

Semantic Search: Implementations in Your Enterprise A Knowledge Hub Case Study

**Enterprise Search & Discovery** November 10, 2022, Washington, DC

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#### **Heather Hedden**

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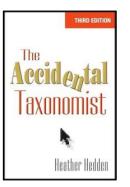


Over 25 years of experience in developing and managing taxonomies, metadata, and other knowledge organization systems for various organizations and applications.

Prior taxonomy consultant and staff taxonomist, Including for a search & discovery software vendor.

Instructor of self-paced online taxonomy courses and corporate taxonomy workshops.

Author of the book *The Accidental Taxonomist* (3rd edition, 2022)



# **About Semantic Web Company and PoolParty**



**SWC** is developer / vendor of **PoolParty Semantic Suite** 

Most complete and secure Semantic AI platform on the global market

**W3C** standards compliant



**ISO** 27001:2013 certified (since 2019)



Current version **9.0 On-premises** or

cloud-based



Over **180** customers



Semantic AI: Fusion of graphs, NLP, and machine learning



**Gartner** named SWC a Visionary in their Magic Quadrant for Metadata Management Systems 2019 and 2020

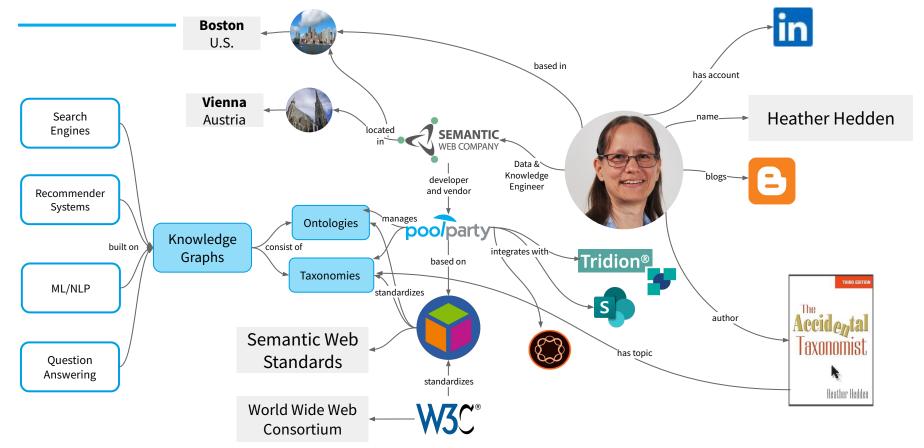


**KMWorld** has listed SWC as one of the top knowledge management companies continuously from 2016 - 2022

**Forrester** listed SWC as sample vendor in their **report** on *The* Document-Oriented Text Analytics Platforms Landscape 2022

# **Click the Graph**—get in contact with us!





### Outline



- Introduction to semantic search
  - Search issues
  - Taxonomies and ontologies
- Case study of SWC knowledge hub technology used
  - Defining the scope and uses
  - Technology used
  - ⊳ Demo
- Issues of separate or combined taxonomies
  - ▷ For topics and for people/skills
  - ▶ For internal and external users for the product Help pages
- Search features



### **Introduction to Semantic Search**

- Why semantic search
- What is semantic search
- Taxonomies & ontologies

### Why Semantic Search: Search Issues



Search is good, but not ideal.

<b>↑</b> > Search						Search
benefits						Q
Everything	News	Documents	People	Offices	Projects	Normes
Publications	Evalu	ations				

What are the issues?

# Why Semantic Search: Search Issues

### **User Objectives**

- Finding the right information quickly
- Finding sufficient information
- Discovering related relevant information not known
- Being confident that the information is complete
- Having results that can be trusted and are explainable
- Being able to expand and limit the search





# Why Semantic Search: Search Issues

### **Organization Objectives**

- Saved time through efficient search
- Knowledge discovery
- Cost savings through content reuse
- Better decisions from complete information
- Improved employee and customer satisfaction
- Improved competitiveness through better information



# poolparty.

### Internal Search User Pain Points

Retrieving false search results



- Wasting time reading through irrelevant information
- Not confident that that all relevant information was retrieved
  - Not finding content believed to exist
  - Not knowing *if* the desired information exists
- Repeating searches in different, unconnected content repositories

### Why Semantic Search: Connecting Content to People, Intents, and Other Data



Product –

PoolParty is a semantic Al platform that can run sophisticated text mining over Office documents while using machine learning.







Ashok Customer

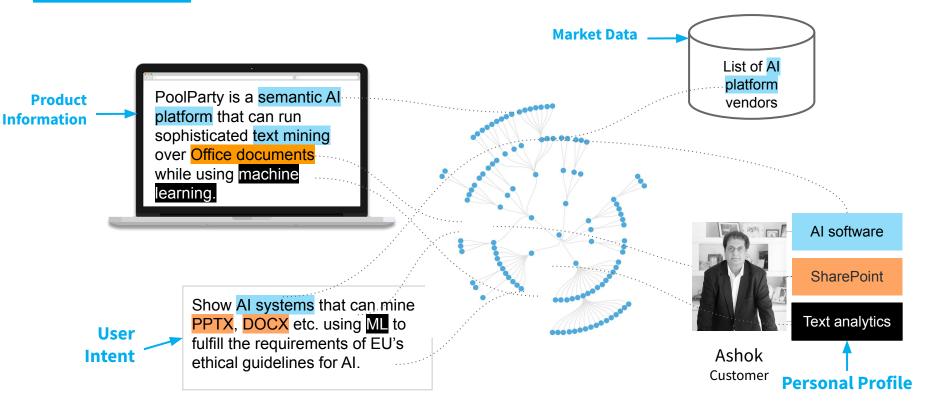


Show AI systems that can mine PPTX, DOCX etc. using ML to fulfill the requirements of EU's ethical guidelines for AI.

#### Why Semantic Search: poolparty<sub>®</sub> **Connecting Content to People, Intents, and Other Data Market Data** Semantic AI Text mining List of AI platform platform PoolParty is a semantic Al AI platform Product vendors vendors platform that can run Information sophisticated text mining Office over Office documents documents Machine while using machine learning learning. AI software SharePoint AI systems Show AI systems that can mine EU guidelines PPTX, DOCX etc. using ML to DOCX User fulfill the requirements of EU's Ashok Intent ethical guidelines for AI. Customer **Personal Profile** PPTX EU's ethical

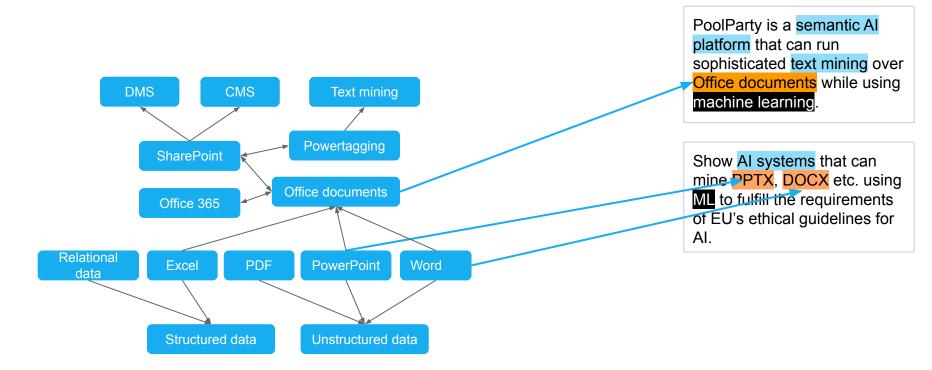
quidelines for AI

### Why Semantic Search: Connecting Content to People, Intents, and Other Data

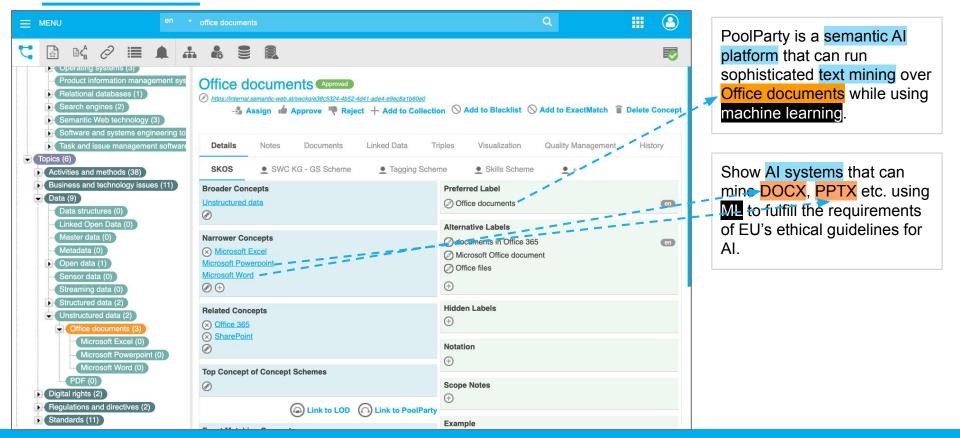












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Knowledge Spaces	Solo	ected facet values: <i>empty</i>			
SWC Knowledge Hub - DEV 🗸	Dere	eteu lacet values. empty			
& Facets 🔹	2	089 results			
Document Sources (8)	A	A Brief History of Knowledge Graphs			
Epics (5)		ttps://docs.google.com/document/d/135aoukPqVb866			pDY8/view#heading=h.8q5anjchfr4m vhat has happened, but also what has been piled up—the ground upon
Events and Training (4)	W	which we stand and build. Therefore, we sho	, , ,		inding of where knowledge graphs come from if we want to become a
Industries (38)		naestro ihow similar			
Knowledge and Data Assets (3)					
Organizational Perspective (4)	A	Semantic Data Catalog Architecture			
Organizations (9)		ttps://docs.google.com/document/d/135aoukPqVb86d			
PoolParty Product (3)					igned to help organizations find and manage large amounts of data— urces, finance and e-commerce systems." Data catalogs should also improve
Skills (4)		isers' understanding of available sources ar how similar	id support them with a	olla	borative
Technologies and Applications (2)					
Topics (6)		N Architect			
		ttps://docs.google.com/document/d/135aoukPqVb866	qcgSEDCR1ePHjofpy9zfxo8r	nvAyp	bDY8/view#heading=h.ffli4x58r9lx
	re	elevant stakeholders to manage and scale t rchitect			pipeline. They are the owners of the architectural strategy. They connect all Enterprise Architect, who is responsible for a wide range of functions, the Al
		how similar			

Page: 1

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T KNOWLEDGE HUB Machine learning × FN 🔻 Technologies and Applications (2) Selected facet values: Machine learning (Topics) X Clear all X Application types - 189 ✓ Al applications - 176 248 results Recommender systems - 105 > Text mining - 53 **Machine Learning: FAQ From Clients** - Chatbots - 35 Personalization - 28 There is tremendous recent interest in machine learning (ML), artificial intelligence (AI) and associated technologies, but also confusion in the Ouestion answering - 4 absence of coherent terminology for them. Terms such as data science, ML, AI and cognitive computing are often used interchangeably. volume of inquiries related to the above terms ... > Business intelligence - 18 Show similar - Semantic data fabric - 17 Robotic process automation - 16 Data lakes - 10 Market Guide for Data Science and Machine Learning Service Providers Customer 360 - 10 Data catalogs - 9 Operational use cases, real-time event streams, sensors and machine data bring advanced analytics to operational situations. These analytics Data warehouses - 9 platforms and applications will generate the next wave of data science and machine learning services. • Data science and machine learning Blockchain - 7 (DS&ML) introduces a more discovery-focused approach to data and analytics development, ... - KYC verification - 1 Show similar - Data hubs - 1 - Marketing automation - 1 Use This Decision Framework to Determine If Machine Learning Should Run in the Cloud > Technology products - 102 Infrastructure and operations (I&O) leaders are required to reduce operational complexity and enhance time to insight for emerging artificial Topics (6) intelligence (AI) use cases. • I&O leaders face challenges in developing a decision framework to determine the optimal AI environments due to new technology stacks and workload complexities. • Al applications ... > Activities and methods - 242 Show similar ✓ Data - 188 Metadata - 73 ✓ Unstructured data - 33 Page: 1 X Results per page: 10 💌 1 - 10 of 248 Office documents - 5 PDF-4

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T Knowledge Hub	Semantic Search:	Based Cocktail Search
🖕 Search Space	Cocktail Search 🔹	
▼ Cocktail Search <del>▼</del>		🗞 Facets 🌣
🗞 Facets 🗳	Entity types	Entity types
Entity types	Search Facet Values	Search Facet Values
Search Facet Values	Ingredients - 199	Cocktail - 94
Ingredients - 199	Garnish - 31 Cocktail - 1	Ingredients - 1
Cocktail - 94 Garnish - 31	consists of	consists of
Drinkware - 14	is part of	Search Facet Values
consists of	Search Facet Values	Gin - 20
is part of	Ramos Gin Fizz - 9	Lemon iuice - 19
is used by	Long Island Iced Tea - 8	https://vocabulary.semantic-web.at/GraphSearch/
is used by	Singapore Sling - 8 Vampiro - 8	Sugar syrup - 10
is variant of	Planter's Punch - 7	Orange juice - 9
© Semantic Web Company 2022	Bloody Mary - 6	White rum - 9

## Semantic Search: Based on Ontologies



	<ul> <li>Search Thesaurus Concepts</li> </ul>	۹ 🗰 🕙
1 🗟 🖓 🔳 🏚	# & S R	<b>1</b>
<ul> <li>A guide to classic cocktails</li> <li>Beverages (5)</li> <li>Cocktails (6)</li> <li>Apéritif and digestif (3)</li> <li>Duo and trio cocktails (3)</li> <li>IBA Official Cocktail (3)</li> </ul>	Gin sour Intro-Web.at/cocktails/b33091cd-8c57-45e3-a89b-9de91ffce1e8 + Add to Collection  Cocktail	
Mixed drink (8) — Americano (0) — Espresso Martini (0) — Gin sour (0)	Details     Notes     Documents     Linked Data       SKOS <ul> <li>Cocktail scheme</li> <li>+</li> </ul> Mathematical Scheme <ul> <li>+</li> </ul> Stop	Triples Visualization Quality Management History
Moscow mule (0) Planter's Punch (0) Sea Breeze (0) Shooter (2)	Broader Concepts       Mixed drink       Sour	Preferred Label ⊘ Gin sour ⊕
Sour (12) Wine cocktail (8)	<ul> <li>✓</li> <li>✓</li></ul>	Alternative Labels
Garnish and other ingredients (2) Fruit (9) Herbs and spices (8)	Related Concepts	Hidden Labels (+)
Glassware (3) Mug (2)	Top Concept of Concept Schemes	Notation (+)
Stemware (5) Tumbler (4) Sauces (2)	Link to LOD CLink to PoolParty	Scope Notes
em Hot sauce (1) Worcestershire sauce (0)	Exact Matching Concepts	Example

## Semantic Search: Based on Ontologies



en en	Search Thesaurus Concepts	۹ 🗰 🕙
1 🗟 👫 🖉 🗮 🌲	# & 9 #	<b>1</b>
<ul> <li>A guide to classic cocktails</li> <li>Beverages (5)</li> <li>Cocktails (6)</li> <li>Apéritif and digestif (3)</li> <li>Duo and trio cocktails (3)</li> <li>BA Official Cocktail (3)</li> </ul>	Gin sour (2) http://vocabulary.semantic-web.al/cocktails/b33091cd-8c57-45e3-a89b-9de91fice1e8 + Add to Collection (2) Cocktail	○ Add to Blacklist ○ Add to ExactMatch
Mixed drink (8) Americano (0)	Details Notes Documents Linked Data Triple	s Visualization Quality Management History
Espresso Martini (0) Gin sour (0)	SKOS   Cocktail scheme  +	
Moscow mule (0)	consists of (i)	BA (i)
- Planter's Punch (0) - Sea Breeze (0)	⊗ <u>Gin</u> ⊗ <u>Lemon juice</u>	
Shooter (2)	<u> </u>	nage (i) URI
• Sour (12)		http://assets.absolutdrinks.com/drinks/solid-background-black/soft
Wine cocktail (8)	is variant of ①	adow/floor-reflection/415x655/gin-sour(85).jpg
Garnish and other ingredients (2)	0	
Herbs and spices (8)		reparation (i)
Glassware (3)	uses Drinkware (j)	en
Mug (2) Sternware (5)	(a) Old Fashioned glass	Fill a shaker with ice cubes. Add all ingredients. Shake and strain o a chilled rocks glass filled with ice cubes. Garnish with lemon and naraschino berry.
Sauces (2)	uses Garnish 🚯	
em Hot sauce (1) Worcestershire sauce (0)	⊗ <u>Lemon</u> si	erved (j)

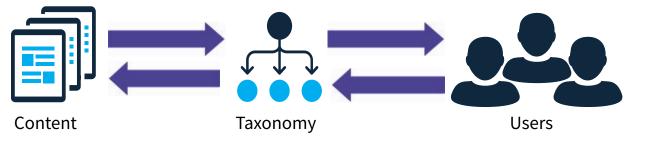
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# **Semantics: Taxonomies**



### What and why taxonomies?

- A taxonomy is a controlled vocabulary organized into a hierarchical structure.
- Concepts/terms are used to tag/index/categorize content to make it easier to be found and retrieved
  - supporting better findability than search alone
- The taxonomy is an intermediary that links the user to the desired content.



- Terms are based on unambiguous concepts, rather than using text strings.
- "Things, not strings"

# **Semantics: Taxonomies**



### What is a taxonomy?

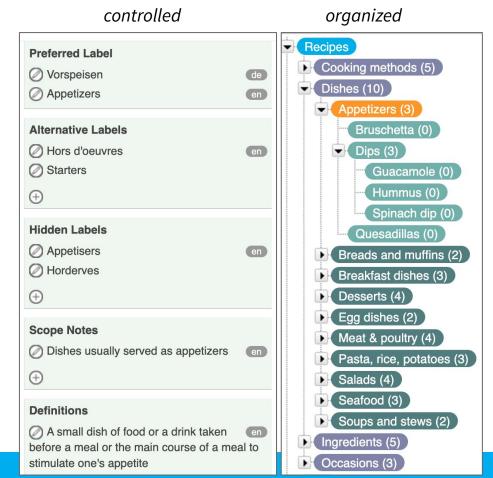
#### Controlled and organized

#### 1. Controlled:

A kind of controlled vocabulary or knowledge organization system, based on unambiguous concepts, not just words: **things, not strings** 

#### 2. Organized:

Concepts are arranged in a structure of hierarchies, categories, or facets to organize them.

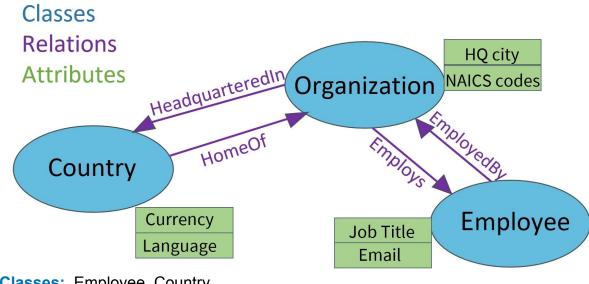


# **Semantics: Ontologies**



#### What is an ontology?

- A model of a knowledge domain
- A formal naming and definition of the types, properties and interrelationships of entities in a particular domain.
- Relations contain meaning, are "semantic."
- Comprises classes, relations, and attributes, which are linked in triples.
- Common standards provided by W3C: Web Ontology Language (OWL) and RDF-Schema.



Classes: Employee, Country, Organization

Relations: HeadquarteredIn < > HomeOf EmployedBy < > Employs

Attributes: Email address, Job title, HQ city, NAICS codes, Currency, Language



### Semantic Search Case Study: Knowledge Hub at SWC

# **Defining Enterprise Search Scope**



### Use cases: Software company employees need to find...

- Relevant customer use cases to sell to similar prospects
- Varied information to answer RFIs, RFPs, and RFQs
- Past presentations to reuse for customer training
- Industry and technology information to create reports or conference presentations
- Product details to answer prospect and customer support questions
- Who is knowledgeable about a technology, product feature, or industry, to include as the technical expert in a sales demo or project

**Challenge:** supporting search for content *and* for people

### **Use Case Examples**



Which organizations from the energy industry are using PowerTagging for SharePoint?

Sales

How can I import and work with Excel spreadsheets in PoolParty?

What trends are most relevant to data architects right now?

Product management

Which reference customers do we have in the pharma and life sciences sector? Client / User

# **Defining Enterprise Search Scope**



### Knowledge Hub content sources

- Pages in Atlassian Confluence CMS (customer use cases and employee profiles)
- Shared Google drive folders (internal Google docs, slides, and sheets, and uploaded MS files and uploaded external source PDFs)
- Pages on public website (managed in web CMS Wordpress)
- Product help documentation (public website managed in web CMS Paligo)



**Challenge:** supporting search across different applications and sources

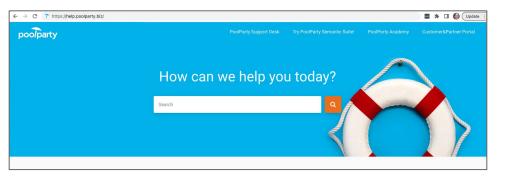
# **Defining Enterprise Search Scope**



#### Users

- Internal, for all knowledge hub content (including product help documentation)
- External, for product help documentation

**Challenge:** supporting internal and external users with external users using only part of the taxonomy





**Extractor API** for auto-tagging



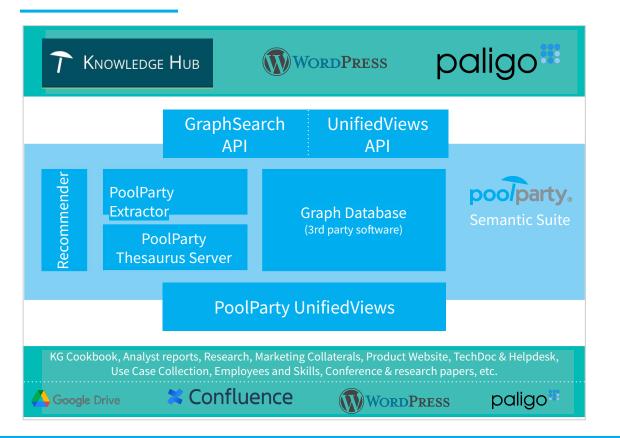
### PoolParty Semantic Suite software components

- Thesaurus Manager for taxonomy and ontology development and management
- UnifiedViews tool for Extract, Transform, Load (ETL) of data from different sources and formats, converting them to RDF, including a pipeline to crawl and tag content sources



- GraphSearch faceted search frontend user interface, with a search index based on Elasticsearch.
- Embedded GraphDB, third-party graph database software from Ontotext

# **High-Level System Architecture**





- Integration of PoolParty Semantic Suite as middleware
- No need to replace existing infrastructure.



### **Semantic Search Demo**

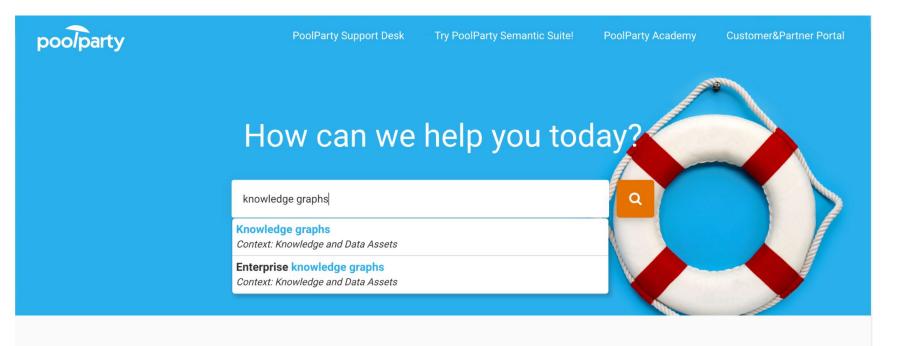
### **Semantic Search Demos**



	Site Home Semantic Web Company 👻 Proc	icts - Projects - Archive - +
	7 Knowledge Hub	Search in All Facets
	Knowledge Spaces	Selected facet values: <i>empty</i>
	SWC Knowledge Hub	
	🗞 Facets 🔅	1629 results
/	Document Sources (4)	A Brief History of Knowledge Graphs
-	Epics (5)	https://docs.google.com/document/d/135aoukPqVb86qcgSEDCR1ePHJofpy9zfxo8mvAypDY8/view#heading=h.8q5anjchfr4m Cooking is culture, and culture is based on history. History is not only what has happened, but also what has
	Events and Training (4)	been piled up—the ground upon which we stand and build. Therefore, we should also have an
Ctrotog	Industries (34)	understanding of where knowledge graphs come from if we want to become a maestro Show similar
Strateg	Knowledge and Data Assets (3)	
	Organizational Perspective (2)	A Semantic Data Catalog Architecture
sview	Organizations (7)	https://docs.google.com/document/d/135aoukPqVb86qcgSEDCR1ePHjofpy9zfxo8mvAypDY8/view#heading=h.uwhm8151j790
TO	PoolParty Product (3)	A data catalog can be described as "a metadata management tool designed to help organizations find and manage large amounts of data—including tables, files and databases—stored in their ERP, human
	Technologies and Applications (2)	resources, finance and e-commerce systems." Data catalogs should also improve users' understanding of available sources and support them with collaborative
	Topics (6)	Show similar

### **Semantic Search Demos**





Help Documentation (public) <u>https://help.poolparty.biz/</u>

### **Semantic Search Demos**



poolparty		
	Knowledge	graphs Q
Refine search		Search results
× REMOVE FILTERS × START	NEW SEARCH	An enterprise knowledge graph life cycle a summary
Document Sources	ers (11)	An Enterprise Knowledge Graph Life Cycle - A Summary Abstract An Enterprise Knowledge Graph Life Cycle - A Summary Enterprise Knowledge Graphs are developed efficiently with PoolParty and can be successfully used as an integral part of your enterprise information and AI architecture. Along the entire data lifecycle, various tools
Developer Guide	(5)	Web service method get remote systems configuration
PoolParty Overview	(5)	Web Service Method: Get Remote Systems' Configuration Abstract Web Service Method: Get Remote Systems' Configuration Description Retrieves information about the system configuration defined in the
<ul> <li>PoolParty FAQs</li> <li>PoolParty Quick Start Guide</li> </ul>	(3)	Semantic Middleware Configurator and gives details about the status of connected systems. URL: /PoolParty/api/remote Request Supported Methods GET Response json formatted response message
Administrator Guide	(1)	Request pattern
		The enterprise knowledge graph a definition
PoolParty Product Features	(19)	The Enterprise Knowledge Graph - A Definition Abstract The Enterprise Knowledge Graph - A Definition An Enterprise Knowledge Graph (EKG) contains business objects and topics that are closely linked, classified, semantically enriched, and connected to existing data and documents. An EKG typically consists of three pillars: A domain model —consisting

#### Help Documentation (latest beta version)



### Issue of Separate or Combined Taxonomies

# Taxonomies for Knowledge and for People Skills



### Separate or a single taxonomy for subjects vs. people

### Separate taxonomies

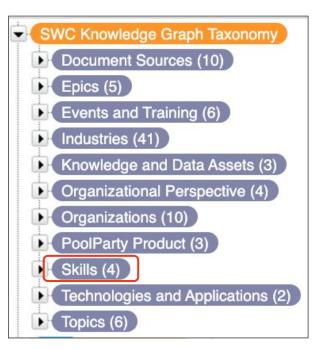
They have different content, queries, use cases

### Single taxonomy

- They have a lot of overlap in concepts
- They can be combined in the same frontend, as a recommendation of people related to a subject

# Taxonomies for Knowledge and for People Skills

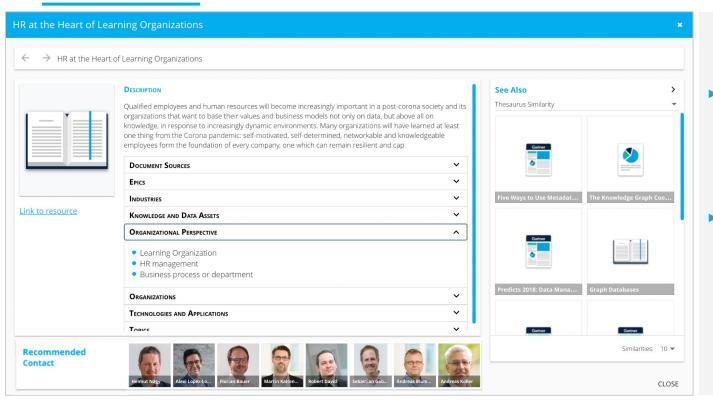






# **Integrated Expert Recommender System**





- Similar documents are displayed to the right of the detailed view
- Matching people to the contents of the document are listed below the detail view

# **Taxonomies for Internal and External Users**



### Separate or a single taxonomy

### Separate taxonomies

- They have different users
- They have different context

### Single taxonomy

- They have the same set of concepts for a large knowledge scope: the software product
- Easier to maintain

# **Taxonomies for Internal and External Users**





How can we help you tod	ay?
importing	Q
Tabular import         Context: PoolParty Product	
RDF project import Context: PoolParty Product	
GraphEditor import Context: PoolParty Product	N.
Ontology import Context: PoolParty Product	
Excel format for import Context: PoolParty Product	
Importing updates by Excel Context: PoolParty Product	

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### **Search features**

### **Search Features**

### Search options

Keyword search or search on taxonomy concepts

### Display of concepts in search

- Type-ahead auto-complete
- Context of concepts in the taxonomy

Display options of concepts within a facet

- List view with counts of tagged sources
- Tree view with taxonomy hierarchy of concepts







# **Faceted search using Taxonomies**



7 Knowledge Hub	∢≡	Search in All Facets	EN 🔻	i≣ ± ±
► Search Space	Selec	cted facet values: HR management (Organizational Per	spective) 🗙	Clear ali 🗙
SWC KG 👻				I – I X
🗞 Facets 🌼	19	results		
Document Sources (4)		usiness and Finance		1
Epics (4)		tps://docs.google.com/document/d/135aoukPqVb86qcgSEDCR1ePHjo financial services organizations, "data is often disconne		DDY8/view#heading=h.mlg7ks31xmry red in different formats, creating isolated repositories of information that are
Events and Training (1)	n	ot available to an entire organization. This makes bank-w		ineffective and prevents artificial intelligence applications from discovering
Industries (20)		sights from data." The central resource for the how similar		
Knowledge and Data Assets (3)				
Organizational Perspective (2)  Business process or department - 19  HR management - 19  Kills management - 3  Marketing - 12 Sales - 7 Legal department - 1	ht Fe Ol Bi		elligence (Al)	ence Strategy so most of those launching Al projects need to define the best approach. • Key o establish a strategy and goals, justify projects and secure formal funding. •
Stakeholders - 14 Organizations (7)		Roadmap for IT to Help Drive Machine Learning tps://drive.google.com/file/d/14g9Met-ZuMhQfvU5v4cjWPGnyk9uIxRU		
PoolParty Product (3)		0.	0	I many IT leaders don't know how and where to start in order to apply these nt from traditional IT projects in that they are significantly more heuristic and
Technologies and Applications (2)		now similar	. c. try amere	a contraction of projects in the they are symmetry more field bit and in
Topics (6)			Ρ	age: 1 X Results per page: 10 - 1 - 10 of 19 < >

- Facets are used for precise search and as search assistants
- Facet values are dynamically derived from the underlying taxonomy
- Facet search provides concepts of the taxonomy as search filters either in the form of lists or as trees
- All facet filters combine all sub-filters along the tree hierarchy

## Search Features: Smart Autocomplete



T KNOWLEDGE HUB х EN graph Autocomplete supports Knowledge graphs Search Space the user in entering the Context: Knowledge and Data Assets Clear all X search term and thus Graph databases SWC KG DEV leads to better search 🗞 Facets 8 Enterprise knowledge graphs results Context: Knowledge and Data Assets Document Sources (4) ScraphSearch Autocomplete is Epics (2) X d on a controlled voca graph controlled by the GraphEditor Events and Training (2) M underlying taxonomy Industries (19) Knowledge graphs Context: Knowledge and Data Assets Knowledge and Data Assets (3) When entering a search **Concept Tagging Organizational Perspective (2)** term and the subsequent Graph databases https://www.poolparty.biz/concept-taggi Context: Technologies and Applications search, all synonyms are **Organizations (6)** Concept Tagging Benefit from hi able to turn their da order to stay competitive. Howe, ve great difficulty ensu always considered PoolParty Product (12) Enterprise knowledge graphs > Thesaurus Server - 126 Context: Knowledge and Data Assets Contexts are displayed for > PoolParty Extractor - 126 **DPU Templates Details - Tem** each suggestion for better > PoolParty Semantic Suite - 86 ScraphSearch https://help.poolparty.biz/display/pp8/E PoolParty APIs - 48 Context: PoolParty Product orientation tab is generated dyn This section contains a short gui Configuration - 38 In the picture the Template Con parameters are conta > PoolParty Semantic Classifier - 32 GraphEditor Show similar In addition, there is the > UnifiedViews - 30 Context: PoolParty Product possibility of a full text GraphSearch - 21 > PowerTagging - 7 search **Concept Details - Function Buttons** > Semantic Middleware Configurator - 6 GraphViews - 2 This section contains a short guide on the available buttons in a concept's Details View. On activating a concept's node, on the right in the De

PoolParty CardSorting - 1

### **Search Features: Facet List View vs. Tree View**



7 Knowledge Hub	<≡ Search in A	All Facets		EN 💌			
🖕 Search Space	Selected facet v	alues: HP manag	ement (Organizational Per	spective) X	lear all 🗙		
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<ul> <li>Al strategy - 8</li> <li>Enterprise 360 - 3</li> <li>Deep text analytics - 1</li> <li>Learning Organization - 1</li> </ul>	Show similar	data." The central					
Events and Training (1)			<b>xcellence for Your Artif</b> 5-WDcZxa8qS5B k-e2kMUIXYFX	icial Intelligend	<u>ce Strategy</u>		
Industries (20)	Few organiza	Few organizations have much experience with artificial intelligence (AI), so most of those la					
Knowledge and Data Assets (3) Organizational Perspective (2)	obstacles to o Because Al pi Show similar	0 1 0	ress with AI include the re	equirements to e	stablish a strateg		
Business process or department - 19 HR management - 19 Skills management - 3 Marketing - 12 Sales - 7 Legal department - 1	A Roadmap https://drive.goo The ubertren	gle.com/file/d/14g9Met ds AI and machine	ve Machine Learning -ZuMhQfvU5v4cjWPGnyk9ulxRU learning (ML) are difficult on. ■ ML projects are inhe	to grasp, and ma	,		

# Taxonomy and Knowledge Graph Resources



#### Books

- Hedden, Heather. (2022) The Accidental Taxonomist, 3rd edition. Medford, NJ: Information Today Inc. <u>http://www.hedden-information.com/accidental-taxonomist</u>
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### **Questions/Contact**



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