
An enhanced job and skills modeling methodology for job role clarity

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Introduction

“Job role clarity” as an essential element in skills intelligence

Successful skill matching requires

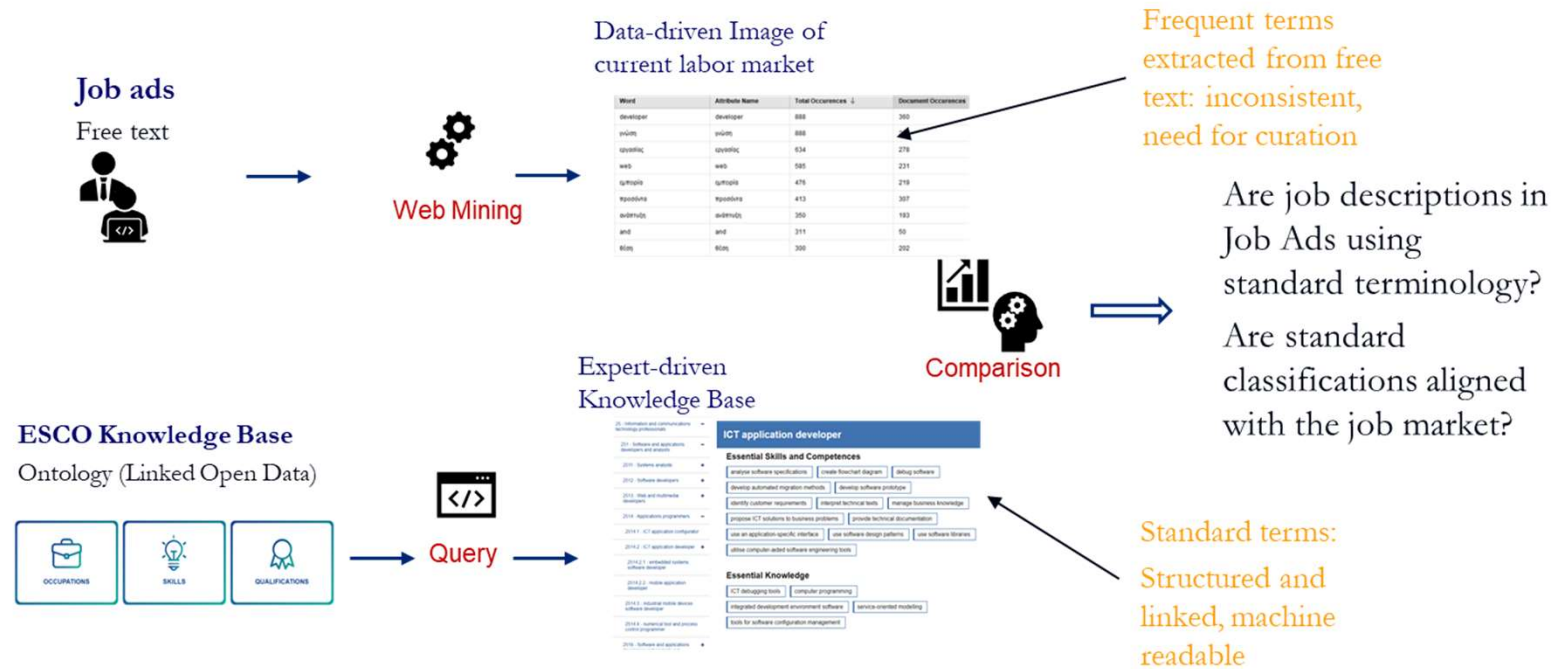
- Standardised communication among employers, human resource managers, candidates and policy makers
- Accurate description of jobs and skills
- A universal understanding of roles and responsibilities

Open challenges

- Wider adoption of standard terminology (ESCO) in job position postings
- The alignment of ESCO with job market needs and its timely updating to keep up with rapid evolutions
- The expressiveness and coverage of job market knowledge models

Background and Rationale (1)

Findings about the use of standards at job descriptions



- ESCO is widely used in research and by large platforms BUT not by companies in their Job Ads.
- Considerable misalignment between the skillsets suggested by ESCO and the requirements frequently found in Job Ads (e.g. 53% of ESCO terms found in ads - many essential terms do not appear in ads) -> partly explained by the ambiguity of the free-style descriptions and difficulties in web mining.

Background and Rationale (2)

Findings from the SCVis project

- **SCVis:** Erasmus+ KA2 project aiming to test and enhance the competency of employees in the fashion sector in terms of Supply Chain Visibility.
(<https://ommt.ihu.gr/en/ereyna/ergasthrio-analyshs-dedomenwn/research-projects-dabilab/european-fashion-scvis/>)
- The SCVis tool detects for a current or potential employee/professional his/her **knowledge gaps that are essential for the job role.**
- Requirements for developing the SCVis tool:
 - to capture job roles in the specific sector
 - to link them with their knowledge requirements
 - to produce training/evaluation material
 - to model these entities and links in a machine-understandable form
- Challenges:
 - A variety of job titles with different content and requirements – depending on company organisation and country culture
 - Specialized knowledge requirements for employees involved in several different posts

Findings from the SCVis project (cont.)



Problem encountered:

It was not possible to clearly link **job titles** with **knowledge requirements**.

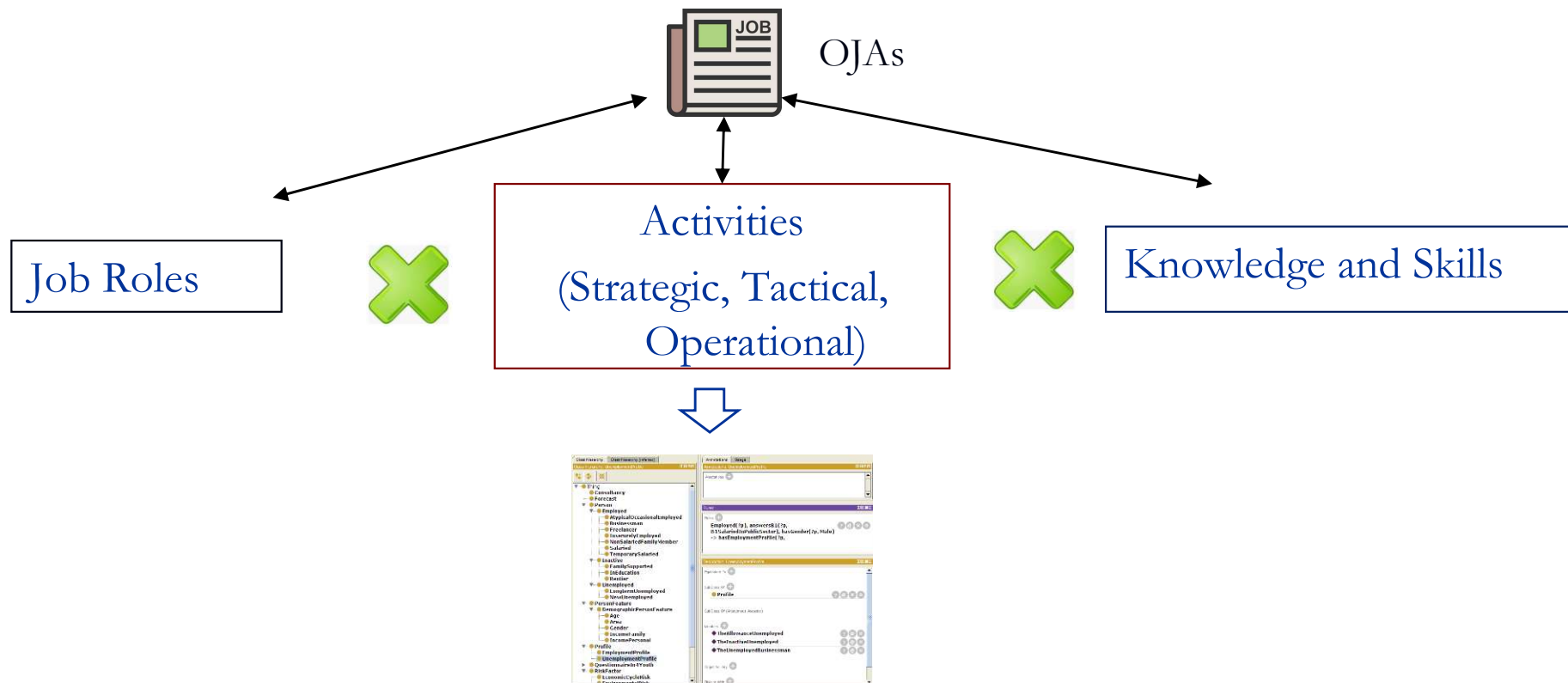
Solution:

- Changed focus from Occupations/Job titles to **Job Roles**.
- Job Roles were deconstructed to **Activities**,
- Activities were mapped to **Knowledge** and **Skills**
- Jobs were reconstructed as a universal framing of job titles with a variety of requirements and characteristics but pointing to a common job function.

Outline of proposed methodology

Instead of matching the terms extracted from Job Ads to **Occupations or job titles** and to **skills/knowledge**,

- we added the level of **Activities**
- we adopted the concept '**Job Role**' as a content-based framing of job titles
- Job Roles were indirectly mapped to Knowledge and Skills



A 3-step process to Job Role clarity



- Cyclic process of Job Role architecture construction
- All steps include knowledge extraction from data and analysis by expert groups

Step 1 - Scan information sources of job descriptions to create discrete Job Roles

Capturing of all “job titles” and their descriptions to understand the scope, functions, and requirements for each job title.

1) Analysis of Job Ads and documents

- (a) professional periodicals with regular Job Ads for the sector
- (b) online job recruitment websites
- (c) recruitment agencies
- Data from UK, Ireland, Italy and France (~3500 Job Ads)
- Content analysis of the core responsibilities and functions detailed in the job specifications

2) Interviews with key stakeholders

- Selected stakeholders with responsibility for recruitment of staff in the Fashion industry, and fashion students as proxies of those seeking employment.
- Exploration of responsibilities, processes, competences, and expectations for each Job Title

Lists of **job titles** and their associated **activities**.

Break down to strategic, tactical and operational levels

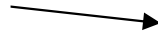


Thematic analysis to identify discrete Job Roles best describing the core job functions identified in the different job titles.



Job Roles

Result for the Fashion industry
focusing on Supply Chain Visibility



Strategic level

Role 1 Managing Director (MD)

Role 2 Buyer Director (BD)

Role 3 Operations /SCM /Logistics Director (OD)

Role 4 Retail /Commercial Director (RD)

Tactical Level

Role 5 Regional /Store /Departmental Manager (SM)

Role 6 Category Manager (CM)

Role 7 Production /Operations Manager (PM)

Role 8 Buyer (BY)

Role 9 Merchandiser (ME)

Operational Level

Role 10 Visual Merchandiser (VM)

Role 11 Sales & Operations Planner (SP)

Role 12 Designer /Technologist (DT)

Role 13 Junior Buyer /Procurement (JB)

Role 14 Sales Associate (SA)

Role 15 Freight Forwarding /Deliveries (FF)

Role 16 Inventory Management (IM)

Bloom's taxonomy was employed as a filter to
decompose various components of each Job
Ad as the first step in understanding the
variety of job titles in fashion industry.

We categorised these stages as:

1) Knowledge and comprehension -> Knowledge

2) Application -> Skills

3) Analysis, synthesis, and evaluation ->
Competencies/activities

Step 2 - Establish activities associated with Job Roles

1) Extraction of the Activities associated to each Job Role from Job Ads

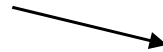
- Noted strategic, tactical, and operational components within an organization.
- Allowed overlap between Job Roles and Many-to-Many relations among Job Roles and Activities.
- Used a class diagram (UML) to model the knowledge structure in the domain.
- Used a template to standardize data collection from different expert teams.

2) Consolidation and standardization of Activities

- Four expert groups working in parallel using common templates and information model.
- Consolidation and coding of Activities in a common model.
- Refinement to achieve cross-culture compatibility among European countries.
- Resolution of inconsistencies and mismatches.

Examples of results

Example 1: The Activities for the
Operations/SCM/Logistics Director



Strategic level

- S3.1 Manage the supply chain from end to end internationally
- S3.2 Devise Logistics strategy
- S3.3 Devise Distribution strategy
- S3.4 Devise Operations Strategy
- S3.5 Ensure strategic alignment between operations and business strategy (location, capacity)
- S3.6 Devise Risk Management Strategy
- S3.7 Devise relationship strategy
- S3.8 Assess business environment (future)

Tactical level

- T3.1 Assess overall operational performance (KPIs) / Compliance-manage the Supply Chain
- T3.2 Ensure reporting to the Managing Director and business lines of the company
- T3.3 Manage Supplier and 3PL relationships
- T3.4 Manage Team and allocate tasks

Operational level

- O.1 Monitor real-time performance
- O.2 Manage escalated operational problems
- O3.1 Query IT system

Example 2:

The activity “**Communicate with other functional teams**” was assigned to the role of **Merchandiser** as operational [O9.1], while to the role of **Junior Buyer** as a tactical activity [T13.1].

Example result for a job candidate



Step 3 - Job Role Design

03. Operations/SCM/Logistics Director

Ko1. Performance evaluation

✓ Success

This activity is performed at every level, with different aims. Performances are evaluated, technically, by means of a Performance Measurement System, i.e. a dashboard containing a number of KPIs. KPI, or Key Performance Indicators, are measurable values indicating how well a company is performing taking a specific perspective. Thanks to KPI it possible to evaluate the goodness of a strategy or a merchandise display choice, defining which corrective actions are necessary. KPI can be controlled at store level to define the performances of the different areas of the store floor, or to evaluate and assign bonuses to the sales staff, or could be used to evaluate the performance of a buyer in the previous season and assign a budget for the upcoming one. At higher levels, KPIs can be used to evaluate the weaknesses of the processes and procedures used by the company, identifying where actions are necessary.

Ko2. KPIs

⚠ Knowledge gap has been detected

Key performance indicators (KPIs) are those indicators that focus on the aspects of organizational performance that are the most critical for the current and future success of the organization

Ko3. Budgeting

Knowledge test not completed

This activity refers to the accomplishment of the budgeting process, which is a complex activity that requires skills and competencies. The accuracy of this process has a great impact on the company performances, and for this reason, it often associated with high management positions. Budgeting has been mentioned several times also during the interviews as a responsibility of different roles. It is important to underline how dealing with fashion, forecasting sales and assign resources to the different point of sales in fundamental to maximise results.

Configuration of the underpinning knowledge and associated skills for Job Role Activities

Identifying the universal job roles that covered a wide range of job titles and functions

- Information collected from Job Ads and interviews in Step 1
- Included both practitioner competences and academic knowledge expertise
- Reflected different countries and cultures across the European fashion supply chain sector

Conclusions and future steps

- The effectiveness of the proposed methodology was verified through the development of SCVis knowledge gap detection tool.
 - The tool was positively evaluated by end users in terms of content and relevance.
 - Success in modeling knowledge extracted from Job Ads.
 - Contribution towards job clarity at cross-country level.
- Future application of methodology:
 - To build a Knowledge Base for the career office platform of IHU.
 - To develop an intelligent platform for detecting skill/knowledge mismatch between labor market requirements and the study programs of IHU in the tourism sector towards industry 5.0.
 - More experimentation in other fields and focus on coupling with machine learning components.

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