



Mapping Career Causeways

October 2020

#MappingCareerCauseways
@Nesta_UK

nesta

NEW SKILLS AT WORK
JPMORGAN CHASE & CO.

An aerial photograph of a winding asphalt road that cuts through a large, turquoise lake. The road is flanked by dense green forests and leads towards a range of rugged, snow-dusted mountains under a cloudy sky. The text 'Mapping 'career causeways' for workers in the age of automation' is overlaid in white on the upper half of the image.

Mapping 'career causeways' for workers in the age of automation

While this project has been supported by J.P. Morgan, the contents and opinions in this paper are those of the authors alone and do not reflect the views of the JPMorgan Chase Foundation, JPMorgan Chase & Co, or any of its affiliates.

Our goal

Provide practical,
recommendations
for lowering
workers' exposure
to automation risk

Providing practical recommendations for lowering workers' exposure to automation risk

This project has three major parts:



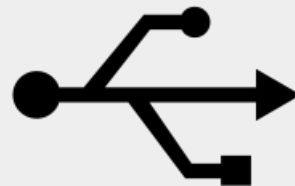
**Measure susceptibility
of European jobs to
automation**

- ✓ *Translated task automation scores by Brynjolfsson et al. (2018) from US O*NET to EU ESCO occupations*
- ✓ *Developed the first direct crosswalk between US O*NET and EU ESCO frameworks*
- ✓ *Developed a measure for automation bottlenecks*



**Describe the workers in
the UK, France and Italy
whose jobs are at risk**

- ✓ *Identified demographic patterns using EU LFS*



**Identify viable and
desirable transitions from
at-risk occupations**

- ✓ *Assessed job transition pathways for 1,627 occupations*
- ✓ *Developed methods to evaluate skill gaps and identify upskilling opportunities*

Recommending job transitions

Case study of recommending transitions to a worker at high risk of automation



Alex is a hotel concierge...

A snapshot of Alex's occupational profile, which we will use to find suitable job transitions



Salary: £19,000



Automation risk: High

One among 850,000 client information workers in the UK

Work activities

Obtaining information verbally

Providing information and support to the public and clients

Negotiating

Skills

Identify customer's needs

Greet guests

Assist clients with special needs

Provide tourism related information

Handle customer complaints

Work context

1.00 Telephone use

0.90 Face-to-face discussions

0.82 Time pressure

0.86 Freedom to make decisions

Evidence of automation of hotel concierges



IBM concierge robot “Connie” in 2016



Check-in machines and apps

 HOTEL MANAGEMENT

OWN OPERATE TECH DESIGN PROCURE HOTEL ROI

Tech

How hotel tech adoption will be a route to recovery

by Michael Driedger, Operto Guest Technologies | Aug 5, 2020 9:40am

COVID-19 is accelerating automation



Tourist information officer

Provides information and advice to travellers about local attractions, events, travelling and accommodation.



Customer experience manager

Creates, evaluates and improves customer interaction with organisations in the hospitality, recreation or entertainment industry.

Develops plans of action to optimise all aspects of the customer's experience.

Strives to **ensure customer satisfaction and boost company profits**.



Social security officer

Advises clients on social security benefits.

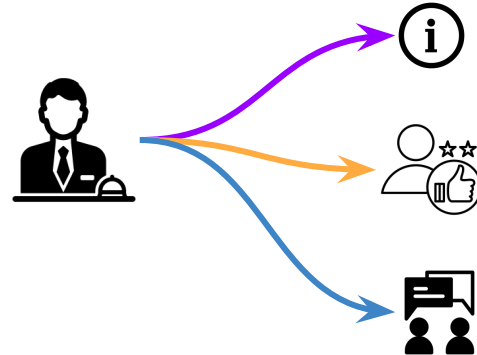
Aids clients in applications for various benefits such as sickness, maternity, unemployment and pensions.

Investigates the client's right to benefits by reviewing their case and researching legislation and the claim.

Let's vote!

Which of these three jobs do you think the worker should choose?

1. Tourist information officer
2. Customer experience manager
3. Social security officer



What do we know about these three jobs?



Tourist information officer



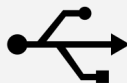
Similar salary (£18,300)



High job similarity (43%)



High risk of automation



9 other transitions to occupations in a lower risk category

How similar is the job?

- **Overlap of many skills related to interaction with customers**, such as *maintain customer service, identify customer's needs, distribute local information materials, process reservations, handle personal information.*
- **Stronger emphasis on information skills**, such as to *maintain customer records and collect tourist information, and skills for creating content* such as to *produce content for tourism brochures and develop tourist information materials.*
- **Work context:** The job might be more *structured and repetitive* compared to concierge.

What do we know about these three jobs?



Customer experience manager



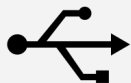
Higher salary (£38,900)



Medium job similarity (35%)



Lower risk of automation



6 other transitions to occupations in a lower risk category

How similar is the job?

- Similarly **strong emphasis on activities and skills related to communication**, such as *to maintain customer service, manage customer experience, monitor customer behavior, and handle customer complaints.*
- Involves more **management skills and activities** such as *developing objectives and strategies to improve business processes, plan medium to long term objectives and develop strategies for improvement and accessibility.*
- **Stronger emphasis on information skills**, such as *to measure customer feedback and to analyse business objectives and data about clients.*
- **Work context:** *More time is spent sitting.*

What do we know about these three jobs?



Social Security Officer



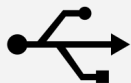
Higher salary (£28,800)



Medium job similarity (31%)



Lower risk of automation



11 other transitions to occupations in a lower risk category

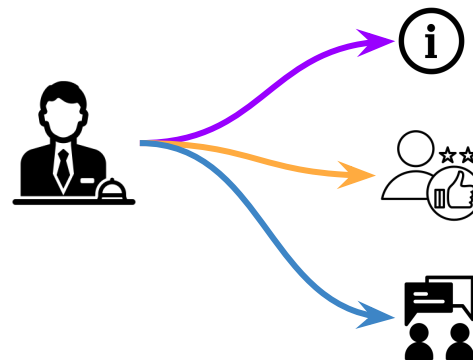
How similar is the job?

- Similar emphasis on the general type of activities related to **communication, assisting and providing information and support.**
- **Poor match of specific skills and knowledge**, particularly knowledge of social security law and government social security programmes, and skills to investigate social security applications and administering appointments.
- **Work context:** More time is spent sitting and the job has higher consequences of making mistakes.

Follow-up vote

Which occupation would you choose now, given the additional information?

- 1. Tourist information officer**
- 2. Customer experience manager**
- 3. Social security officer**



You can add comments in the chat about your choice.

How do we
know this?

Measuring two aspects of job suitability for machine learning

1

Task automation scores



“Suitability for machine learning”
for 18,000 tasks estimated by
Brynjolfsson, Mitchell & Rock (2018)

2

Translate task automation to European occupations



900+ US O*NET
occupations



Novel crosswalk from
O*NET to ESCO
occupations

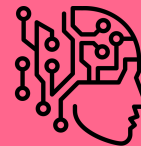


1,627 EU ESCO
occupations

3

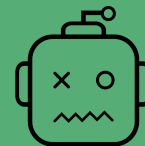
Two measures of automation

Automation risk



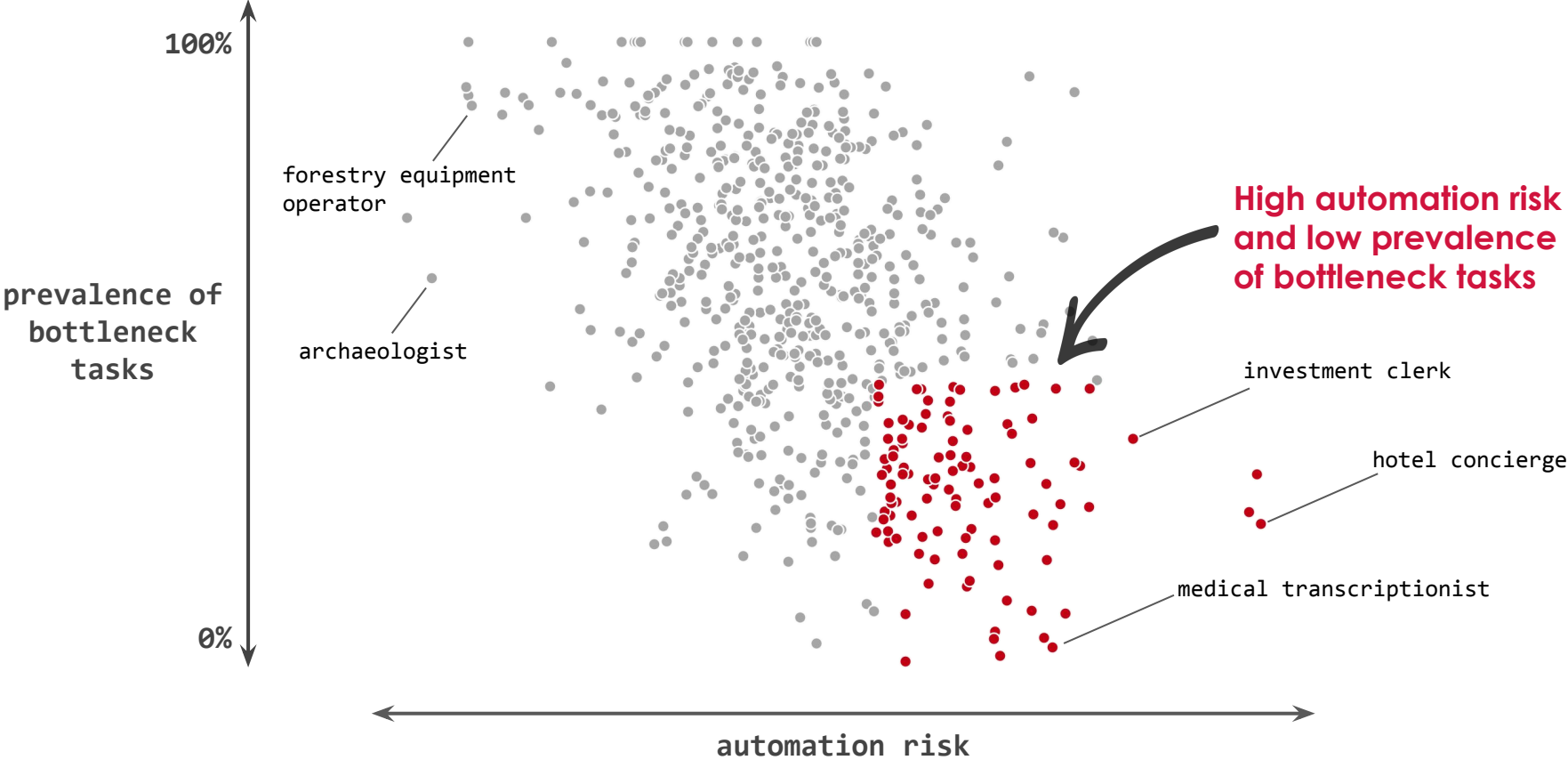
Average automatability
across all job's tasks

Bottleneck tasks

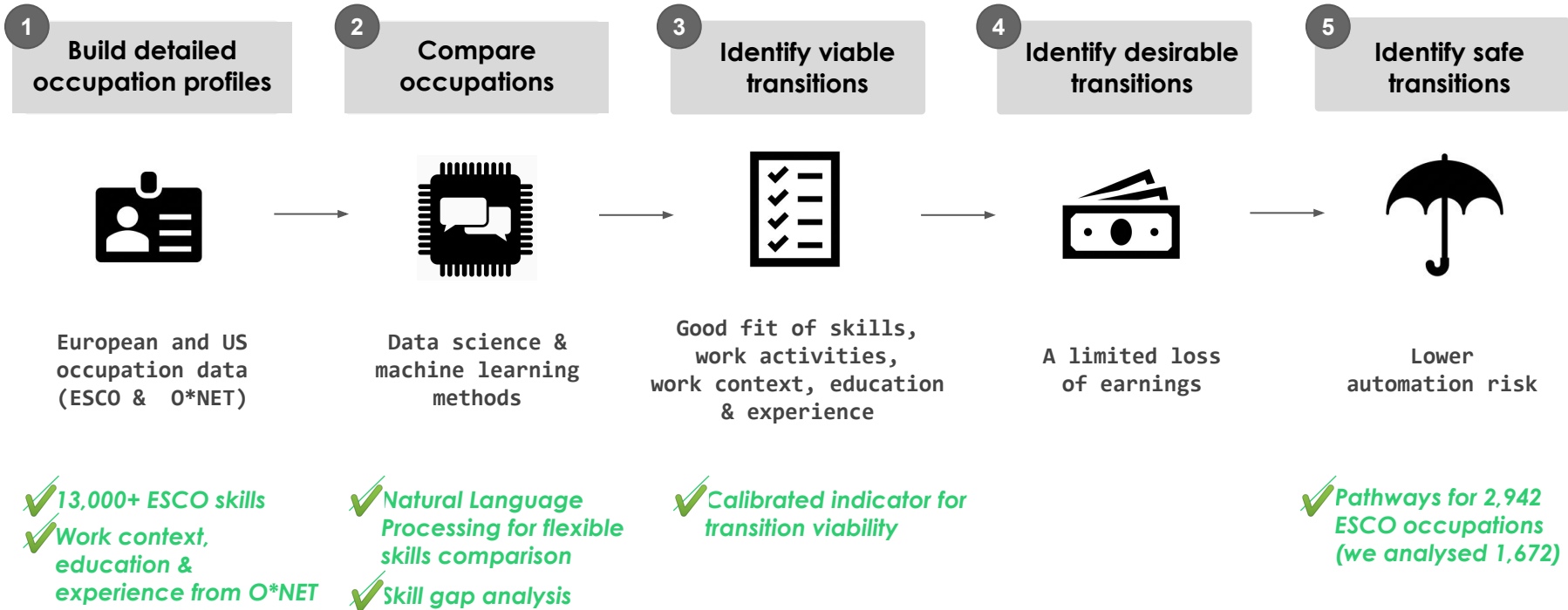


Prevalence of
difficult-to-automate
tasks in a job

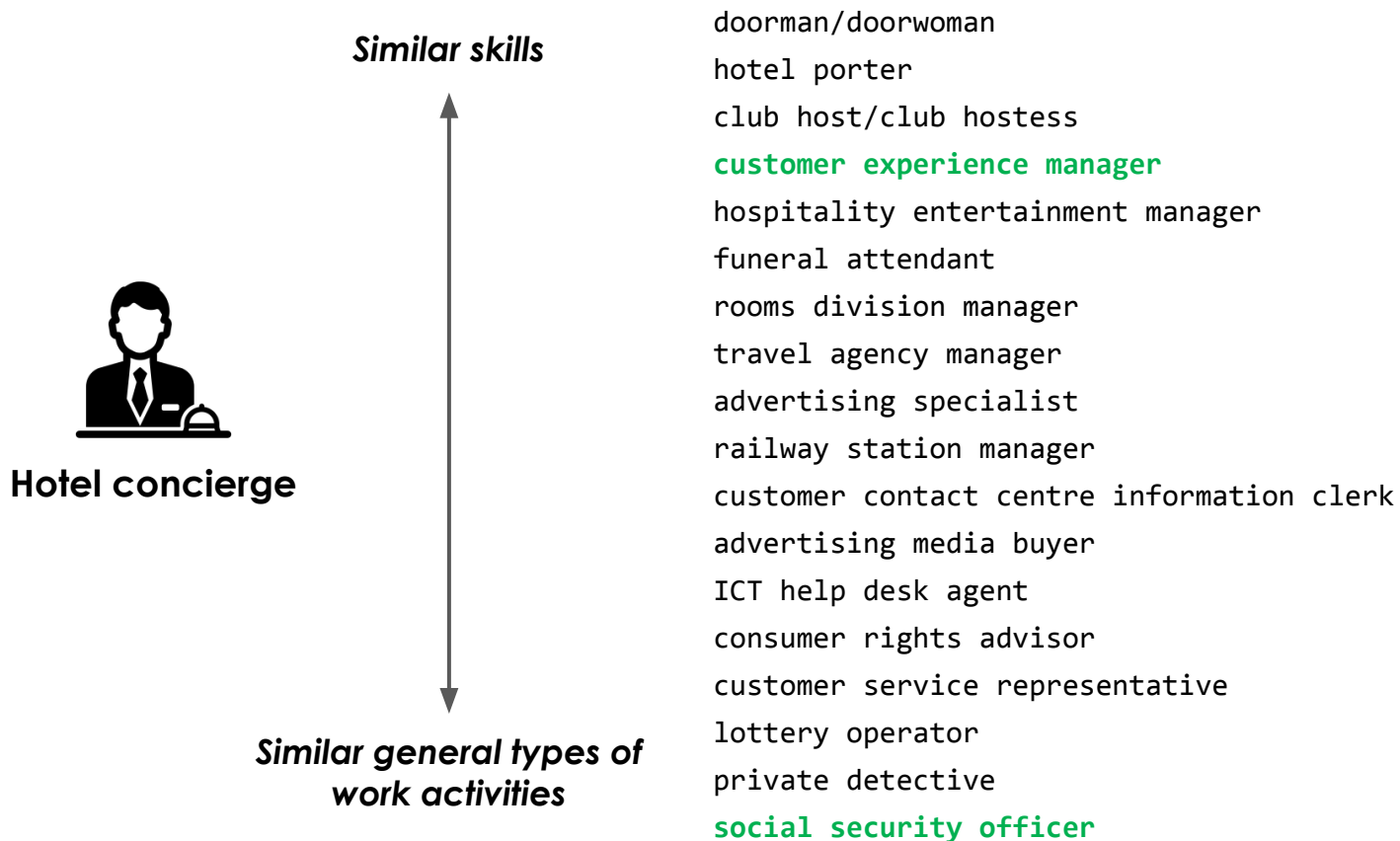
Measuring two aspects of job suitability for machine learning



Five steps for finding job transitions away from automation



Safe, viable and desirable transition options for hotel concierge



Making the transition into a reality...

Recommendations from the algorithm is just the first step to appreciate the range of workers' career transition possibilities

- In reality, **workers face various additional challenges and barriers** to switching jobs
- Each worker will have their own **unique set of skills and preferences**
- Some pathways may have **formal qualification requirements**

We are conducting qualitative research to validate the model and understand how it can be applied.

Full report will be published in November

Other resources:

- [Watch our recent webinar \(Passcode: =RW4^Jp7\)](#)
- [Mapping Career Causeways project page](#)
- [Mapping Career Causeways project update - February 2020](#)
- [Mapping Career Causeways project update - July 2020](#)

Thank you!

Attribution of icons

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