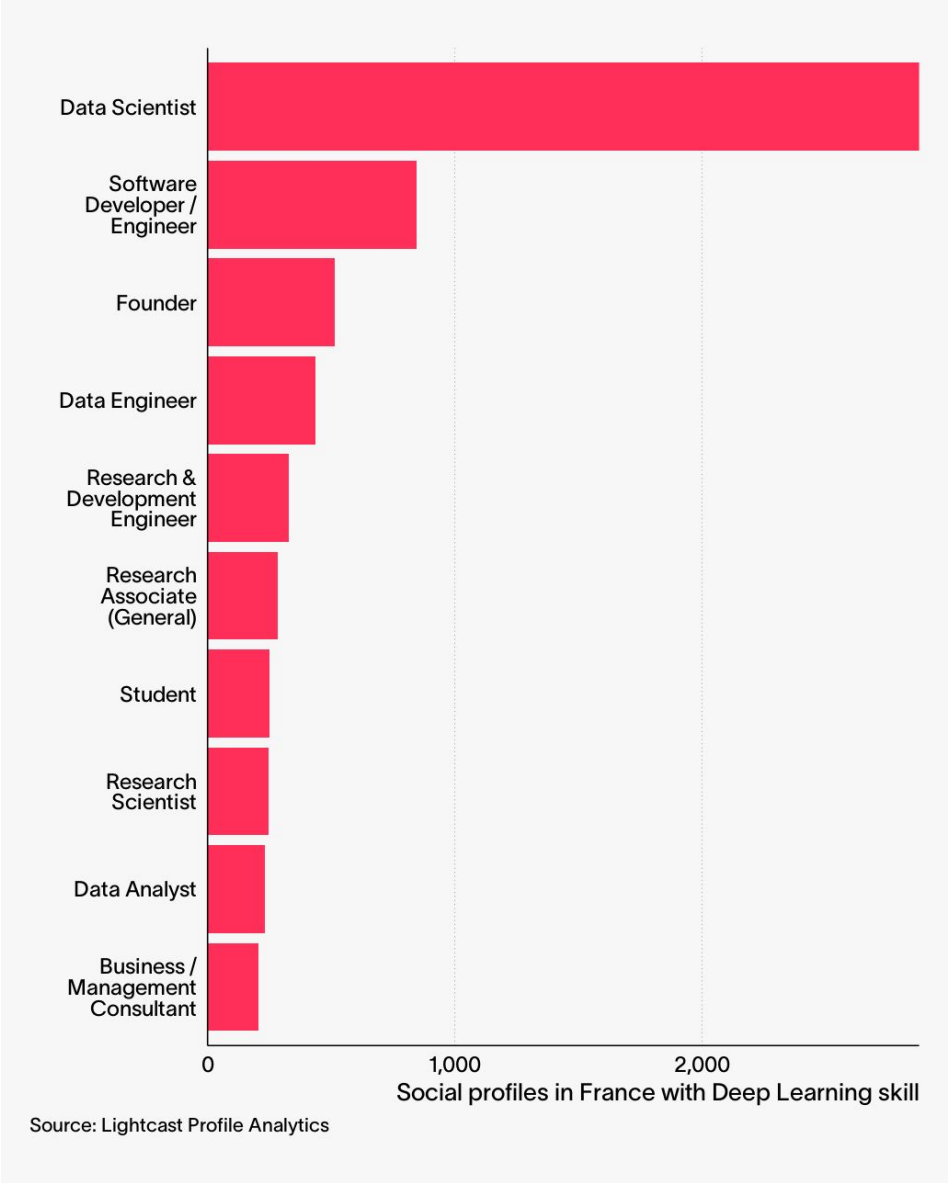
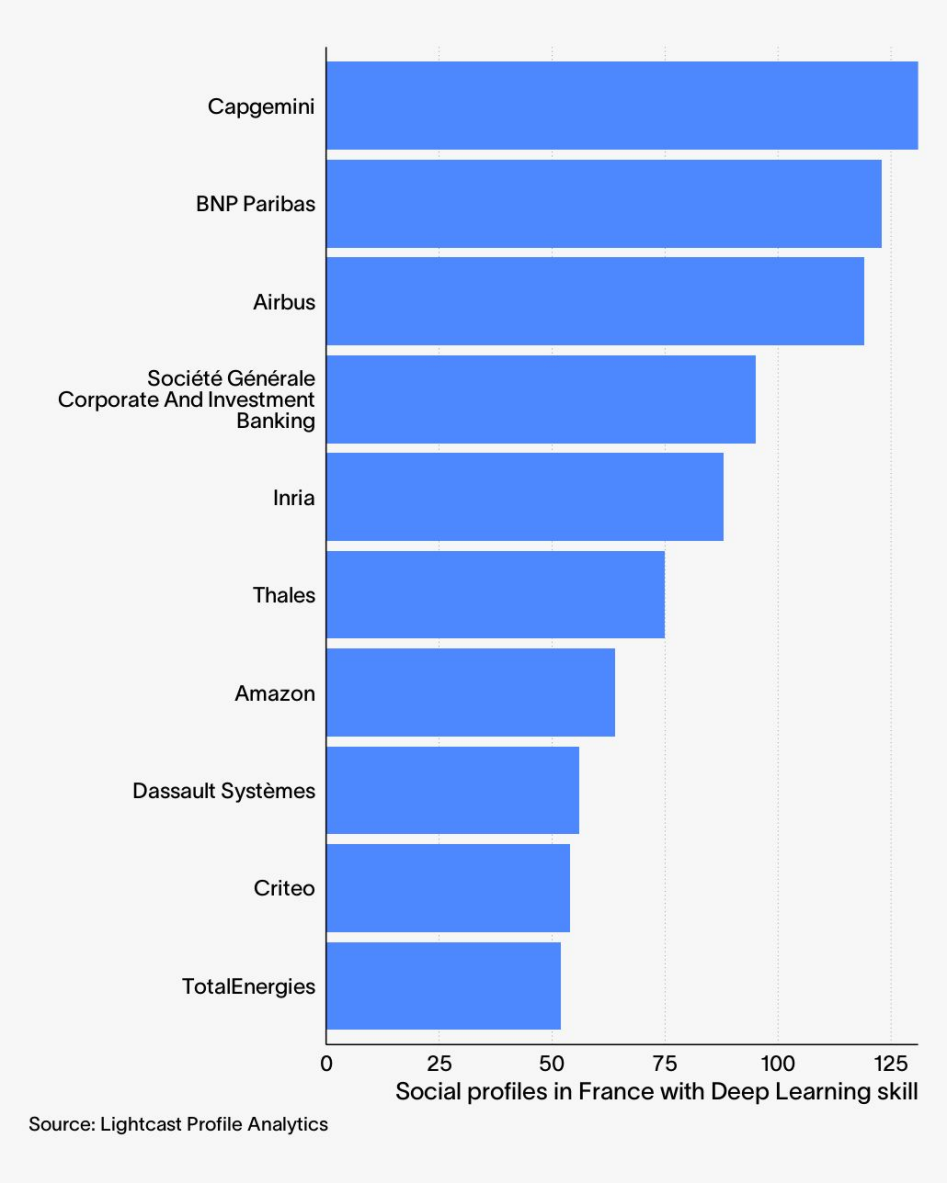
# Applications of social profiles data: identifying composition

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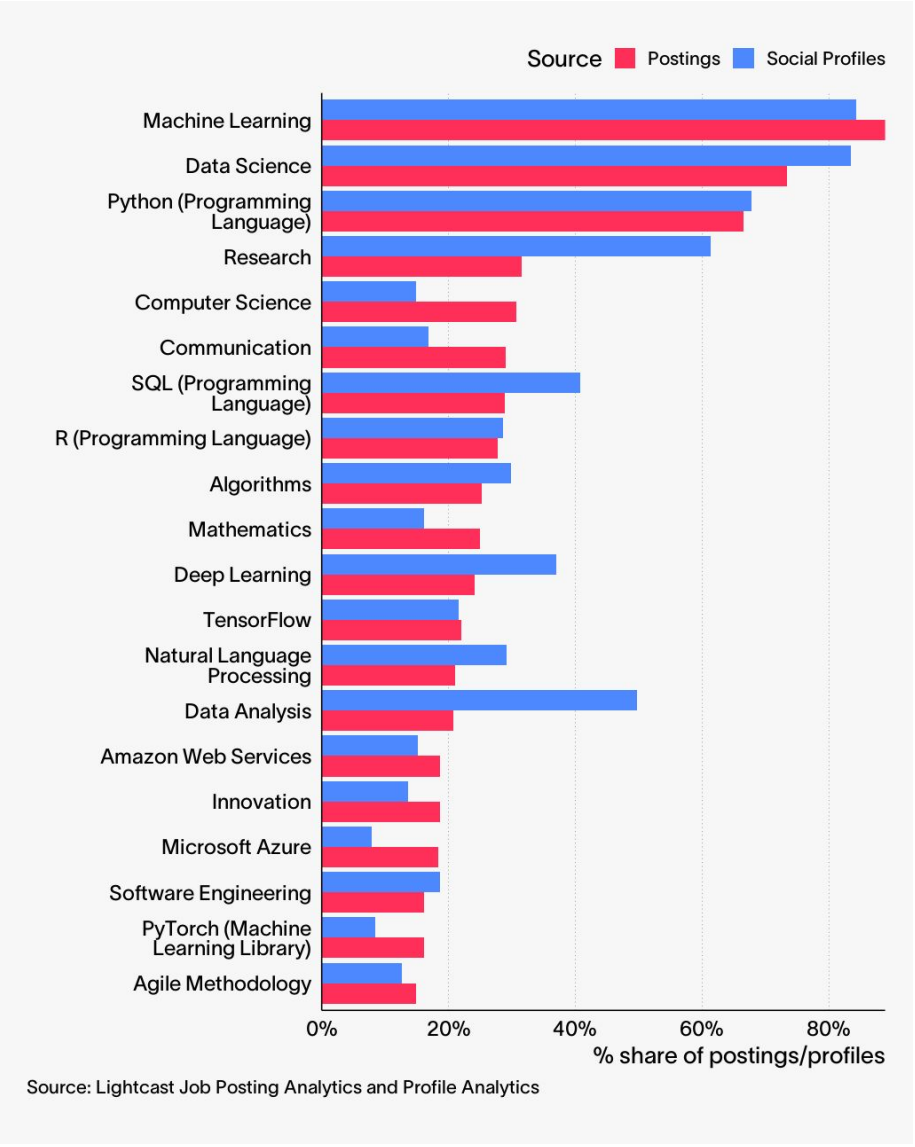
# Applications of social profiles analysis: comparisons with postings




- Here we look at the top 20 skills sought in job postings for Data Scientists with AI skills
- Then, we take the share of profiles for Data Scientists with AI skills to explore how well served each skill is

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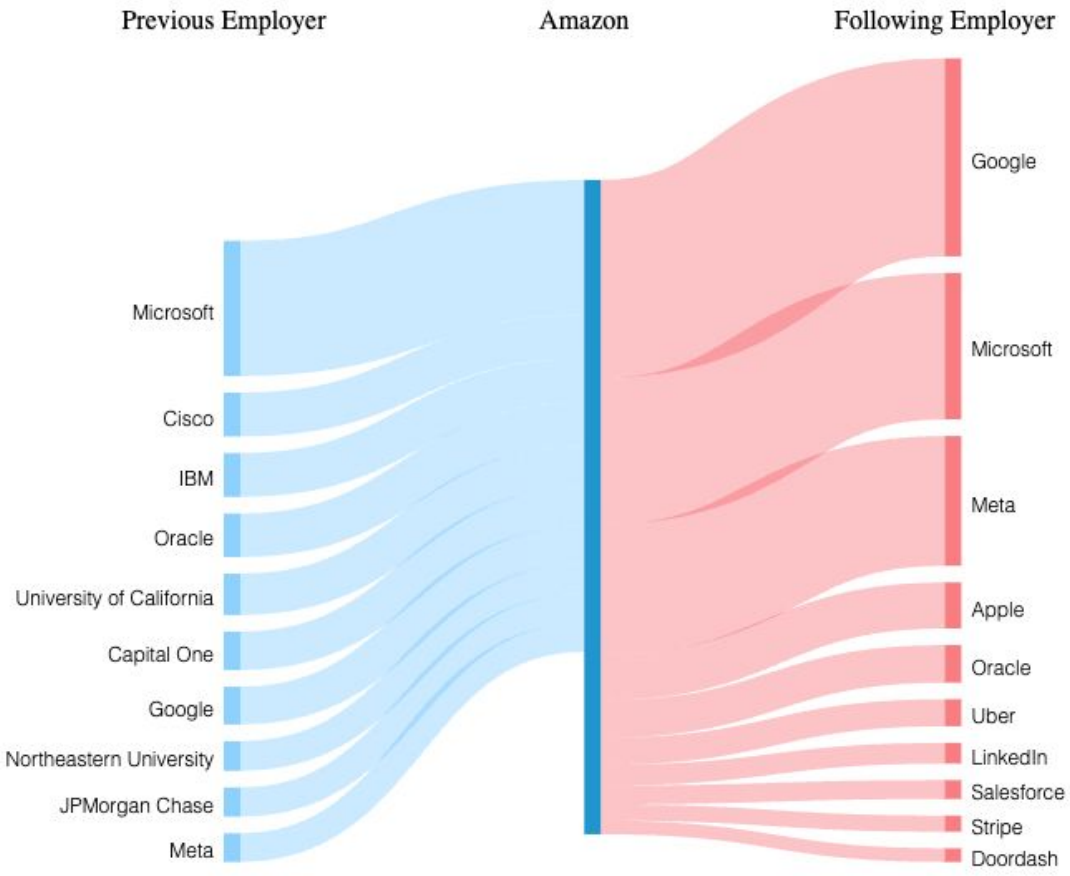
# Applications of social profiles analysis: longitudinal analysis




- Where profiles have histories, it allows us to see the paths made through the labour market
- Here we look at US Amazon computer workers – where they come from and where they go to

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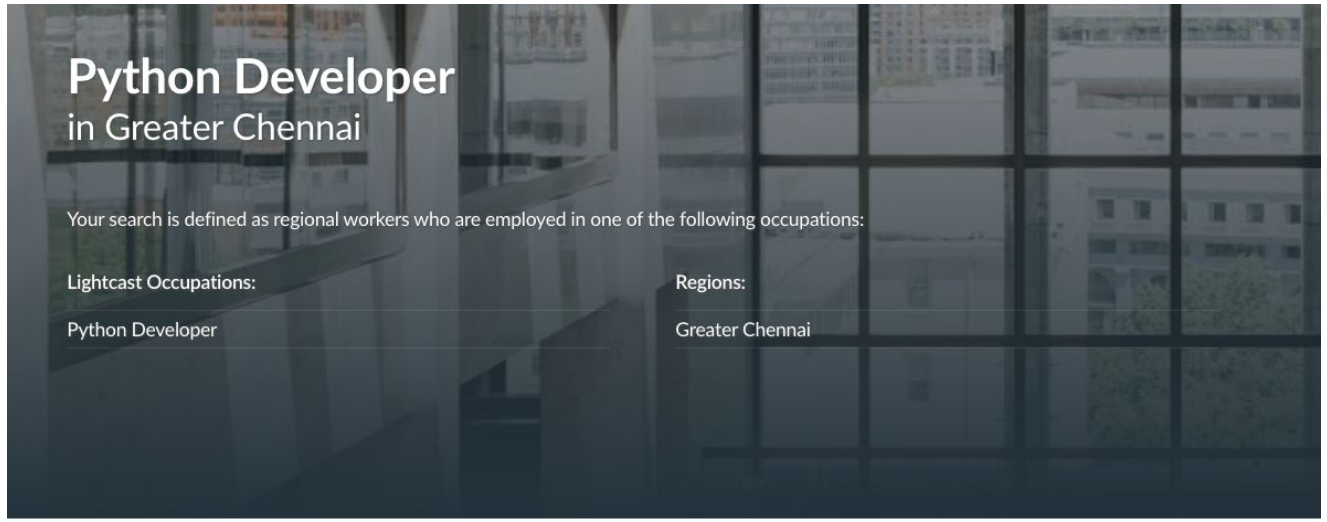
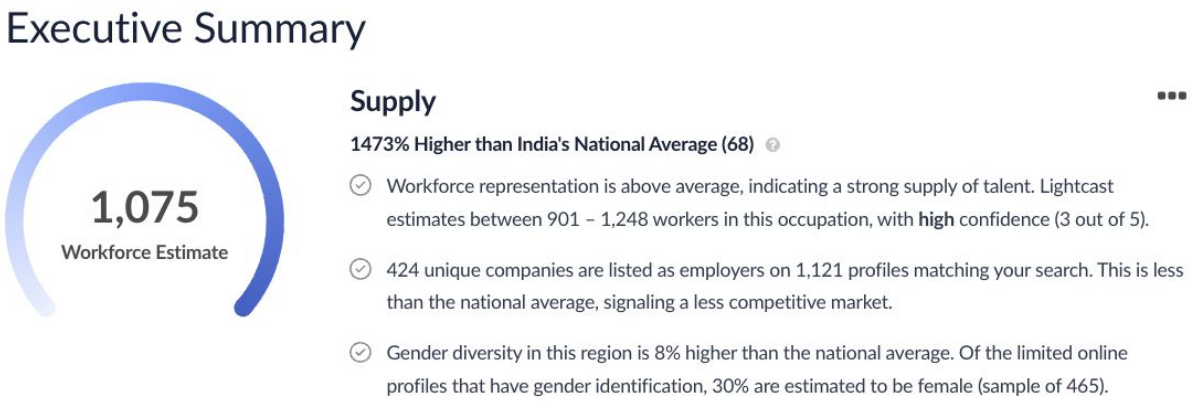
# Applications of social profiles analysis: modelling supply




- Profiles aren't that reliable, but they give greater granularity than traditional LMI
- They can be used with LMI to produce rich estimates of labour market size – as we do here

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# Key functions for social profile analysis

- **Rich composition** – understanding the mix of talent supply in terms of detailed roles, companies, locations, education background etc

- **Skill content** – job postings allow us to understand the skill content of talent demand, valuable to understand talen supply

- **Trajectories** – longitudinal labour market analysis, looking at how careers develop

# Trade-offs in social profile analysis

## Pros

- Unrivalled richness for supply data, including the skills layer
- Potential high sample longitudinal analysis

## Cons

- Information privacy – no excuses on safeguards
- Biases and variable timeliness/publicness

**Key message**

Social profiles offer deep insights in specific labour markets, but need to be understood in context

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