



AI4LABOUR Secondment in Arçelik/Kadir Has University

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🌐 <https://marianavas.linkeddata.es>

📅 2022-10-21

📍 OEG



<http://www.ai4labour.com/>

Reshaping labour force participation with artificial intelligence

“

Design a recommendation/planning portal with AI techniques for the benefit of individuals, companies, policymakers and educational institutions from Europe and the entire world for helping their decision processes to reduce the possible negative AI-based impacts on the labour force.

”

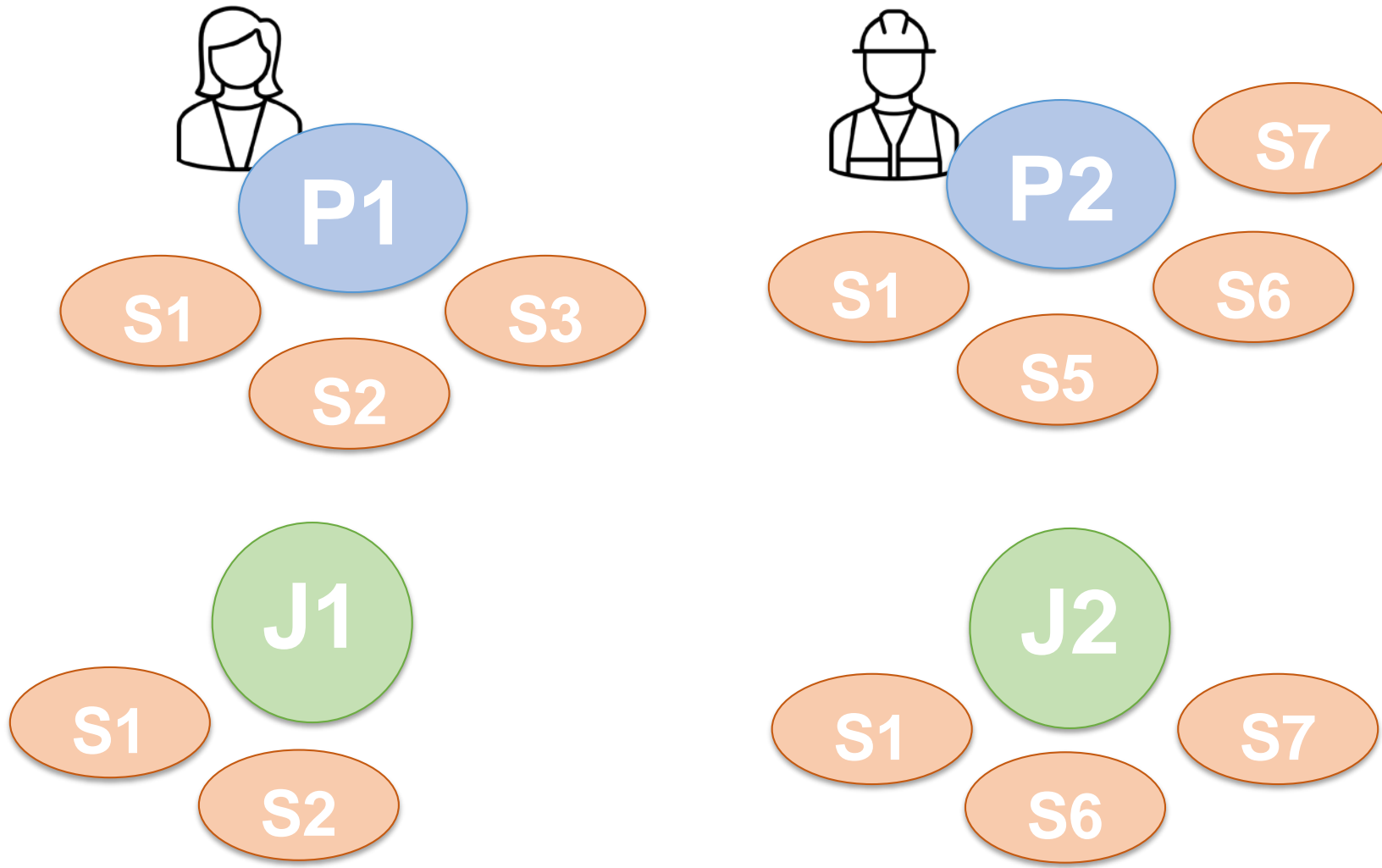
“ Build a portal where European citizens can check if their jobs are likely to be impacted by AI and to suggest them education and training so they can find a new job. To this aim, I created some scripts that generated datasets with the courses in Coursera, edX and Udemy, that will be eventually linked to different skills for different jobs and be suggested to the citizens.

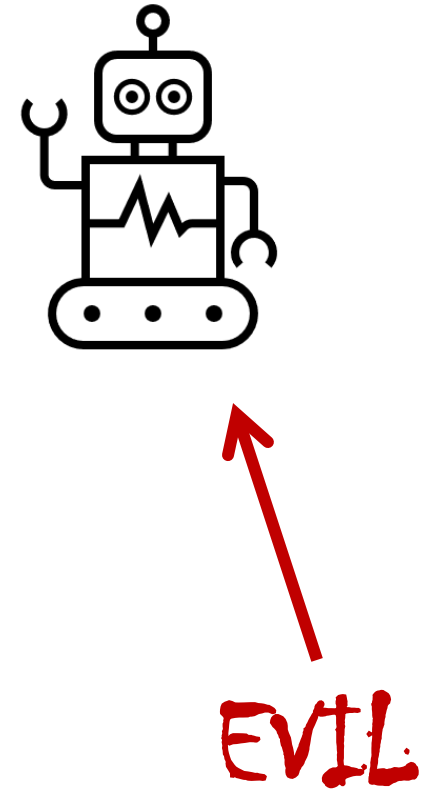
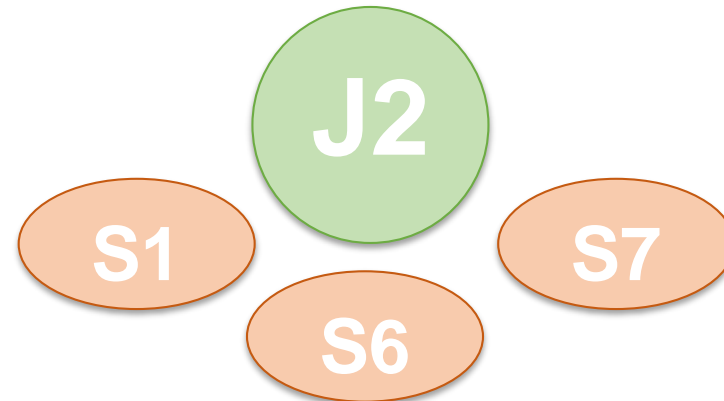
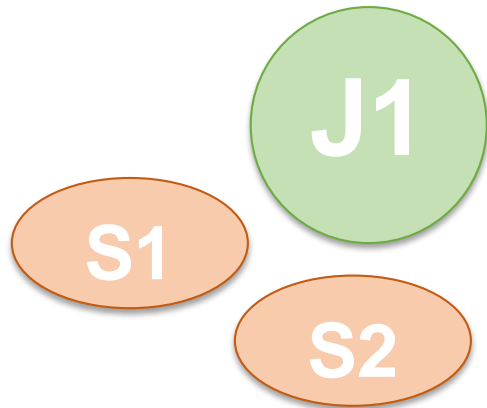
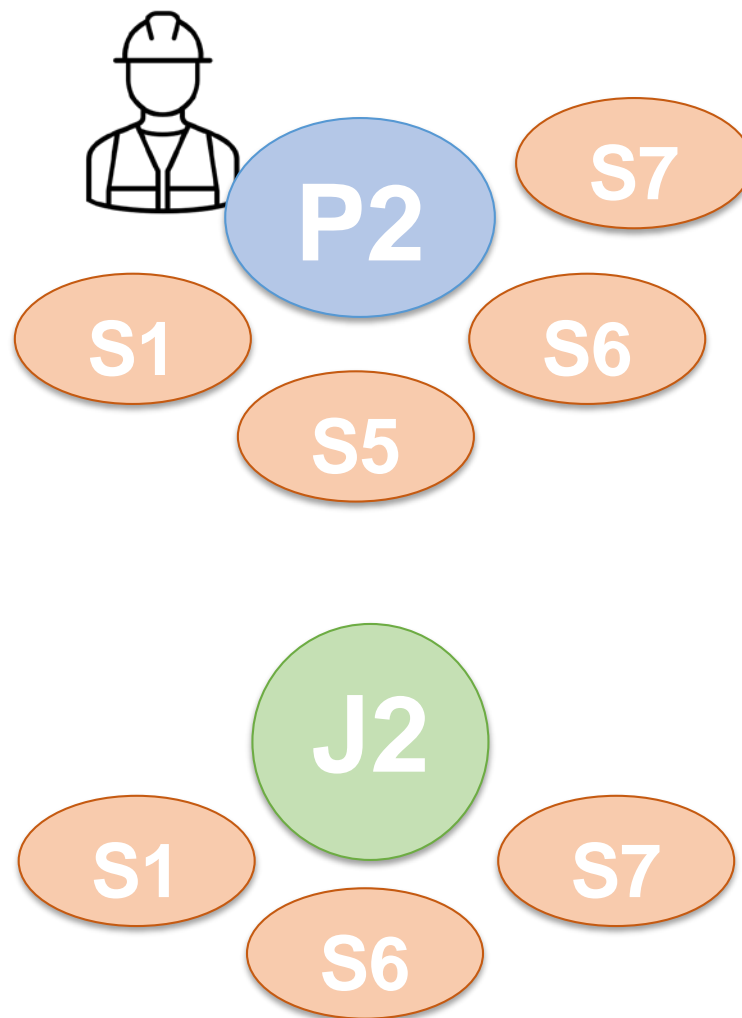
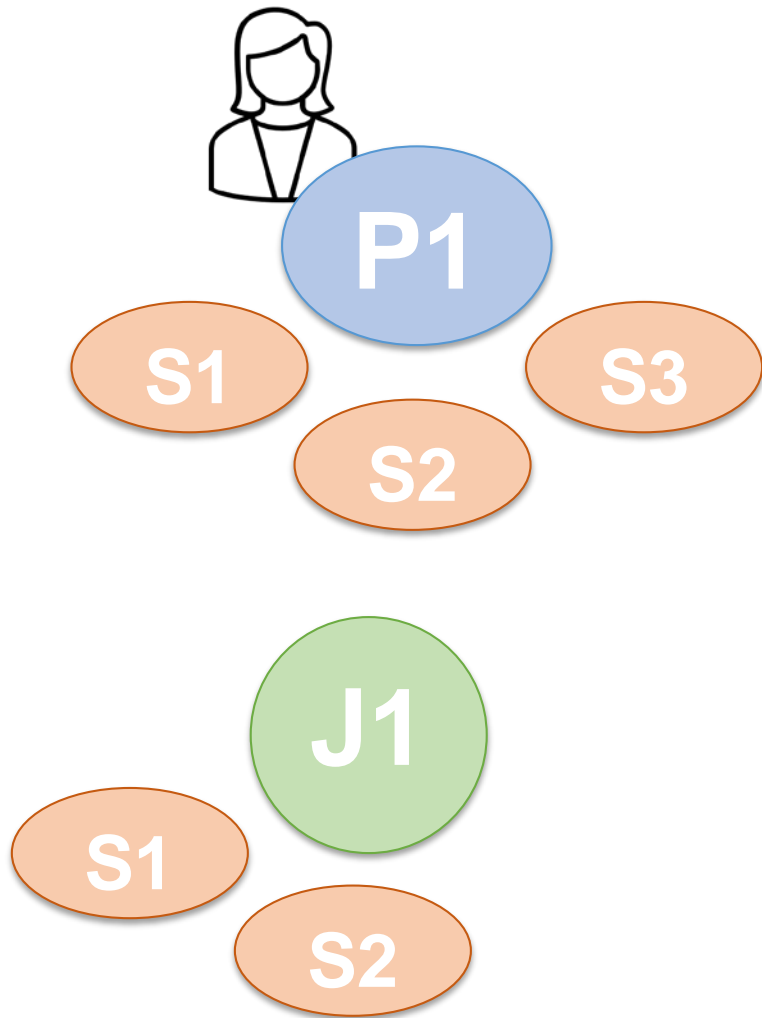
”

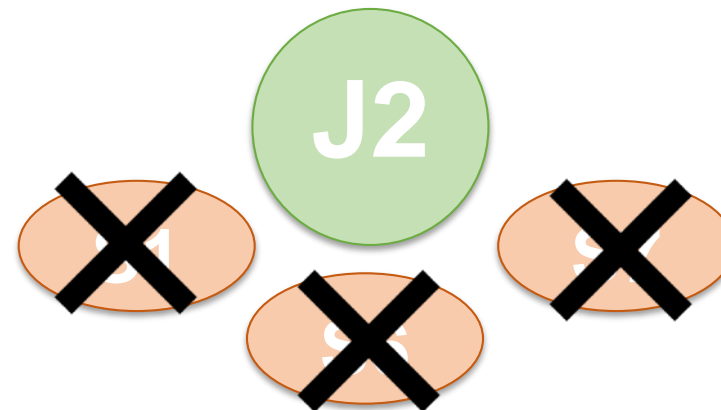
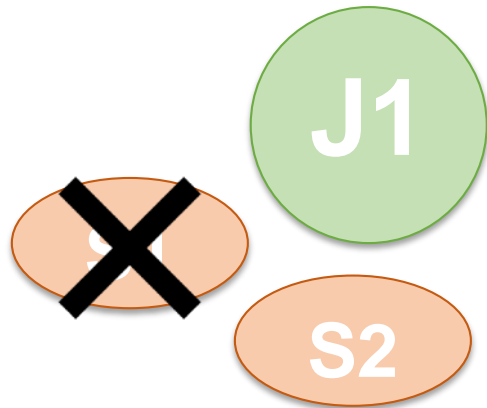
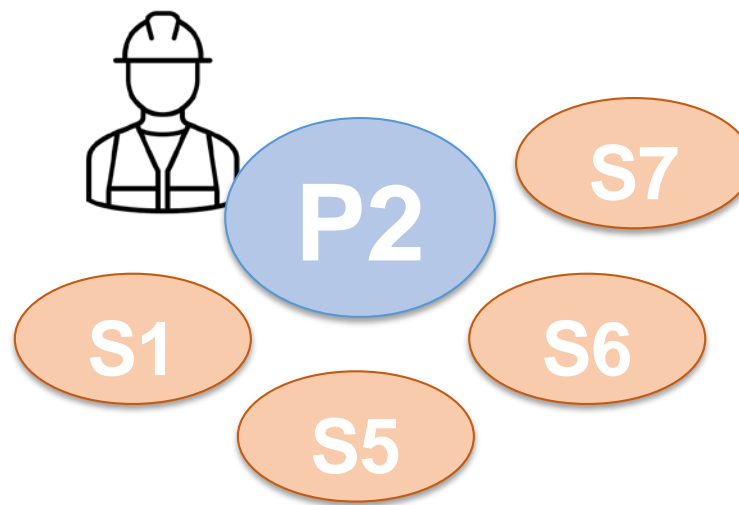
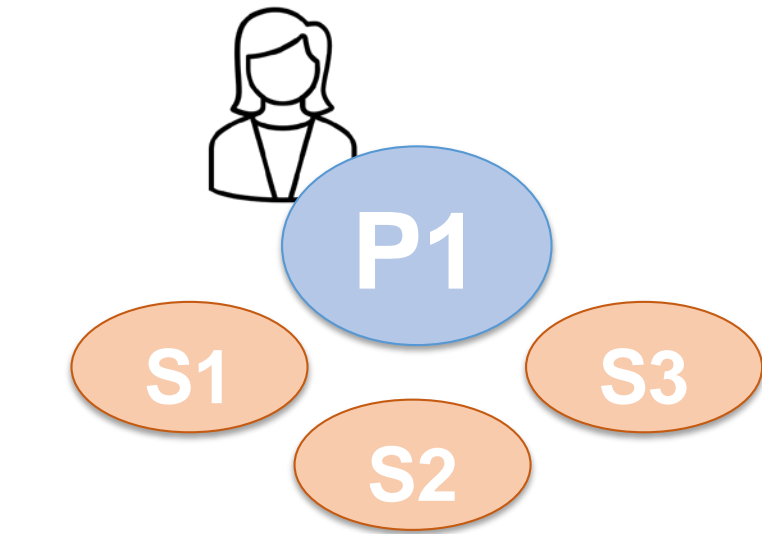
1. Predict if a person will loose their job because of AI.
2. Analyse the extra skills this person will need for a new job.
3. Recommend training for aquiring these new skills.

For doing this, it is needed to model the relation among:

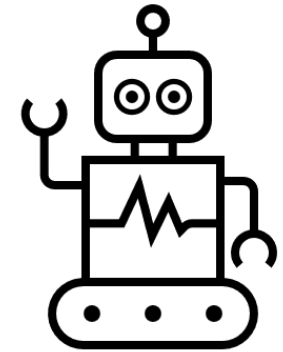
- Person
- Job
- Skill
- Training



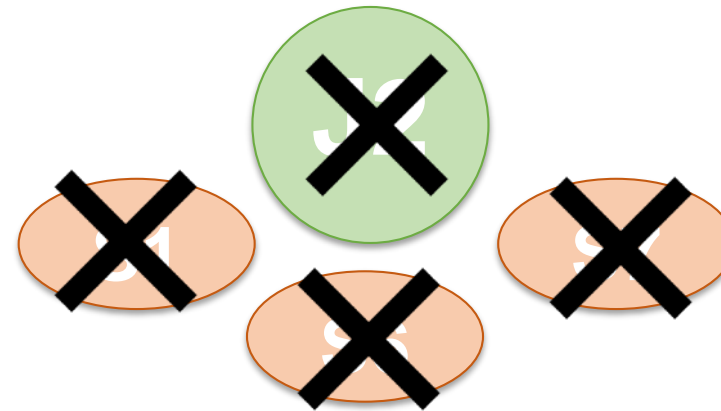
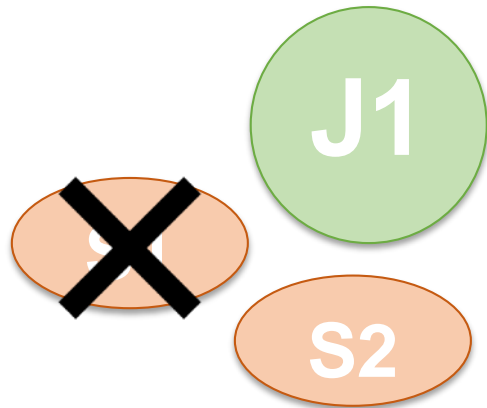
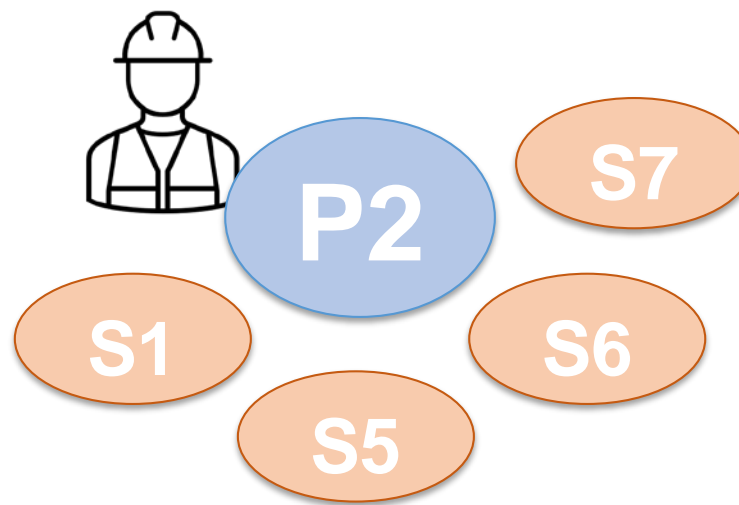
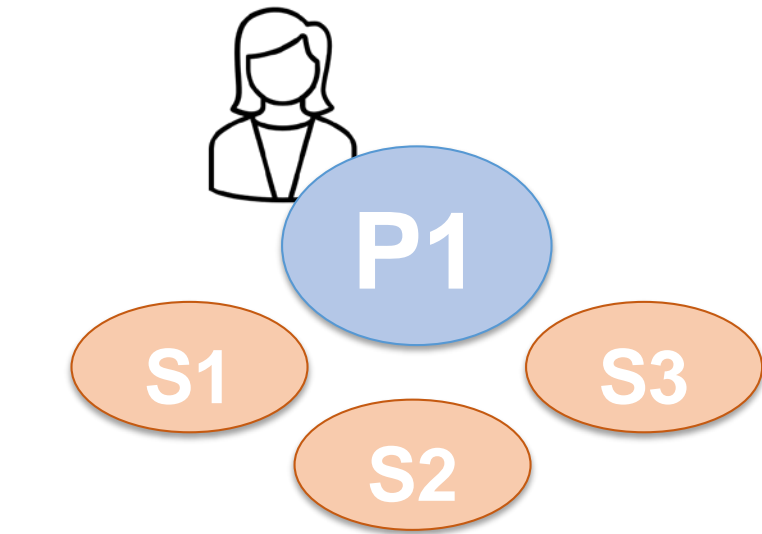




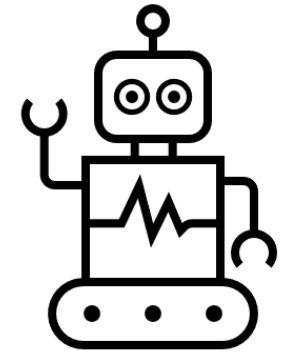
muahahahaha



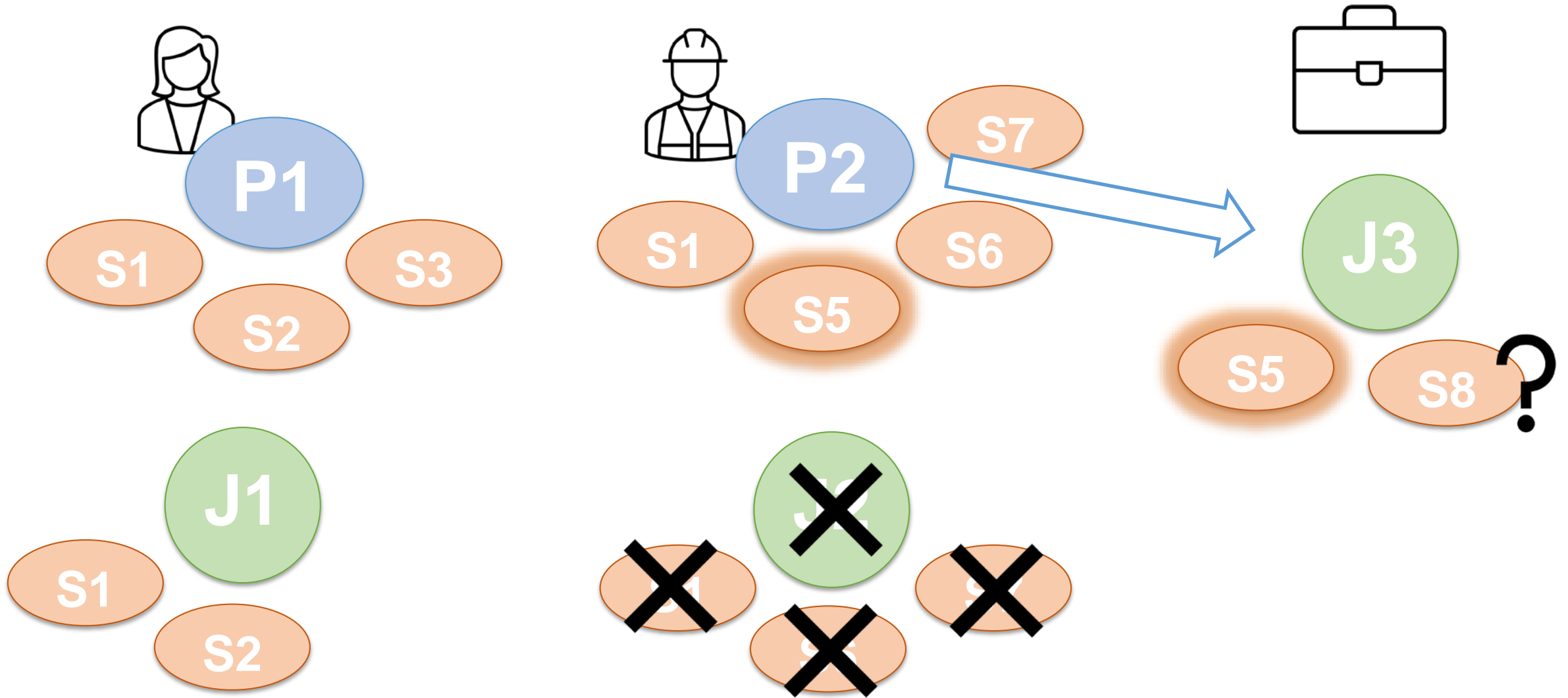
EVIL

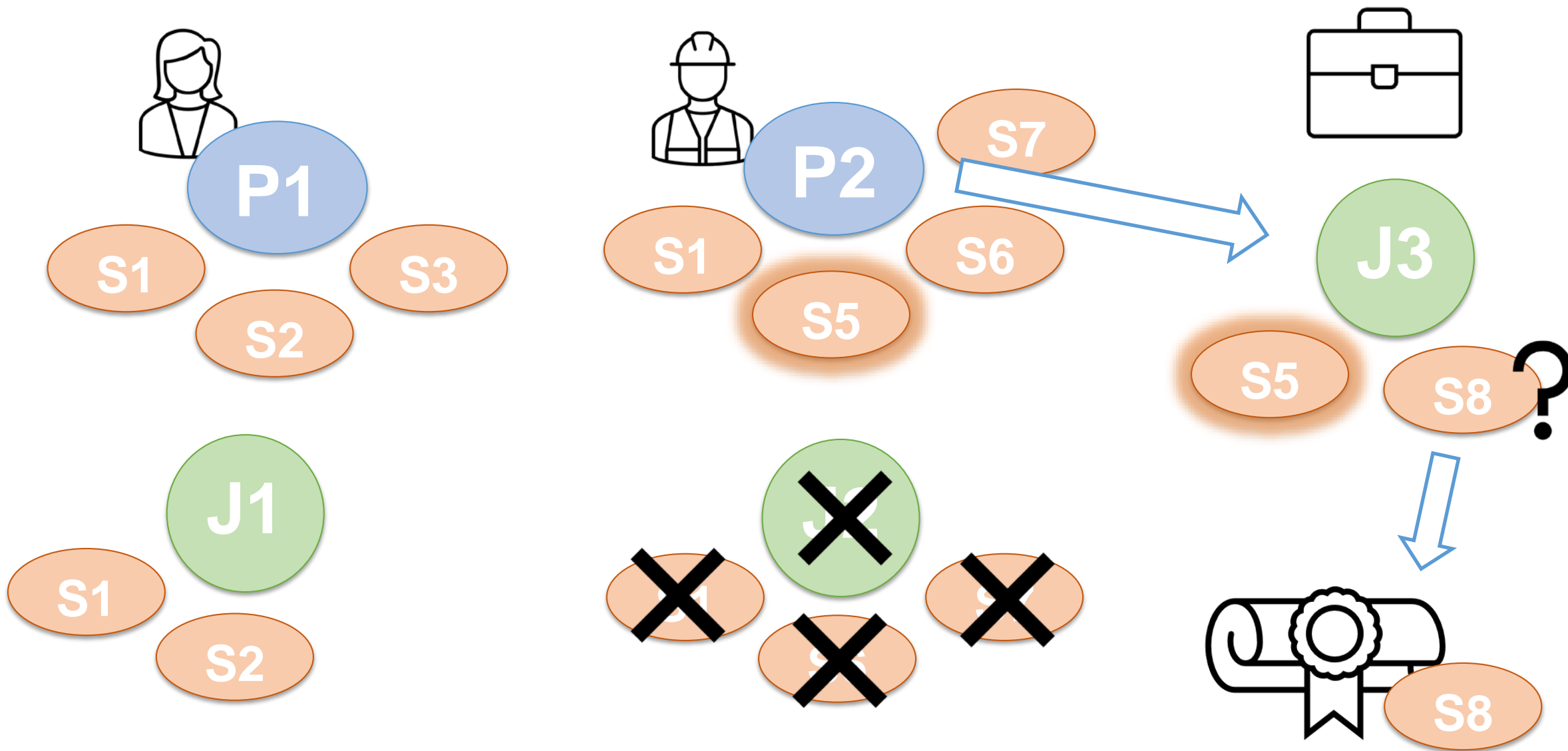


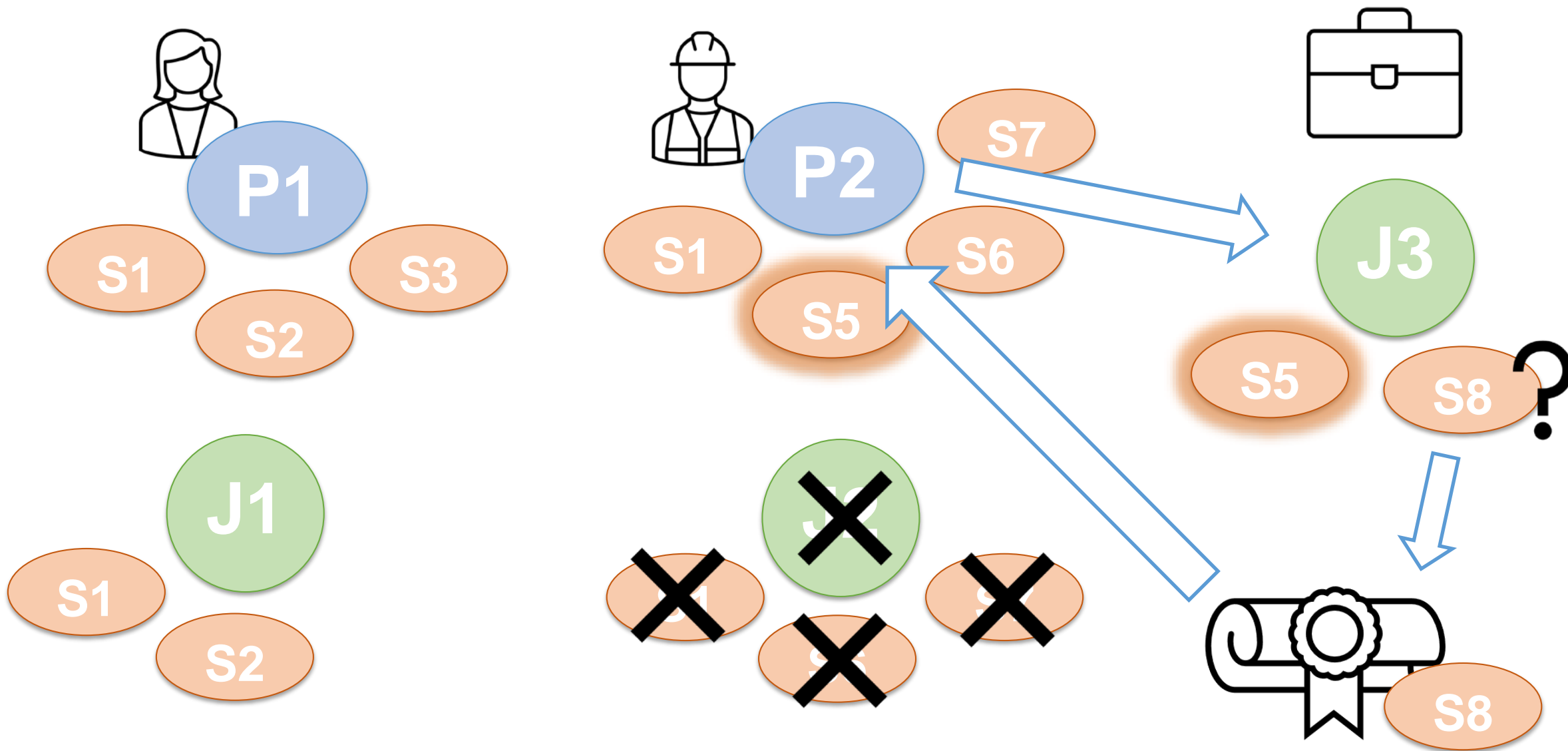
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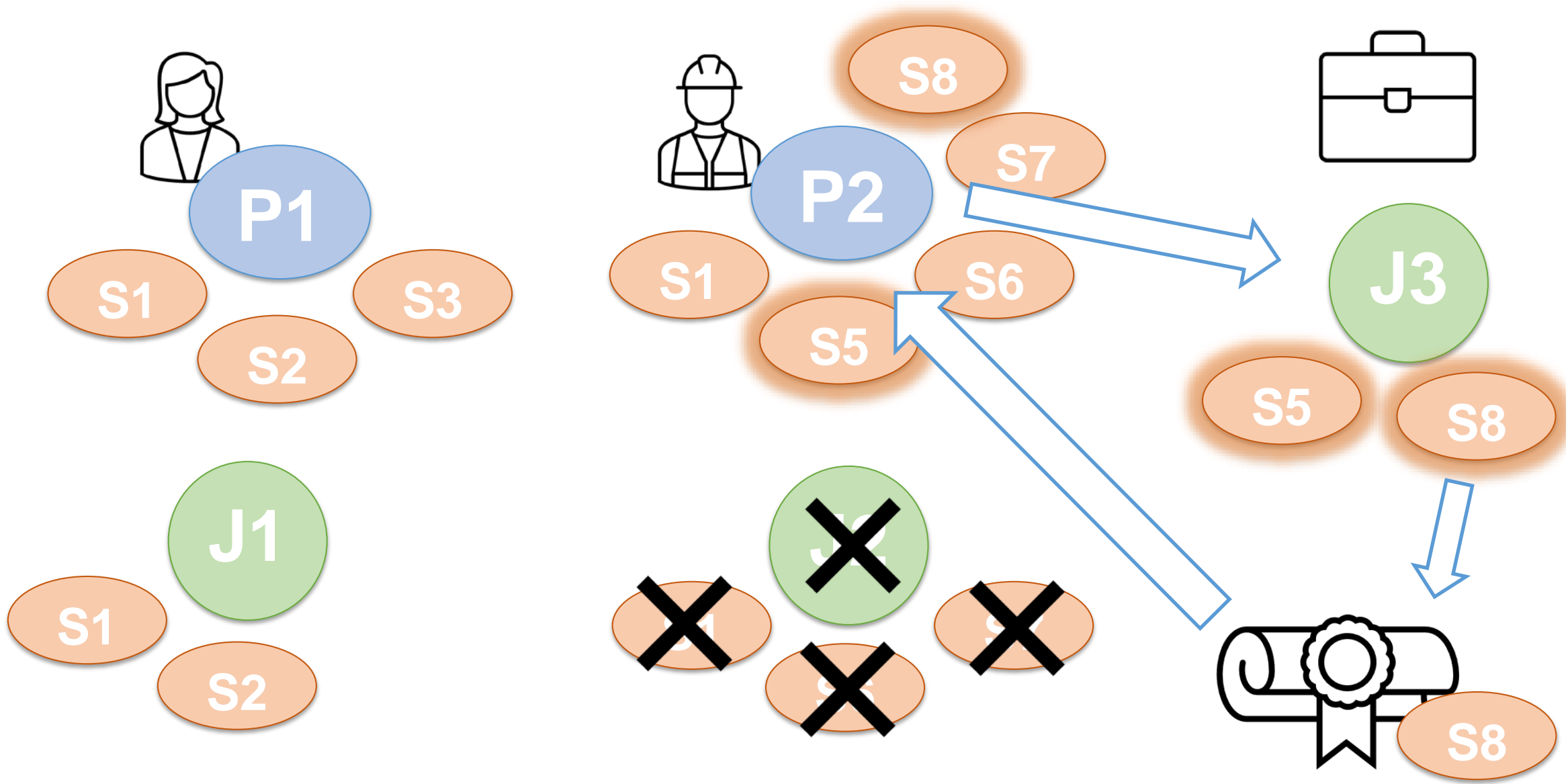


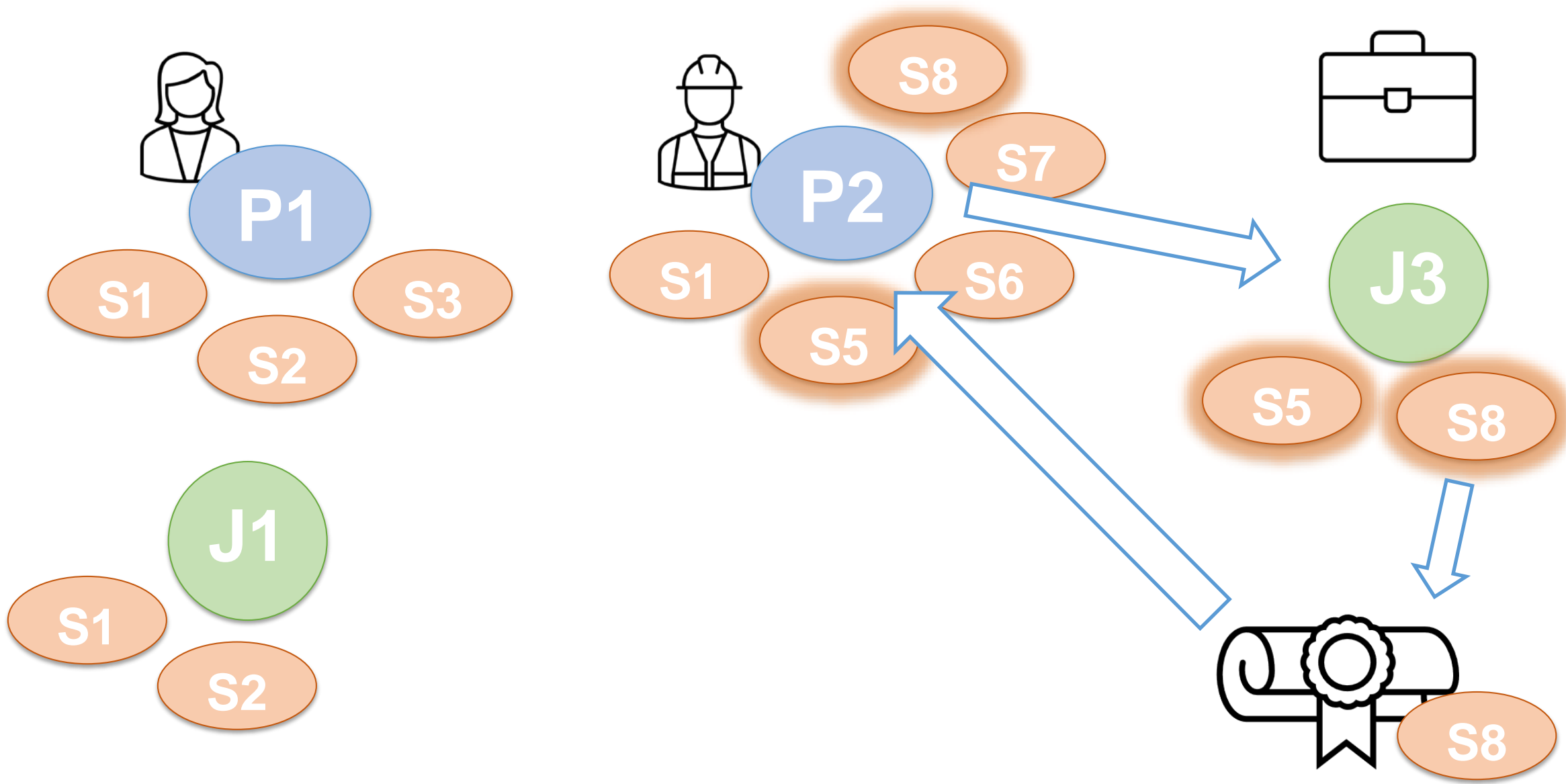
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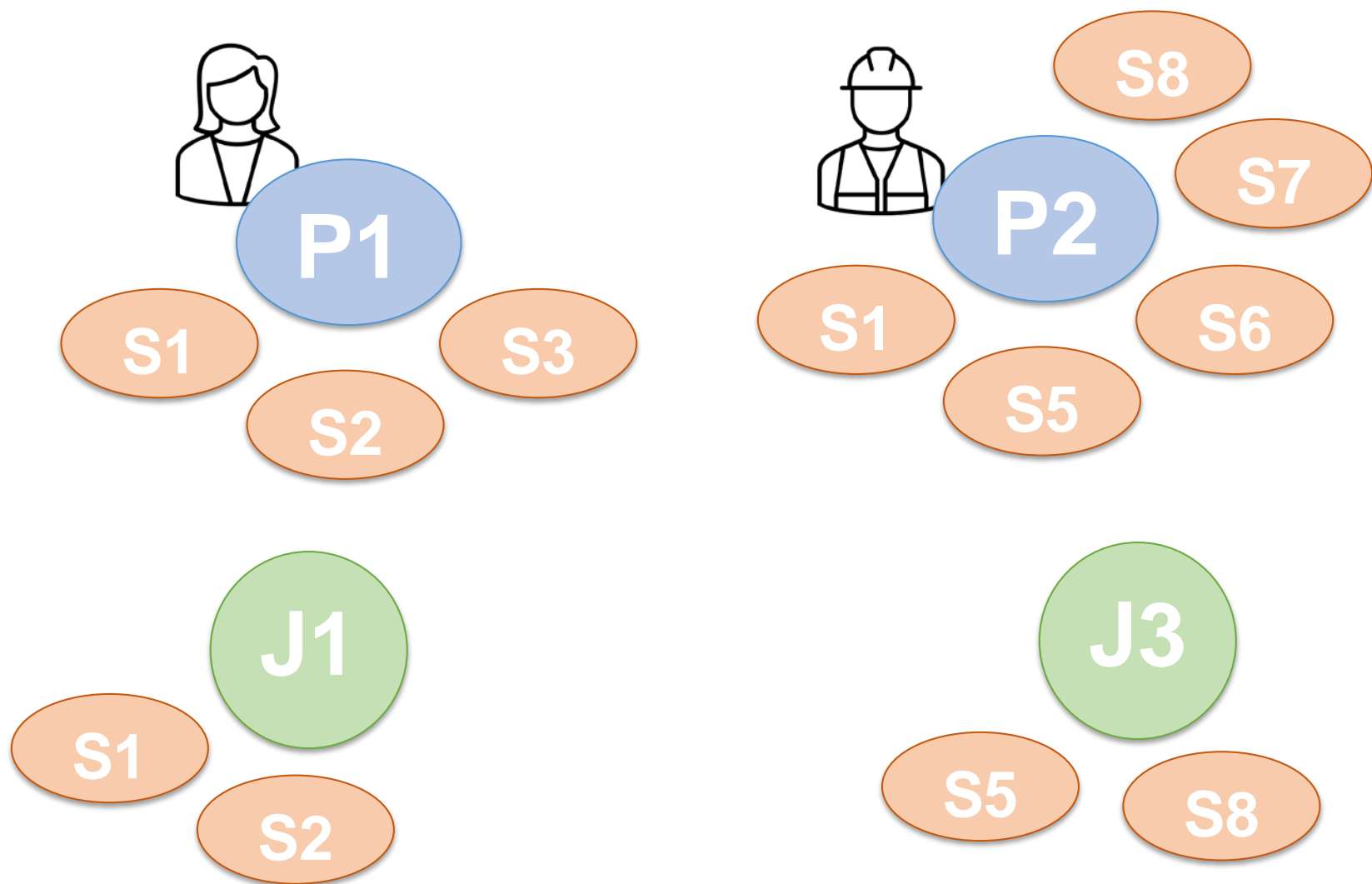


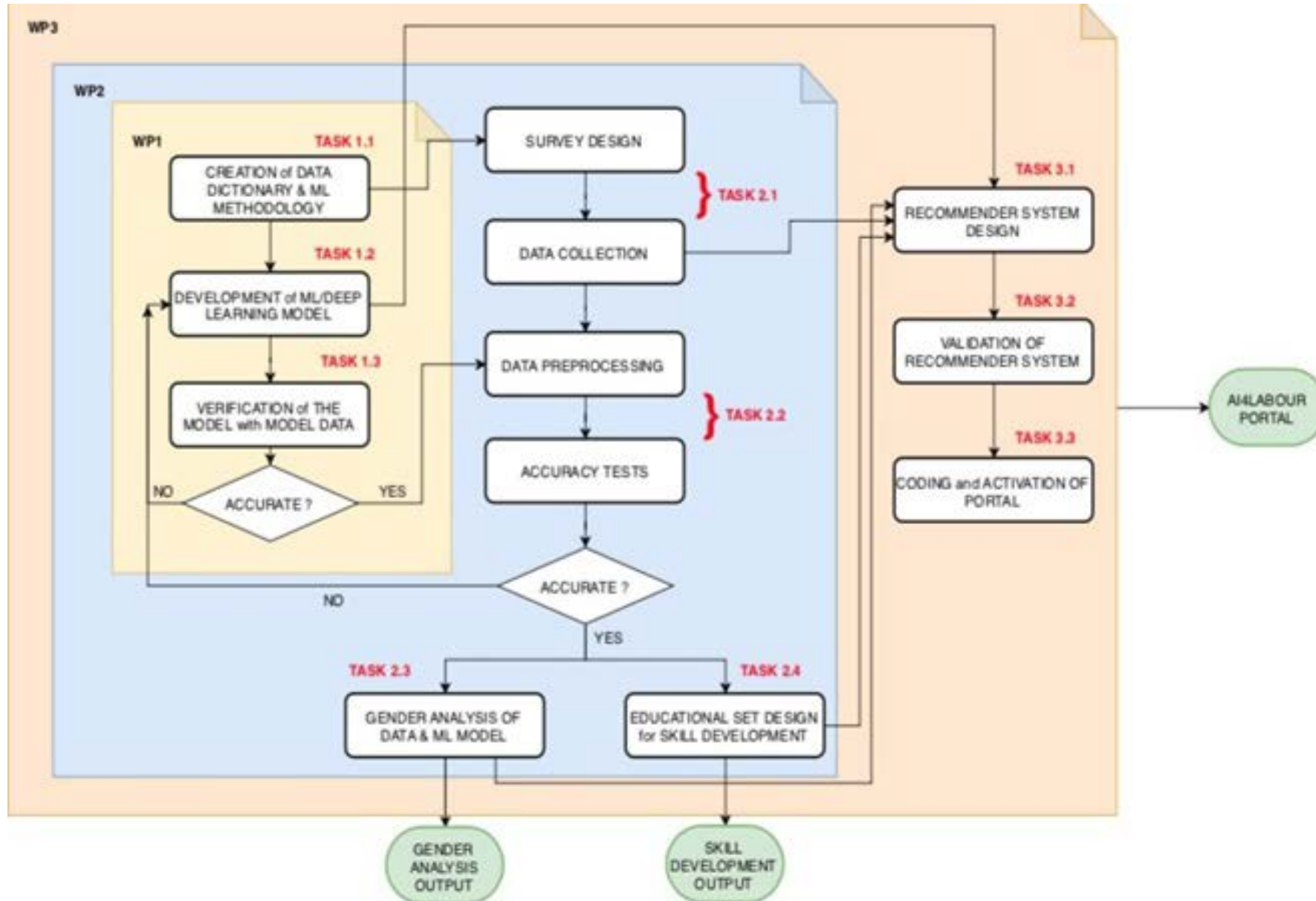












MY WORK

Turks in 1300



**We are the largest
empire in existence**

Turks in 2020



**Take the ice cream,
take it... take the...
wussh...**

Sources:

- Universities?
 - Not all of them have their course data available ☹️
 - We should go faculty by faculty! ☹️
 - No uniform Bologna taxonomy ☹️
- MOOC platforms
 - EdX
 - Coursera
 - Udemy
- Arçelik internal data



url	name	topics	skills	type	description				
https://www.coursera.org/course/cloud-computing-concepts-paradigms	Cloud Computing Concepts, Paradigms	['Computer Science', 'Algorithms']	['Distributed Algorithm', 'Distributed Computing']	course	b'Cloud computing systems today, whether open-source or using proprietary software, are becoming increasingly important in the world of business and industry.				
https://www.coursera.org/course/the-challenges-of-global-health	The Challenges of Global Health	['Health', 'Public Health']	[]	course	b'What are the world's major health challenges? How can we address them? This course explores the challenges of global health and the role of public health in addressing them.				
https://www.coursera.org/course/digital-marketing-analytics-in-the-21st-century	Digital Marketing Analytics in the 21st Century	['Data Science', 'Data Analysis']	['Digital Marketing', 'Data Collection', 'Analytics']	course	b"Successfully marketing brands today requires a well-balanced mix of traditional and digital marketing strategies. This course explores the challenges of digital marketing and the role of analytics in addressing them.				
https://www.coursera.org/course/digital-product-management	Digital Product Management: Navigating the Digital Landscape	['Business', 'Leadership and Management']	['Product/Market Fit', 'Product Management']	course	b"Not so long ago, the job of product manager was about assessing market needs and developing a product that met those needs. Today, the job of product manager is much more complex, involving a wide range of digital marketing and analytics strategies.				
https://www.coursera.org/course/grow-your-business-with-golden-rules	Grow Your Business with Golden Rules	['Business', 'Entrepreneurship']	['Opportunity Identification', 'Strategic Thinking']	course	b'This free online course is one of 10 courses available in the Golden Rules series, which provides a comprehensive overview of the challenges of entrepreneurship and the role of analytics in addressing them.				
https://www.coursera.org/course/fundamentals-of-negotiation	Fundamentals of Negotiation, with Dr. Adam Smith	['Business', 'Entrepreneurship']	['Emotional Intelligence', 'Customer Relationship Management']	course	b'This free online course is one of 10 courses available in the Golden Rules series, which provides a comprehensive overview of the challenges of entrepreneurship and the role of analytics in addressing them.				
https://www.coursera.org/course/fundamentals-of-business-finance	Fundamentals of Business Finance	['Business', 'Entrepreneurship']	['Income Statement Analysis', 'Balance Sheet Analysis']	course	b'This free online course is one of 10 courses available in the Golden Rules series, which provides a comprehensive overview of the challenges of entrepreneurship and the role of analytics in addressing them.				
https://www.coursera.org/course/fundamentals-of-leadership	Fundamentals of Leadership, with Dr. Adam Smith	['Business', 'Entrepreneurship']	['Leadership', 'Strategic Planning', 'Vision']	course	b'This free online course is one of 10 courses available in the Golden Rules series, which provides a comprehensive overview of the challenges of entrepreneurship and the role of analytics in addressing them.				
https://www.coursera.org/course/fundamentals-of-customers-and-marketing	Fundamentals of Customers and Marketing	['Business', 'Entrepreneurship']	['Customer Value Proposition (CVP) Development', 'Marketing Strategy']	course	b'This free online course is one of 10 courses available in the Golden Rules series, which provides a comprehensive overview of the challenges of entrepreneurship and the role of analytics in addressing them.				
https://www.coursera.org/course/fundamentals-of-financial-planning	Fundamentals of Financial Planning	['Business', 'Entrepreneurship']	['Financial Management', 'Strategic Planning']	course	b'This free online course is one of 10 courses available in the Golden Rules series, which provides a comprehensive overview of the challenges of entrepreneurship and the role of analytics in addressing them.				
https://www.coursera.org/course/fundamentals-of-sales-and-marketing	Fundamentals of Sales and Marketing	['Business', 'Entrepreneurship']	['Market Research', 'Marketing Strategy Development']	course	b'This free online course is one of 10 courses available in the Golden Rules series, which provides a comprehensive overview of the challenges of entrepreneurship and the role of analytics in addressing them.				



GitHub

https://github.com/mnavasloro/course_crawler

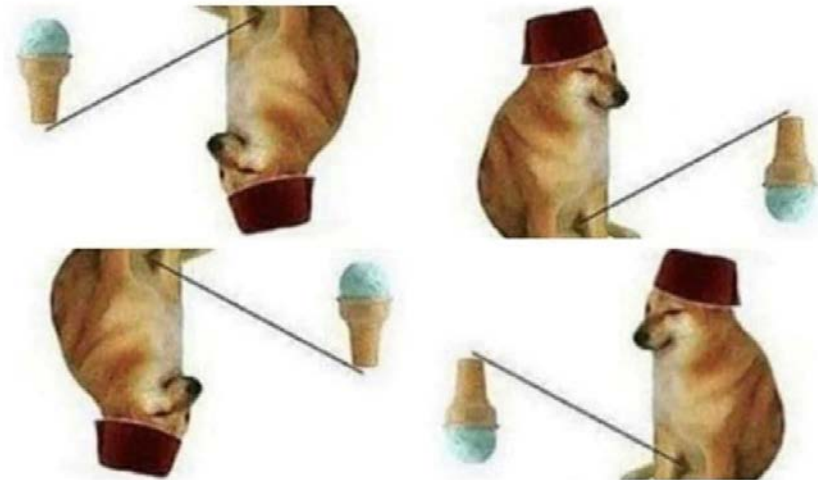
Example with Arçelik competency data

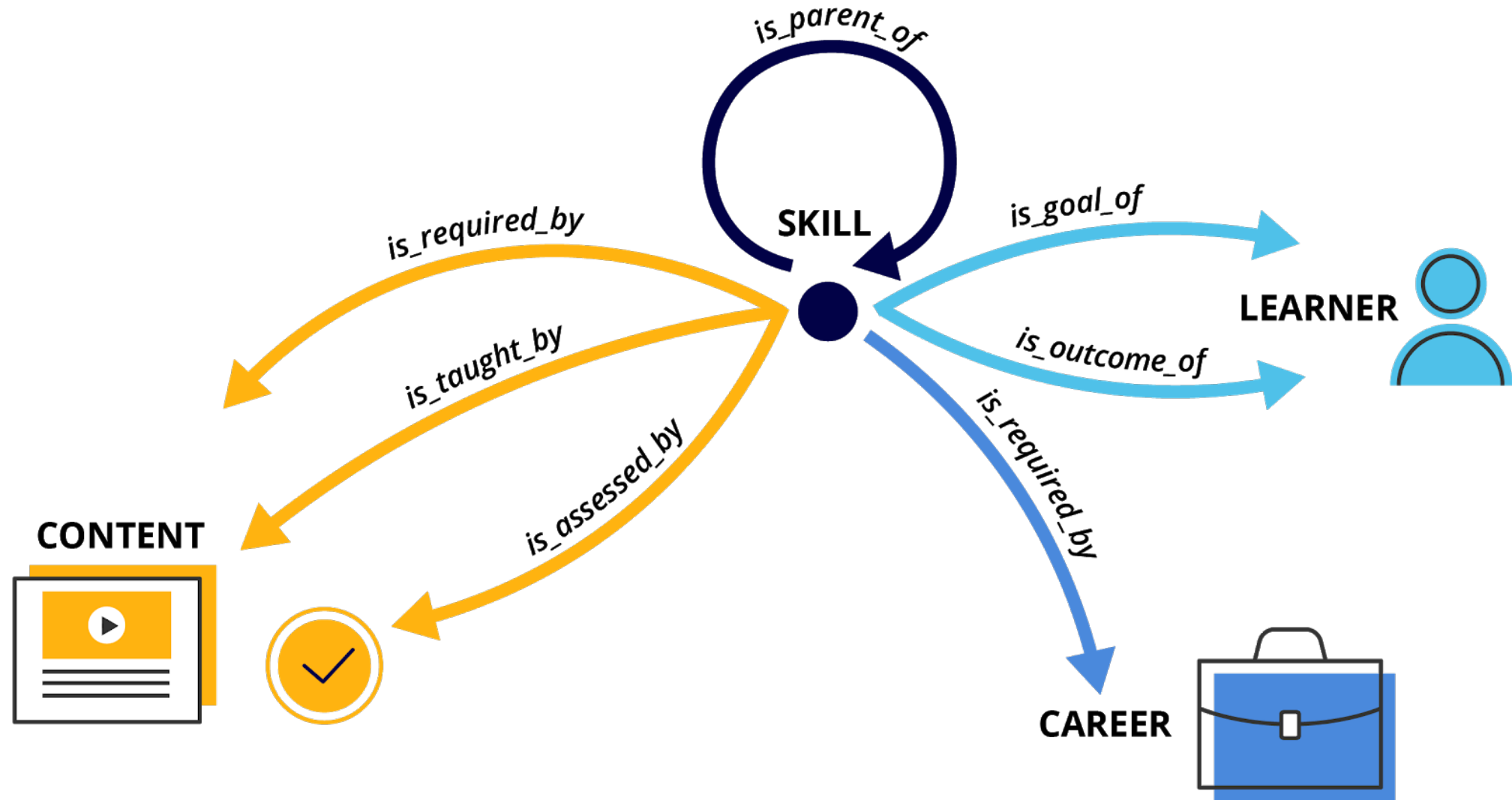
Competency	Sub Competency	Competency Description (Short Explanation 1-2 sentences)	Coursera Training	Udemy Training	edX Training
CAM	CAM	Computer Aided Manufacturing	['CAM and Design Manufacturing for Mechanical Engineers with Autodesk Fusion 360 Coursera (https://www.coursera.org/learn/cam-design-manufacturing-mechanical-engineers)']	['Aprende batería c']	
Capacity Planning & Headcount Analysis	Capacity Planning & Headcount Analysis	Short term and long term capacity planning. Revisions through monthly plannings. Bottleneck	[]	[]	[]
Carbon Management & Carbon Markets	Carbon Management & Carbon Markets	Carbon credit, ETS, Renewable Energy Certificate, Internal Carbon Pricing, Green Deal, Carbon	[]	[]	[]
Chemical Management	Chemical compliance specifications for production	Chemicals management of all machines, process, chemical storage area etc	[]	[]	[]
Chemical Management	Chemical compliance specifications for	To have knowledge on Reach, ROHS, PAH, POP,	[]	[]	[]
Cloud Computing Architecture	Cloud Computing Architecture	Hands-on experience with most popular Cloud Platform Providers. Fundamentals for cloud	['Exam Prep: AWS Certified Solutions Architect - Associate	[]	[]
Cloud Computing Development	Cloud Computing Development	Hands-on experience with most popular Cloud Platform Providers. Fundamentals for cost	[]	[]	[]

REPRESENTATION

Nobody:

Ice cream guy in Turkey:



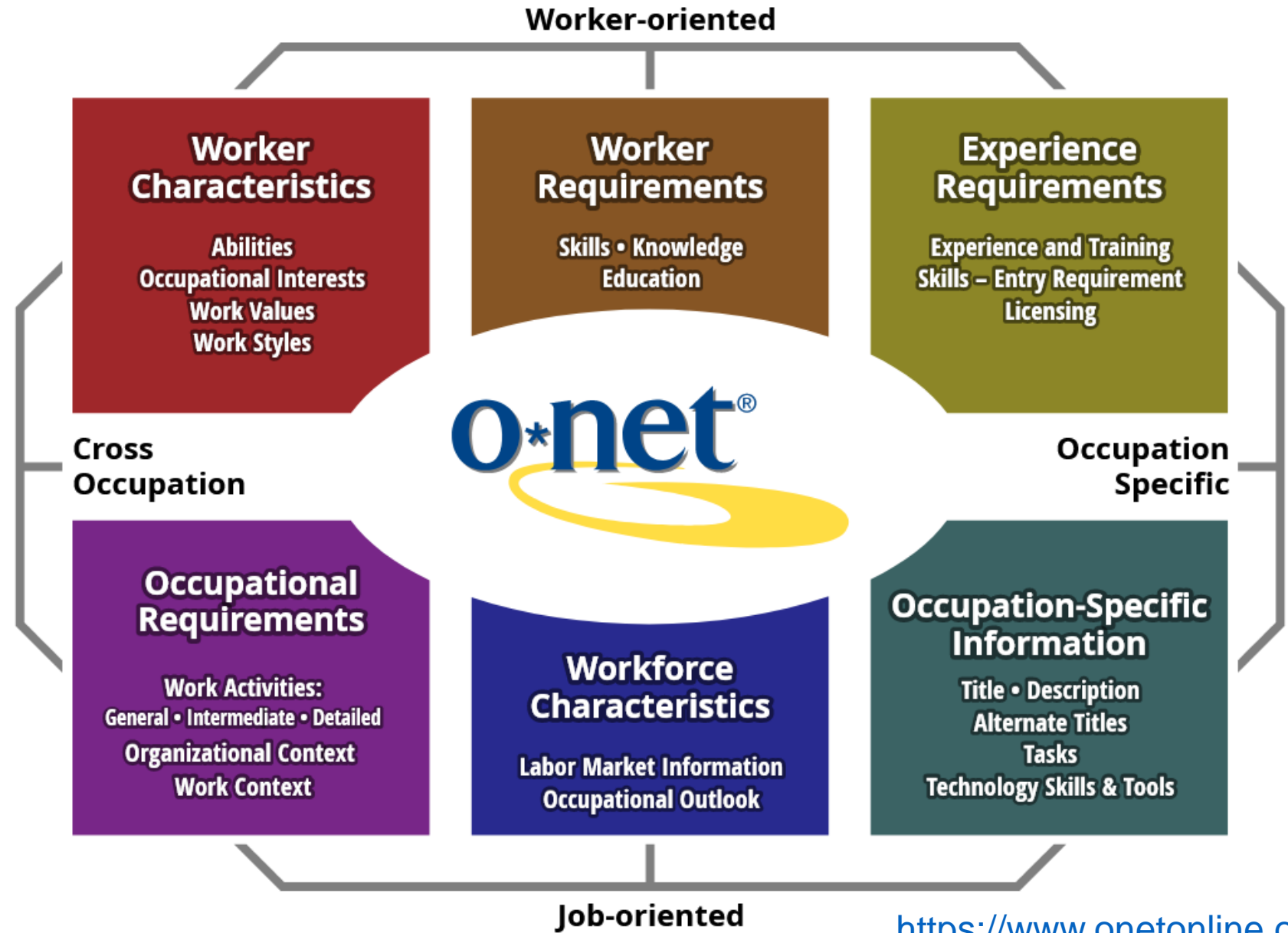


<https://medium.com/coursera-engineering/courseras-skills-graph-helps-learners-find-the-right-content-to-reach-their-goals-b10418a05214>

O*NET

ESCO

SARO



<https://www.onetonline.org/>

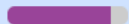
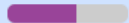
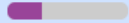
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Browse by Cross-Functional Skills

Complex Problem Solving













Save Table: [XLSX](#) [CSV](#)

Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.

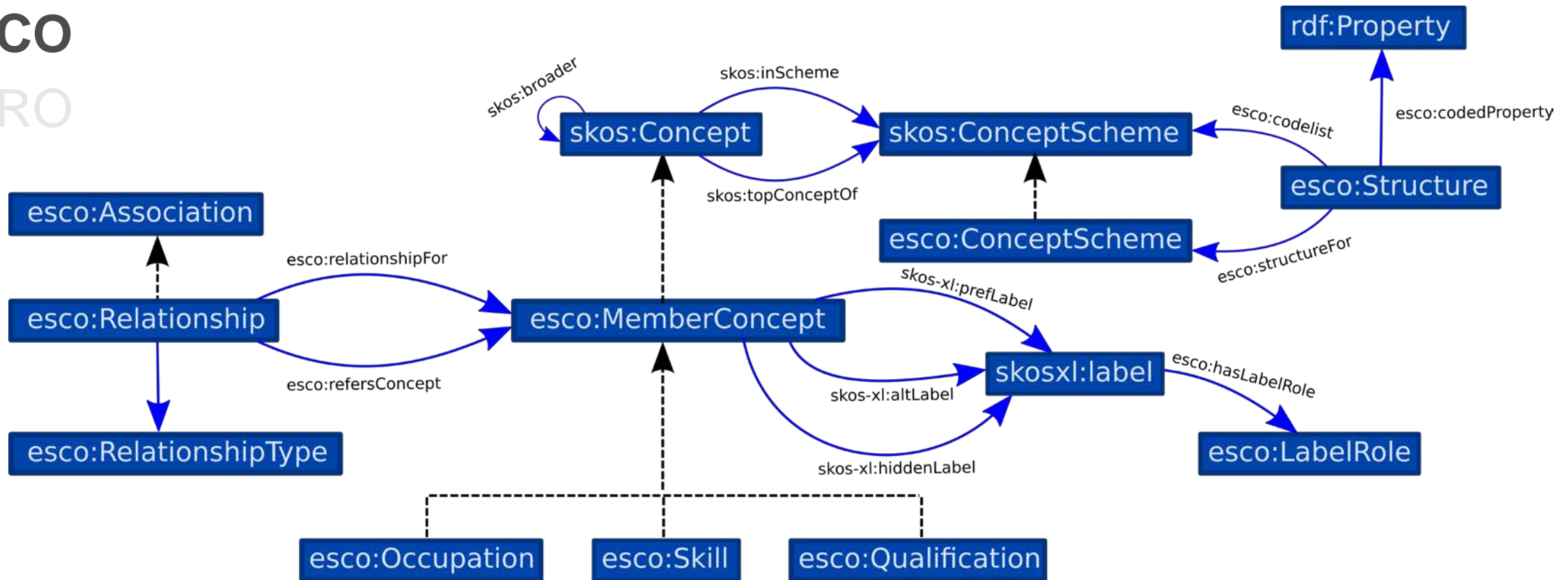
- Level examples:**
- 85  Develop a plan to provide emergency relief for a major metropolitan area
 - 57  Redesign a floor layout to take advantage of new manufacturing techniques
 - 28  Lay out tools to complete a job

873 occupations shown

Show Job Zones: All 1 2 3 4 5

Importance 	Level 	Job Zone 	Code 	Occupation
85 	71 	5	11-1011.00	Chief Executives
81 	75 	4	11-9161.00	Emergency Management Directors
78 	71 	5	23-1023.00	Judges, Magistrate Judges, and Magistrates
78 	70 	5	15-2021.00	Mathematicians

O*NET
ESCO
SARO



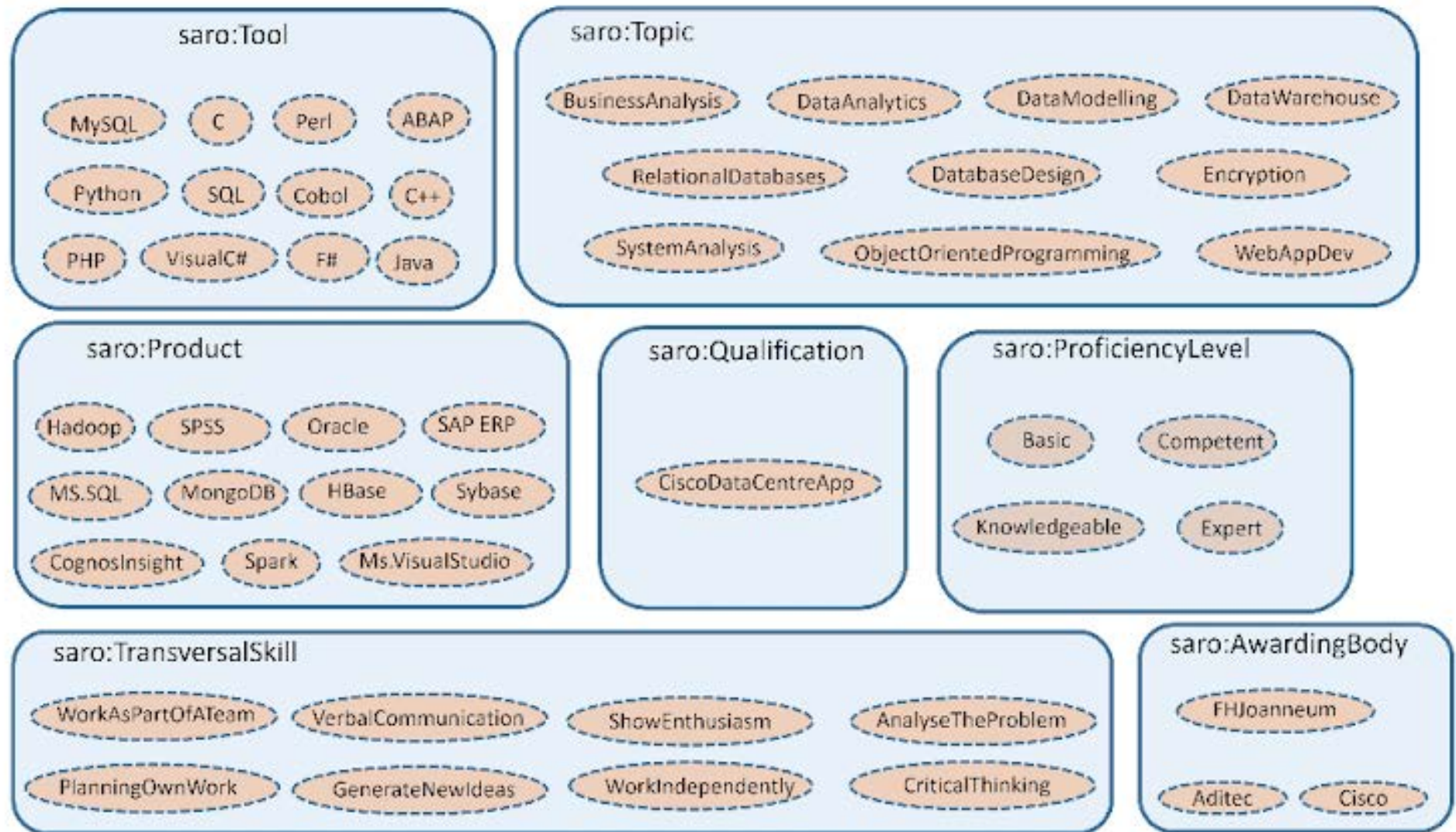
<https://ec.europa.eu/esco/lod/static/model.html>

SARO



<https://elisasibarani.github.io/SARO/>

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ESCO
SARO



WORK AHEAD

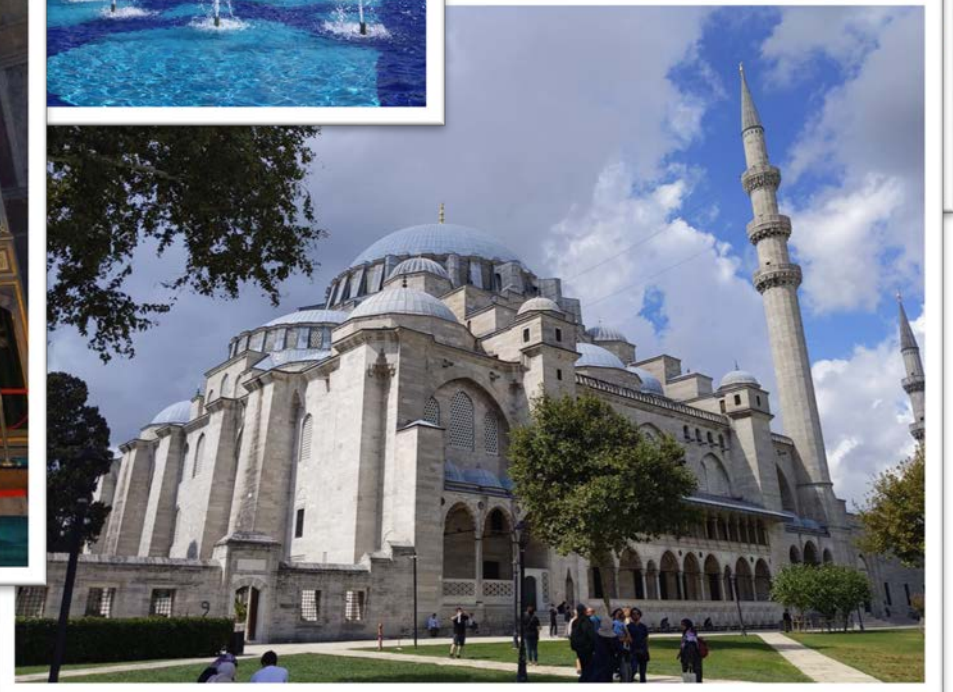
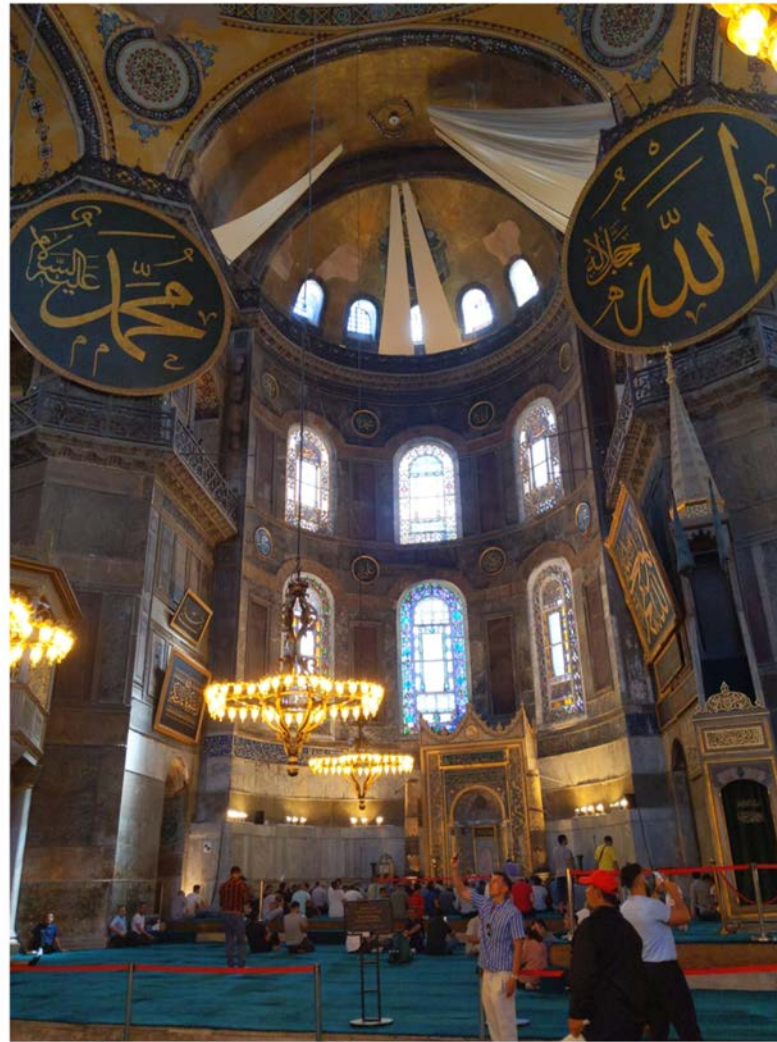
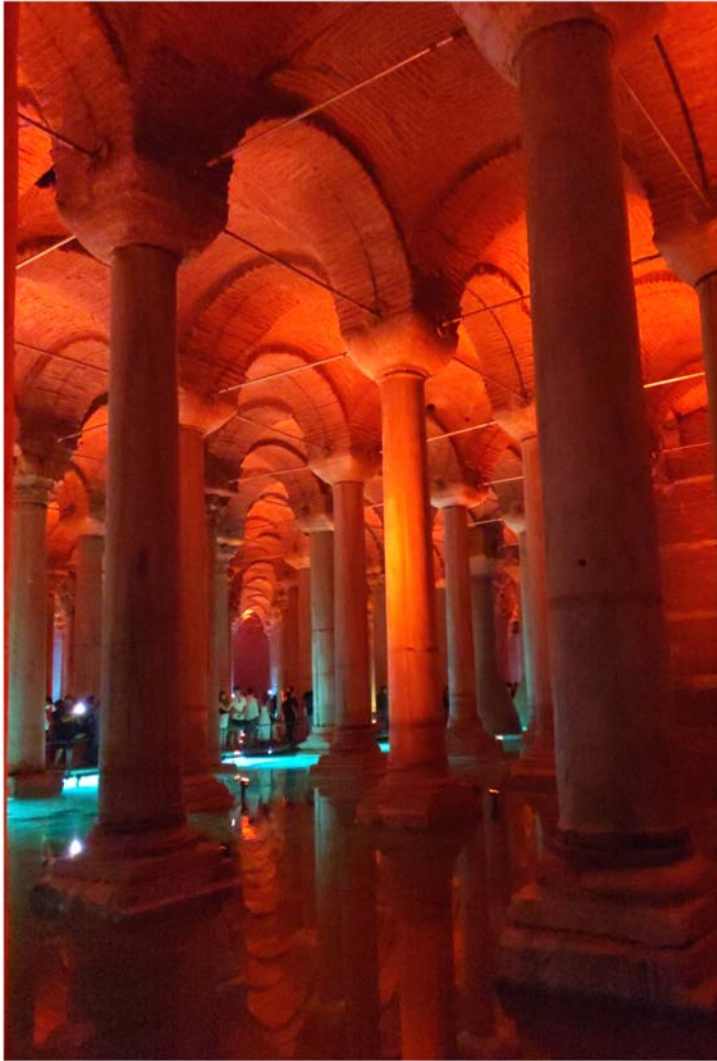


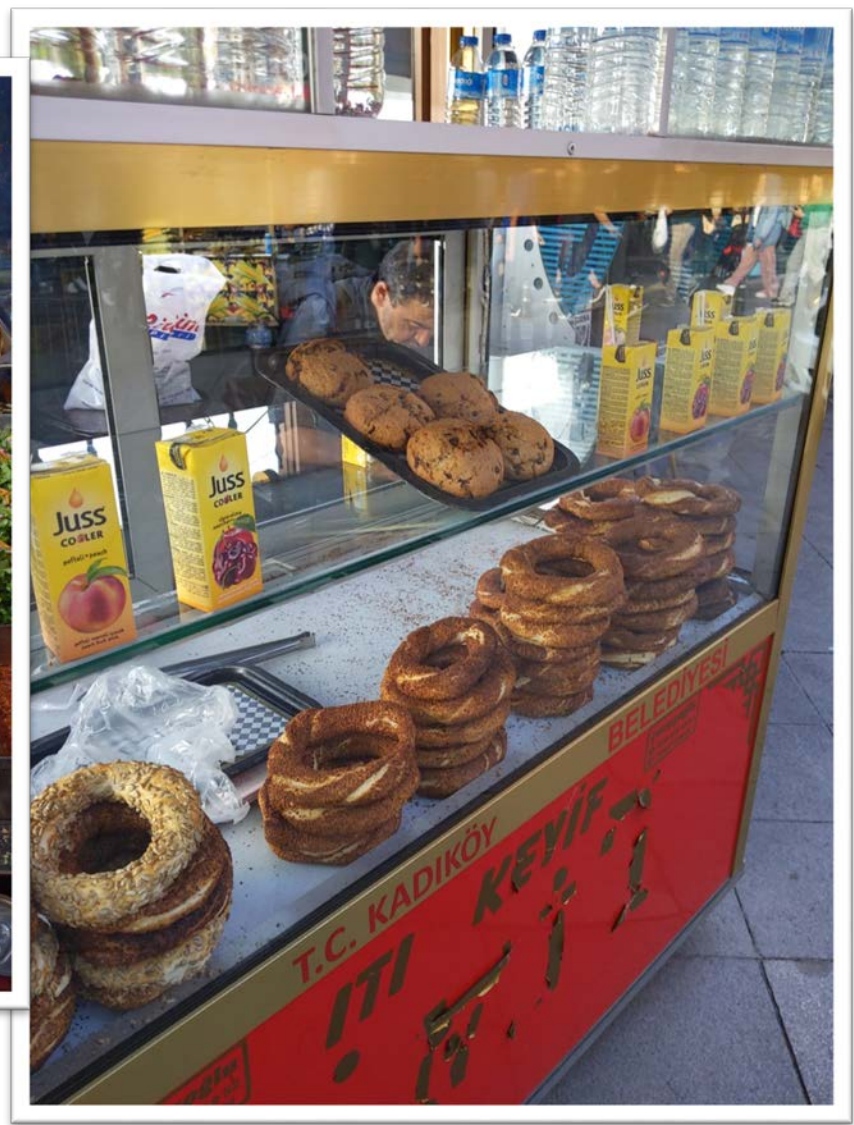
What Next (not exhaustive):

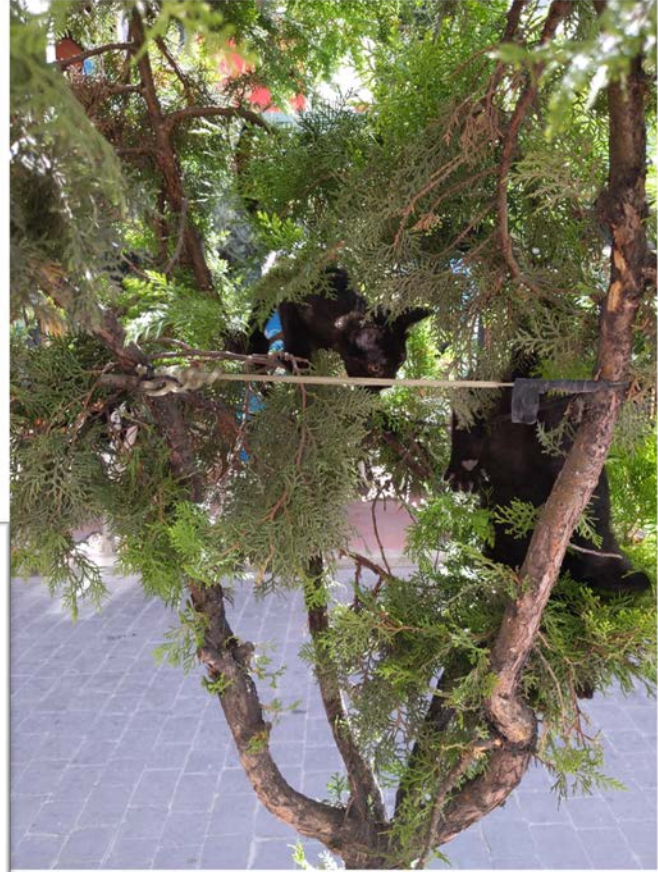
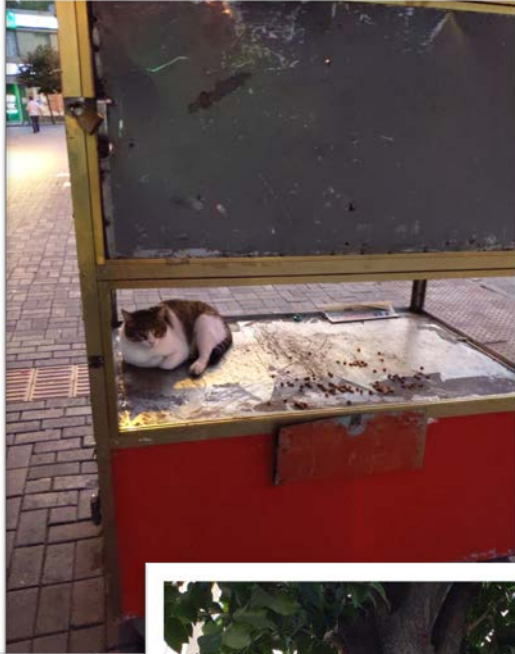
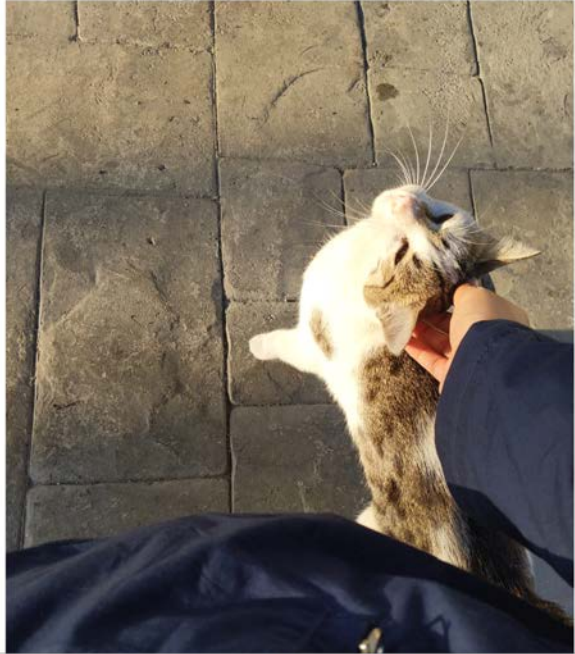
- NLP Similarity
 - Among skills, among jobs...
 - Basic work started (using BERT, not very good)
 - Interest from Arçelik
- Ontology (mapping, publication, etc)
- Weight modeling:
 - Job-skills
 - Course-skills
- Recommendation algorithm
- Multilingualism!



WE WANT YOU!









QUESTIONS, COMMENTS, SUGGESTIONS?