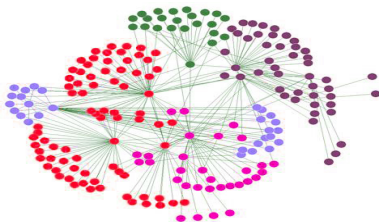


Using Data Science to Analyze Labor Markets - New Insights on Job-to-Job Transitions

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"Who moves and who stays? Labour market transitions under automation and health-related restrictions"¹



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¹https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/briefingnote/wcms_829500.pdf

What are job-to-job transitions?

Different Types:

- ▶ by employment status
- ▶ by occupation, industry or role
- ▶ as a career path
- ▶ within an organization (e.g. corporation) or across organizations

Why is managing successful job-to-job transitions so important?

- 1 Skills shortages and hiring costs
- 2 Agility and flexibility
- 3 Motivation, development and fulfilment
- 4 Efficiency, productivity and social progress

What data do we have about transitions and what do they tell us?

Table 1: SHARES OF WORKER TRANSITIONS ACROSS 17 INDUSTRIES, LOOKING BACK FOUR YEARS

	Australia (1)	Germany (2)	Rep. of Korea (3)	United Kingdom (4)	United States (5)
1977					.204
1983					.237
1989		.248			.262
1995		.254		.242	.259
2001		.234		.271	.288
2007	.269	.182	.173	.210	.250
2013	.228	.194	.155	.129	.221

Source: Muendler (2017) "Trade, Technology and Prosperity: An Account of Evidence from a Labor Market Perspective"

This evidence speaks against the prevailing expectations about future labor markets, but:

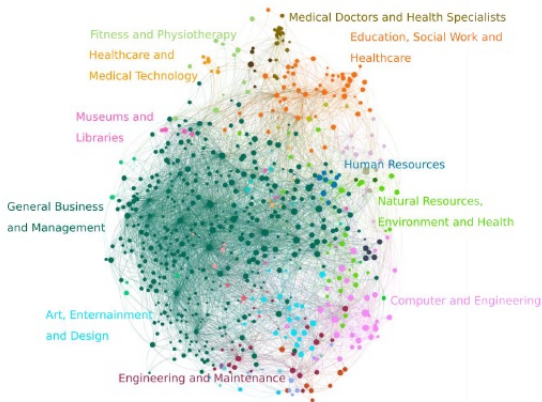
- 1** We have limited available datasets about transitions.
- 2** Do we really know what people are doing or are capable of doing?
- 3** New (digital) technology allows us to deconstruct jobs and re-organize work.

Some ways forward to understand and promote(?) job-to-job transitions :

- 1 Use data science
- 2 New typologies to link tasks to skills and occupations (O*NET)
- 3 Mapping career pathways (NESTA (2020))
- 4 Occupational mobility network where nodes are occupations
- 5 New datasets: online vacancies and/or data from CVs

The Eightfold occupational mobility network:

► **Figure 1. The Eightfold.ai Occupational Mobility Network**



Source: Authors' calculations.

The Eightfold.ai occupational mobility network consists of 674 different occupations (nodes). The size of the nodes represents the number of people working in this occupation. Occupations that experience many transitions and therefore have many connections (edges) are grouped as communities of the same colour. More than half of the occupations in the network (365) are in one large community (General Business and Management and in dark green), which means that most transitions occur across these occupations.

Joint work of ILO Research and Eightfold.ai:

- 1 Use of NLP to extract and process anonymized data from CVs
- 2 Match to O*NET typology using SOC algorithm
- 3 Creation of occupational mobility network
- 4 Interest in career paths (seniority levels) and job transitions
- 5 Focus on COVID and automation shocks
- 6 Socioeconomic characteristics
- 7 Skills