

Use Case

Graph-Based HR Analytics

Semantic technologies are applied across many industries and cover manifold use cases. The trend towards data-driven decision making in HR brought up the technical demand for bundling various data sources in one analytics solution. The generic PoolParty GraphSearch application was adapted for HR professionals and enables them to make strategic and operational decisions based on relevant and cumulated data. Employee skills can be matched with salaries or technology trends. The analytical capabilities can be flexibly extended depending on the available data sources.

The challenge

You want to professionalize your HR organization and use data to streamline your HR processes such as recruiting, compensation & benefits, training & development and project staffing. However, relevant data is distributed across several internal and external data sources. CV's of employees are maybe stored in Sharepoint. Professional social networks are increasingly used for recruiting new colleagues. Labor market statistics and trend data for expert availability, technology and skills developments would be insightful if merged with own employee profiles. How can you bring the variety of structured and unstructured data together and generate

relevant HR insights that have an impact on your business? How can you include further data resources on the fly and combine them with available data in a logic that will provide you with the appropriate answers?

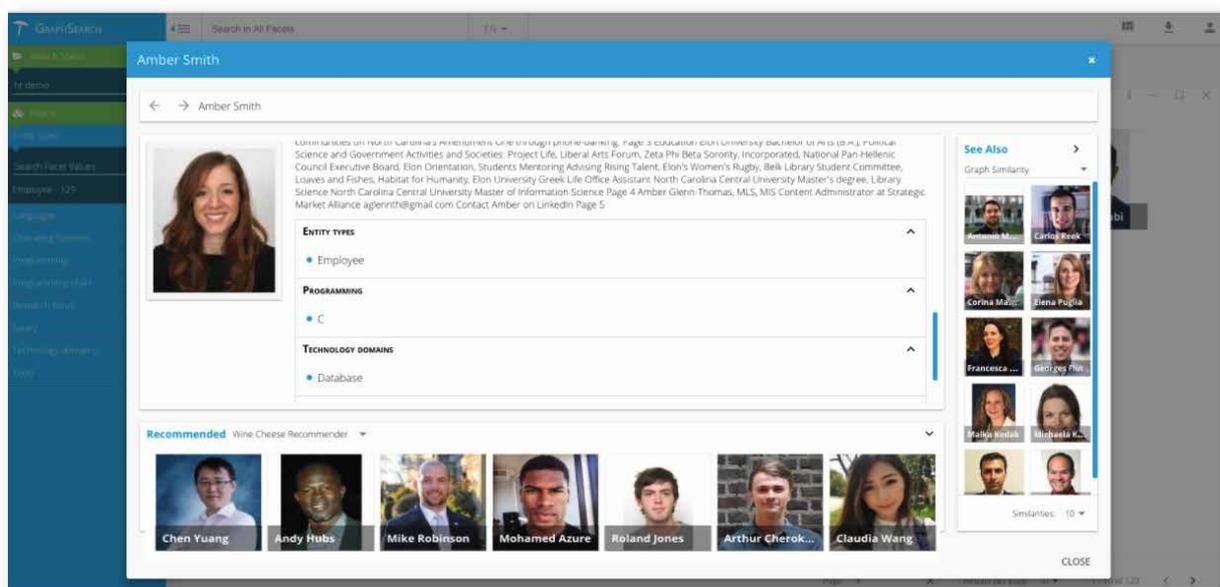
The solution

We adapted PoolParty GraphSearch for a multifaceted HR knowledge discovery. CV's of employees, salary information and external trend data were transformed into RDF. The underlying RDF triple store is MarkLogic. We build a knowledge model in PoolParty and annotated the structured and unstructured data consistently. With SPARQL the semantic data can be queried and is also accessible for HR experts via the GraphSearch front-end. If users

demand different analytical capabilities, new data can be transformed into RDF. By expanding the knowledge model, the front-end facets for data analytics get adapted as well.

The results

There are no restrictions anymore which resources you can use for your data-driven HR organization. In the HR analytics application enabled by PoolParty GraphSearch you can select facets as employee, skill and salary range and get precise answers and recommendations for a suitable candidate. You can also enable the similarity plug-in and get further recommendations based on various machine learning algorithms.



Project insights

How to establish data-driven HR processes



STEP 1: ANNOTATE YOUR DATA USING A TAXONOMY

We built a taxonomy in PoolParty Semantic Suite based on SKOS and increased the expressiveness with an ontology. Our data (a collection of around 150 resumes) is stored in SharePoint. In SharePoint the knowledge model is deployed. All CVs get automatically tagged with consistent metadata.



STEP 2: BRIDGE YOUR DATA SILOS WITH RDF

SharePoint gets connected with the graph database MarkLogic with a connector. Two other relational databases were added including information about skill developments in the labor market and internal employee information. The information from both sources was converted to RDF data. For this data transformation process we created DPU's = (Data Processing Unit) in UnifiedViews, which is an integrated component of PoolParty. Also the adaptation of data models to make it compliant with GraphSearch was executed in UnifiedViews.



STEP 3: SETUP GRAPHSEARCH

GraphSearch is a component of PoolParty Semantic Suite with significant capabilities for semantic search, recommendation, and analytics. GraphSearch finds information based on facets and has a powerful visualization of actual data based on charts or histograms. With all these available features, questions as follows can be answered in the HR Analytics application:

- 1 How many software developers in the company know java and speak English?
- 2 Which are the top 5 trends in computer science research?
- 3 How many employees work with a tool that has a growth rate higher than +1%?
- 4 How many employees work with an operating system with a negative growth rate and have a gross salary per year of over 100,000 \$?



STEP 4: CHOOSE A SIMILARITY ALGORITHM

The search and analytics results can be finetuned and extended by choosing among a collection of similarity algorithms. The algorithms can be also customized by data scientists. The similarity plugin will provide suitable recommendations based on the original question.

TAKE A LOOK

<https://marklogic.poolparty.biz/GraphSearch>

REACH OUT TO US

Do you want to know more? Contact us!



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