

# ID7.8: Usage Profile 'Matching Competences on Job Profiles for Personal Development Plans'

Citation for published version (APA):

Herder, E., Kärger, P., & Hummel, H. (2008). ID7.8: Usage Profile 'Matching Competences on Job Profiles for Personal Development Plans'.

## Document status and date:

Published: 15/12/2008

## Document Version:

Peer reviewed version

## Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

[Link to publication](#)

## General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

<https://www.ou.nl/taverne-agreement>

## Take down policy

If you believe that this document breaches copyright please contact us at:

[pure-support@ou.nl](mailto:pure-support@ou.nl)

providing details and we will investigate your claim.

Downloaded from <https://research.ou.nl/> on date: 08 Sep. 2023

**Open Universiteit**  
[www.ou.nl](http://www.ou.nl)



# Matching Competence on Job Profiles

## **General Description**

We assume that we have a database with job profiles, with for each job the responsibilities and required competences. This database will most likely be the COLO database used in Dutch vocational education. At first we assume that the competence profiles are 'given': no mapping between competence profiles from different domains/systems will be necessary. Lifelong learners are assumed to have a competence profile as well, which provides evidence on which competences the learner has acquired.

Lifelong learners will use the system to explore job opportunities and to find out which competences they need to acquire to keep qualified for their current position or to be eligible for a new position. Roughly, job descriptions can be classified as:

- jobs that are below his current competence level
- jobs that fit his current competence level
- jobs that are fit, given some additional courses/learning activities
- jobs that are reachable after having followed an intensive program

The border between 'some additional courses' and 'an intensive program' is not yet set. The criteria could be set beforehand (e.g. maximum 20 hours) or manually set by the user.

From the organizational perspective, the following questions are relevant:

- match current personnel and/or applicants with a job profile. For example, a restaurant owner wants to fill the position of 'dessert chef'
- compose a team that covers the competences needed for a particular job, given certain criteria (as few persons as possible, balance between juniors and seniors)
- find out current needs for competence assessment programs

It is unlikely that there will be exact matches and most likely there will be several 'equivalent' solutions (each solution may have its own advantages, but in general they are comparable). This implies that this usage profile needs to support 'searching for an optimal solution', making use of both automatic/intelligent methods and iterative user feedback.

The usage profile will make use of data that will be available in the PCM:

- Personal Development Programs
- Eportfolios
- Competence Assessment Outcomes

## **Description of Job Profiles**

For implementing the matching process, we need to have a structure for describing job profiles and competence profiles. Several approaches can be observed:

- Theoretical: Cheetham and Chivers divide competences in: knowledge, functional, personal, ethical, meta.
- Vacancies: consist of running text (general description and activities), applicant profile (degree, programming capabilities, etc.)
- Vacancy sites (e.g. Monsterboard) separate between 'domain' and 'function'
- Preferences: working hours, size company, location, etc.
- Assessment meeting ('functioneringsgesprek'): checklist on personal aspects relevant to organization, adopted by many Dutch companies

According to Rob, we can safely assume that there will be data from the Colo model of competences in Dutch vocational education in the PCM Competence Model (covering skills and levels). This Colo, and any other future model, will be imported and converted to this model.

**Todo:** check the PCM Competence Model (Philipp).

## **Use-Cases**

In the following two sections we deal with job profile matching from two perspectives.

### Learner Perspective

- Looking for a job. We assume that there will be an initial matching (ranking), which provides the learner with an overview of opportunities and the competence gap. *This competence gap will be the learner goal in the PDP planning process.*
- Supporting use-case: a learner competence profile editing tool, using which the learner can fill in her current competences. This will be some sort of check-list with optional indication of level (minimize burden of user)

### Organizational Perspective

- Needed supporting use-case: editing a job profile. Starting point is a standardized job profile from the competence model. This can be adjusted to the specific requirements using an advances/edit button. Again: minimize burden of end-user
- Which personnel/applicants match best a certain job profile. In addition to the initial matching, HR persons should be able to inspect portfolios and competence profiles of candidates for the actual selection
- Team composition: which persons (junior/senior) are the most suitable candidates for forming a team.
- *The goal of the HR person is not only to identify the persons, but also to identify competence gaps that can/should be closed by internal training programs*

## **Learner Perspective**

### **Looking for a job**

I took a look at how current job finding sites work. As a reference, I took a look at three existing sites: [www.monster.co.uk](http://www.monster.co.uk), [www.vacaturebank.nl](http://www.vacaturebank.nl) and <http://hotjobs.yahoo.com/>, [www.linkedin.com](http://www.linkedin.com). There are two main ways of looking for a job:

- searching (basic/advanced)
- browsing

Searching involves entering or selecting items in the appropriate boxes.

*Basic search* offers the following options: Occupation/Job Category, Location, Keywords

*Advanced search* offers additionally: Company Name, Industry (select from list), Job type/Number of working hours, needed education and/or working experience, branch, type of employment.

This type of searching can be seen as *faceted search*, in which you indicate all kinds of orthogonal preferences/requirements for a job.

Only HotJob offered the possibility of *browsing*. Similar to the Web in general, browsing has become less popular while search popularity has increased. In early days, Web directories (e.g. Yahoo, DMOZ) were quite popular. These have now completely been replaced/taken over by search engines. Nevertheless, a possible browsing solution would be:

- first location, then job profile (and additional refinement)
- first job profile, then location (and additional refinement)

Further, a common selection criterium is ‘most popular’ (I guess the criterion is visited/selected)

The results of searching and browsing are typically result lists, with indicators (1..5, percentage or stars). Common options are ‘refine criteria’ and ‘similar results’.

Given a (processable) ePortfolio, results can be *personalized* according to matching with the job profile. How exactly this will be solved technically, is beyond the scope of this document. Techniques that we can apply include:

- positioning service (LSA-based comparison of job description and resume)
- navigation service (users similar to me visited the following profiles next)
- preference search / Skylining (which subselection of jobs provides the best match on any of my criteria)
- competence gap analysis (semantic matching of your own competence profile with a job’s competence profile)

The visualization of surrogates (snippets of job advertisements, placed according to relevance and distance) seems to be even more appropriate for job descriptions than for PDPs.

Based on the above, ‘looking for a job’ should involve the following interaction steps:

- logging in (and edit the resume, if necessary, see next section)
- basic search and advanced search
- both result list and visualization (user can switch)
- list of results is personalized based on preferences
- recommendations from the navigation service
- relevance indicators based on positioning/gap analysis
- interaction with the result set, refinement of results, etcetera

## **Competence Profile Editing Tool**

Most of the aforementioned job finding sites give you the opportunity to fill out your cv online or to upload a (Word) resume. Typical (Anglo-Saxon) resumes include:

- name, address, marital status, picture, ...
- education history
- current and past positions
- statement of skills and interests
- language skills
- awards and grants
- references

LinkedIn is mainly targeted at connecting people, but there is a job search functionality as well. LinkedIn profiles include the above items, except for ‘references’. This is replaced by ‘recommended by’. Further, you can select your interests from a list and indicate for what reasons people may contact you.

Based on the above, the 'profile editing' can be similar. The two basic scenarios apply:

- Create resume
- Edit/update resume

## ***Organization Perspective***

### **Creating/Editing a Job Profile**

Editing a job profile is similar to editing a competence profile, except that the fields are somewhat different. The following are common items in a job profile:

Company Name

Company URL

Industry (choose from list – accounting, banking, IT, airline, ...)

Job Title

Job Function ((choose from list – administrative, engineering, design, customer care, ...))

Job Type (full-time, part-time, etc.)

Salary

Location

Free-text job description

The two basic scenarios are:

- create job profile
- post job profile (possibly via various communication channels)
- edit/update/delete job profile

For this usage profile we need to find out what sort of business model we want. Do we want to provide the services for free or do companies have to pay for posting a job profile (at most sites this is the business model used).

### **match current personnel and/or applicants with a job profile.**

For example, a restaurant owner wants to fill the position of 'dessert chef'. This usage profile is just the opposite of the learner's 'looking for a job' usage profile. Same interface and functionality can be used here.

### **Team composition: which persons (junior/senior) are the most suitable candidates for forming a team.**

The procedure is about the same as for the previous profile, except that the job description will be not a position but a team responsibility description. Similarly, the preference search functionality can recommend the skyline of 'best team matches', including a description of strength/weaknesses of the choice. Obviously, starting from a group recommendation, the HR person can exchange persons by removing/adding them to the group selection.

**Most important activities in this usage profile + related actions**

activity	Related actions
Competence description (resume)	Create profile Update profile
Job description	Create profile Update profile Post Profile Delete Profile
Ask question	Access support form Complete support form
Search Job	Set Search Criteria Inspect result list Tune the personalization mechanisms Refine the result list Select relevant jobs
Advertise Job	Post job (see job description) Receive applications (out of scope for now)
Match people with job profile	Select job profile Set additional search criteria Inspect result list Tune the personalization mechanisms Refine the result list Select relevant people
Compose a team	Similar to above, but then with groups of people
Socialising	Add peers to list of contact or friends

**Importance of PCM elements in this usage profile**

	create	search	View ratings	rate	Share	forum	People / Chat	Element description	Mark as complete	Proficiency level of learner	Proficiency level / difficulty of element*	Direct accessible**	Concept / label
Community	-	--	+	+	--	--	O	?					
Competence profile	++	++	+	+	+	--	O		++	++			Resume / Job Description
Competence	+	+	+	+	+	--	O		++	++		++	competence
Competence development plan	O	+	+	+	-	--	O		o	o		++	Personal Development Plan

Action	-	+	+	+	-	--	O		o	o		++	
Resource	-	++	+	+	+	--	o		++	++		++	

User		+	++	++	+	o	o		--	++		++	
Assessment												+	

	wiki
Community	+
Competence profile	++
Competence	++
Competence development plan	+
Action	+
Resource	++

\* = the difficulty level of the element in relation to the proficiency level of the learner, which should enable the learner to select elements that match their current proficiency level

\*\* indicates whether the element should be directly accessible = searchable as opposed to only being accessible through the element one step higher in the hierarchy

# Matching Competences on Job Profiles

Usage Profile – TenCompetence  
WP7



# Targeted Users

## **Lifelong Learners**

- Explore job opportunities
- Feedback on how much training is needed to qualify for a job

## **Human Resource Departments**

- Match people with job profiles
- Find out needs for competence development programs

Prerequisite for these goals: availability of competence profiles and job descriptions

# Competence Profile

**First part:** standard resume

- Name, address, marital status, picture
- Education history
- Current and past positions
- Statement of skills and interests
- Language skills
- Awards and grants
- References

**Second part:** proficiency levels for competences.

*These competences are a flat list with detailed descriptions of each level  
(similar to EQF)*

**Example:** Negotiation Skills:

- Level 1 - Basic negotiation skills
- Level 2 - Flexible negotiation skills
- Level 3 - Win-win in complex situations

# Job Description

**First part:** standard job advertisement

- Company name, address, Website
- Industry
- Job title, job function, job type
- Salary, location
- Free-text job description

**Second part:** required competences and proficiency skills  
*(similar to competence profiles)*

The required competences will be matched with the candidate's competences in their competence profiles

# Lifelong Learner: Usage Scenarios

1. Create and edit *competence profile* ('resume')
2. Explore (search and browse) *matching jobs*. Select, mark, zoom in to relevant jobs
3. Select candidate job and – if relevant – plan the *required training* (using the PDP Planning tool)

# 1: Create Competence Profile

## Basic

[\[Edit\]](#)

Name: John Doe  
Address: Example Street 11  
Modeltown



[\[Change Picture\]](#)

## Education

[\[Edit\]](#)

Universal University  
Muppets High School

[\[Upload Resume\]](#)

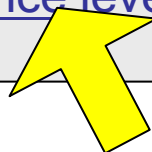
Pdf or Word

## Current and Past Positions

[\[Edit\]](#)

2006 - now Puppet Engineer  
2002 - 2006 Rocket Scientist

[Edit your competence levels](#)



# 1. Edit Competence Profile

(Continued)

## Add Proof for: Negotiation Skills

### Certificate

M.Sc. From Universal University

[\[Select another certificate\]](#)

[\[Upload certificate\]](#)

### Person

[\[Add\]](#)

### Statement

Current: "I have two years of experience" [\[Change\]](#)

Edit your com

Levels: 1 to 3

Negotiation Sk

Basic Skills

Adaptability w

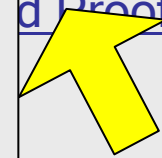
Changing ta

*Etcetera*

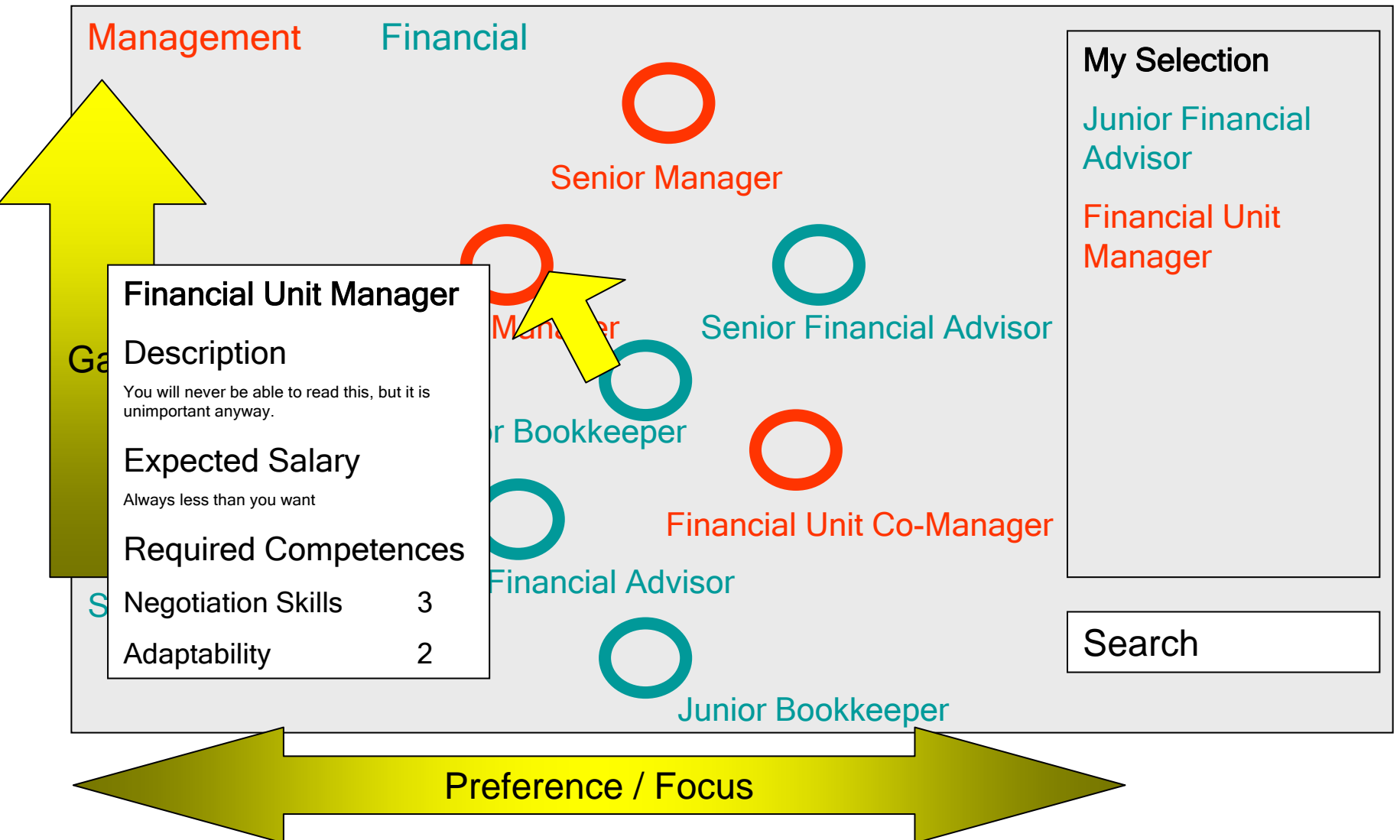
[Back to Profile Editing](#)

[Add Proof](#)

[Add Proof](#)



# 2. Explore Available Jobs



# HR Manager: Usage Scenarios

1. Create or edit job descriptions
2. Match candidates with job description
3. Discover training needs



# 1: Create Job Description

## Company Info

[\[Edit\]](#)

Name: Farmer Loan Bank

Address: www.flb.com

Industry: Finance

[\[Upload Company Profile\]](#)

Pdf or Word

## Job Details

[\[Edit\]](#)

Financial Unit Manager

Administrative, Full-Time

Salary: to be negotiated

## Description

[\[Edit\]](#)

The job you never ever wanted

[Edit required competences](#)



# 2. Match Candidates

The interface displays a grid of candidate profiles, each represented by a black circle and a name. A yellow arrow points from the 'Ga' label on the left to the 'Adam' profile. A yellow arrow points from the 'Preference / Focus' label at the bottom to the 'Elmo' profile. A 'My Selection' box on the right lists 'Adam' and 'Grover'. A 'Search' box is located at the bottom right.

**Adam**  
Education  
Kindergarten  
Positions  
Highly experienced couch potato  
Relevant Competences  
Negotiation Skills 2  
Adaptability 2  
[\[View Complete Profile\]](#)

Carry  
David  
Elmo  
Harry  
Grover

**My Selection**  
Adam  
Grover

Search

Preference / Focus

# 3. Discover Training Needs

