

The Professional Lens

Online job advertisements and occupational task profiles

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European Commission - Joint Research Centre

*The scientific output expressed here does not imply a policy position of the European Commission.

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- OJA has a **rich and growing skills vocabulary**, especially on technology (ICT) and medical, directly from source.
- **Bias favouring professional occupations and tasks** (intellectual and social, tools (ICT), teamwork), but little scope of physical tasks, non-digital tools, undesirable methods of work (control, repetitiveness, standardisation, uncertainty).

Online Job Advertisement Data

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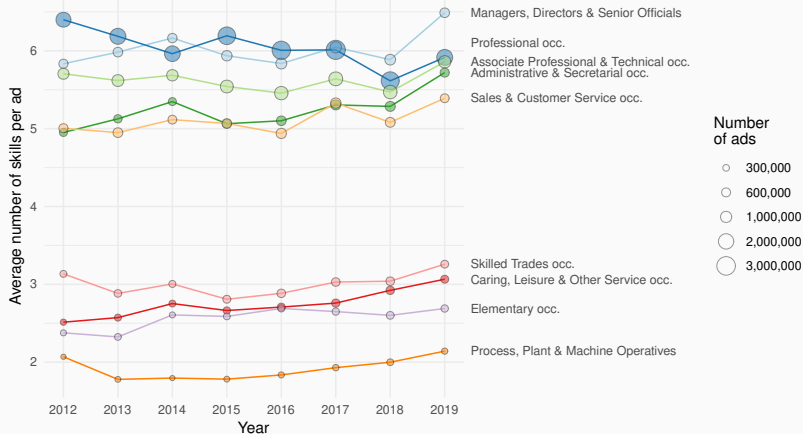
Uses and limitations of and limitations of OJA in general:

- **Representativeness** – not all job advertised (online).
- **Aspirational and one-sided** – what employers *say they want*.
- Don't observe whether it's actually filled – **salary** or **skills** real?
- **Explicitness** of in ad text – job titles used as metonym for *competence* with implicit skills (e.g., “**Chef**: cooking”).
- Skill/Education/Qualification mentioned “**at the margin**”: surprising in info-theoretic sense (Shannon's entropy).

Counting skills by occupation: gap or measurement bias?

There is an occupational gap in number of skills mentioned per ad

Average number of skills by occupation Major Groups (SOC-1)



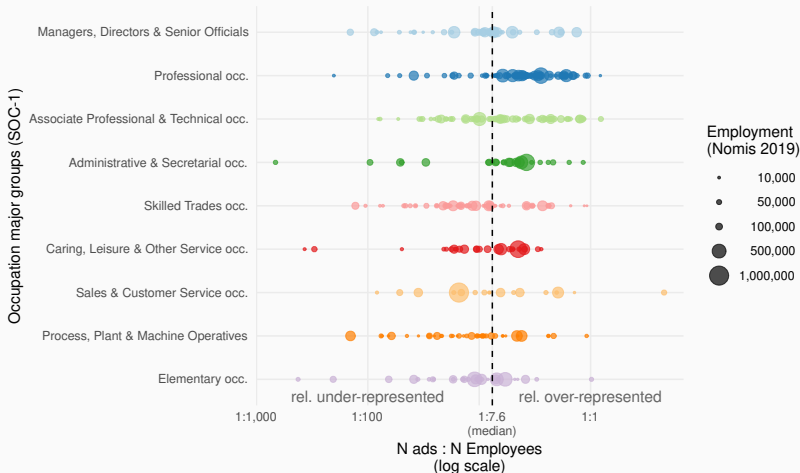
OJA: Occupation over/under-representation

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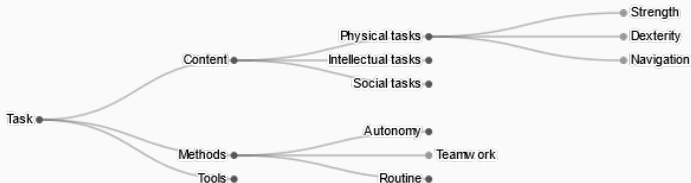
Number of ads foreach employed person, across all SOC-4 occupations in 2019



Conceptual Framework: Tasks, Skills, and Competences

From Rodrigues, Fernández-Macías and Sostero (2021):

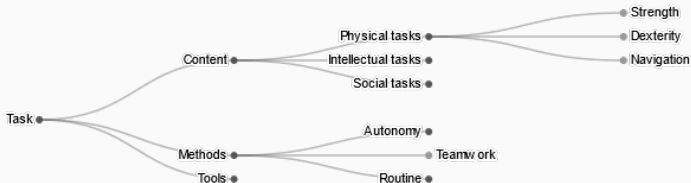
- **Task**: unit of work in a production context. Distinguish **Content of work** (*physical, intellectual, social* tasks); **Methods** (work organisation); **Tools** (technology).



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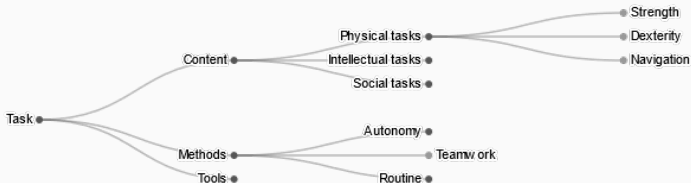


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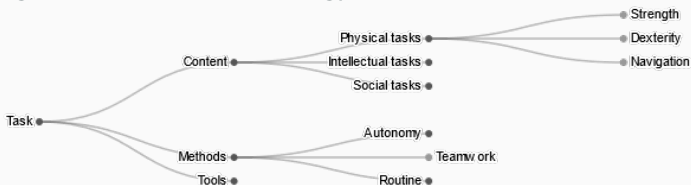


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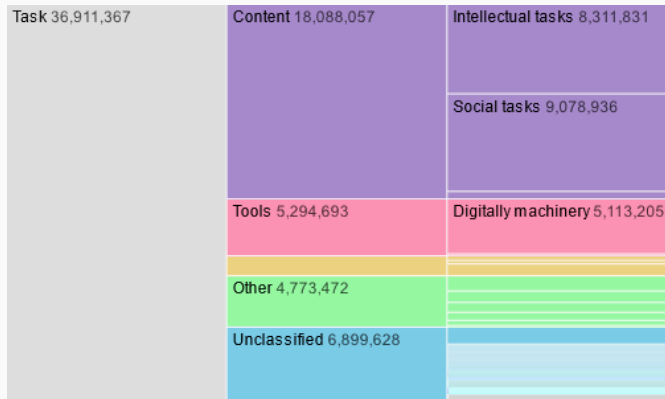
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JRC-Eurofound EU Task Database

Task indicators measured across occupations, sectors and countries
(Bisello, Fana, Fernández-Macías and Torrejón 2021)

Building the Skill-Task Dictionary

We created a **skill-task dictionary** to map the “skill” keywords found in BGT NOVA UK into the Task Framework (available at <https://git.io/Jco5y>)



<https://observablehq.com/@m-sostero/skill-task-mentions>

Building occupation task profiles

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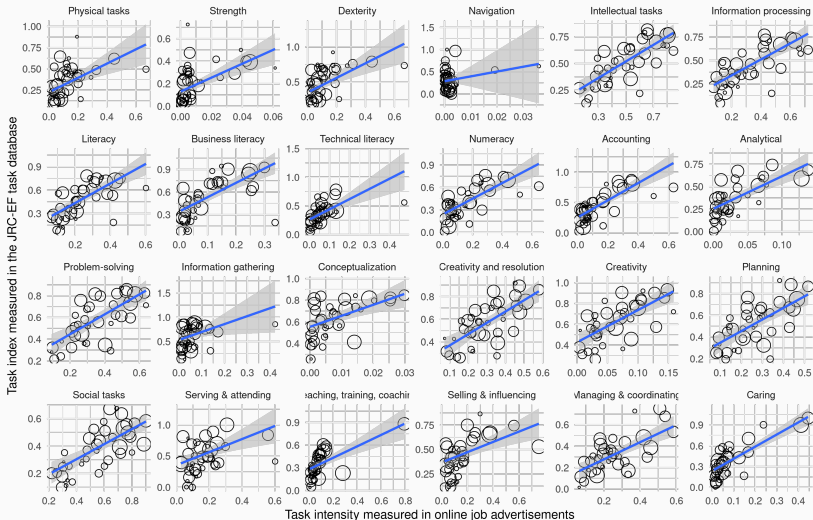
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2. Correlating task indices – Content

Comparing indices of task content across sources

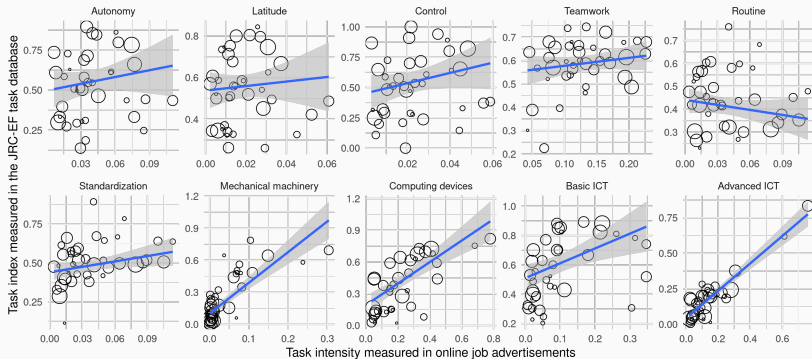
Correlation across ISCO 2-digit occupations. Circle sizes proportional to employed population



3. Correlating task indices – Methods and Tools

Comparing indices of task methods and tools across sources

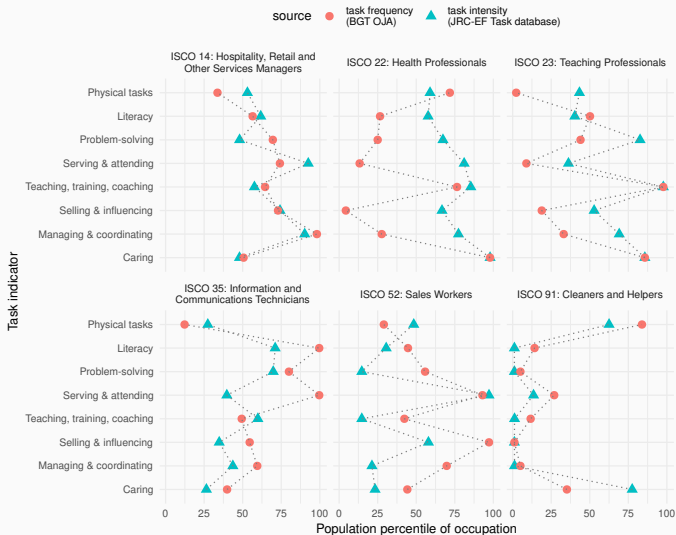
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3. Comparing occupation task profiles across databases

Task profiles of selected occupations

Comparing population percentiles of selected task indices across databases



Summary

We provide a consistent framework to understand and measure **skills** in the world of work in terms of **tasks**.

Datasets for research

- EU Task Databases.
- Occupation task profiles from online job ads (UK BGT Data).
- Skill-task dictionary.

Ongoing work

- Collaboration with Cedefop on OJA from EU.
- Exploratory study on the construction of job ads within firms.
- Improve occupational coding algorithms.

Questions?

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Our group at the Joint Research Centre:

The Changing Nature of Work and Skills projects.

[europa.eu/!vw77mr](https://ec.europa.eu/economy_finance/db_indicators/vw77mr)

The Labour, Education and Technology Working Paper Series.

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