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SEMANTIC SEARCH IN
EMPLOYMENT MATCHING

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Job portals have become a popular place for corporations to place their ads for new vacancies in the hope that skilled individuals would find them and apply for them. Often such portals provide traditional search interfaces based on forms. Both applicants and employees will then have to try several values for fields such as title to see if there are any interesting results that match their criteria. This traditional search can be greatly improved with semantic search.

Profium Semantic Search

Profium Semantic Search allows applicants to find jobs that are semantically relevant by using ontology concepts for searching in addition to traditional keyword based searching. For example, using concept Java as a keyword would return not just Java programming positions but also vacancies for more general object oriented programming. The ontology based search user interface can guide the user to select the Java programming language instead of the island of Java in Indonesia depending on the intentions. Intelligence behind the semantic matching is based on Profium Rule Engine and a configuration of ontologies and rules that assist the employment matching process. There are readily available ontologies and you can also develop one of your own with Profium to assist you in that process.

Profium Rule Engine finds meanings behind the words and can combine factual information from different sources such as qualifications based on tracked education, required competencies of previous job vacancies of the job applicant as well as the information provided by

the job applicant themselves. Profium Semantic Rule Engine matches job applicants and vacancies in real-time with the factual information, not just estimations and therefore provides precise matching for both job applicants and employees.


Profium Semantic Rule Engine combines factual information from different sources.

Annotating Job Descriptions

Profium Semantic Search provides better tools for writing precise job descriptions. Profium Semantic Search can detect concepts from existing textual descriptions and suggest relevant concepts from the ontology using the auto-complete feature. Authors can select the most relevant concepts in addition to textual descriptions and hard-coded occupation category concepts to make job descriptions more precise and accurate. Whenever the ontology changes or any additional information has been added to the description, new connections between the vacancy and skill ontology are automatically computed by the Profium Rule Engine.

Skill Based Employment Matching

A new growing trend for semantic employment matching is skill based matching. In skill based employment matching the match accuracy can be greatly improved by not relying only on job titles but also by matching skills between applicants and those required by a job. When job applicants describe their expertise they randomly use the same words or even language to express their skills with the potential employer. There is no direct match between the described skills and competency needed. The job might be in a domain where those skills are needed but the applicant wasn't previously aware of it. Profium's Semantic Employment Matching supports skill based job matching using the ESCO ontology which is now available in various languages to further assist in finding jobs in language areas other than the applicants own native language.
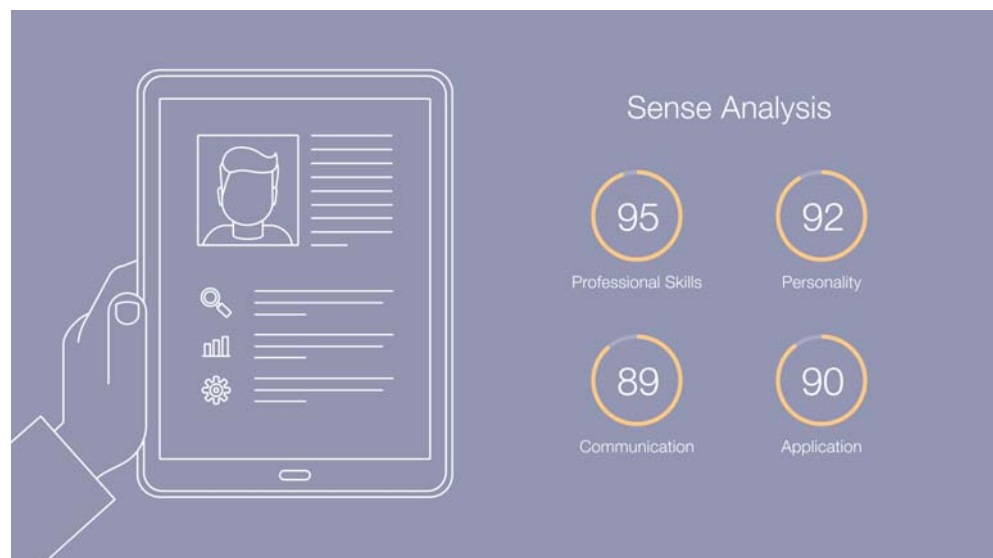
Skill based employment matching matches the skills between applicants and those required by a job.

Semantic Search Provides Explanations and Suggestions

Semantic employment matching integrates with the hiring decision making process in a way that it can also provide additional information on the matching process used. It can list the facts and rules that caused a job applicant to match a certain vacancy. In addition, Profium Rule Engine can provide suggestions about how the applicant could match the required requirements, for example, by taking a new course to master a missing skill or taking an exam to qualify.

Semantic search matching is dynamic and changes to the underlying rules and ontologies are automatically applied to the employment matching process. This is an important aspect in employment matching as technologies and skills requirements tend to change frequently, even within the same occupation. Profium Semantic Search can also use contextual parameters in the matching such as location, user preferences and temporal reasoning.

Benefits of Profium Semantic Search in Employment Matching

- More accurate matching via semantic skill and competence matching
- Possibility to match applicants and vacants from different fields based on actual skills
- Easy integration to existing job portals as an add-on matching feature
- Supports ESCO ontology for skills, competencies, qualifications and occupations
- Capability to adapt to customer specific ontologies and rules

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