White Paper

EMPOWERING SEARCHES THROUGH 3RDi SEMANTIC ENRICHMENT

In this era of big data, all enterprises and systems have huge content than ever before. There's lot of data which is exploded, fragmented, redundant, under-utilized, inconsistent, hard to find, and hard to understand. "**The 'Big Data' is a Challenge and an Opportunity at the same time**."

60% YEARLY GROWTH IN THE AMOUNT OF CONTENT, MOSTLY UNSTRUCTURED

EVERY MINUTE, OVER 72 HOURS OF NEW VIDEO CONTENT IS UPLOADED TO YOUTUBE.

EACH DAY, OVER 1 MILLION NEW BLOG POSTS ARE CREATED ON WORDPRESS.

On one side, there is a risk around integration and management of data, while, on the other side, there are exciting possibilities with increased and live content.

Access to content is not the differential anymore - it is pretty much with everyone.

"At T/DG, we realize the enormous challenges and the possibilities associated with Big Data. Our products and tools help to integrate all your content seamlessly, exploit the power of semantic enrichment transforming the content to KNOWLEDGE; thus taking you to that next level of Search and Analytics solutions."

"What's differentiating one enterprise from another is the way they UNDERSTAND the CONTENT and UTILIZE it!"

Organizations face the challenge of making the best possible use of their data while dealing with dynamic and changing data and also responding to business demand for faster time to market.

Information users, with more content and less time to analyze it, need systems that are smart and intelligent enough to integrate the scattered content, provide quicker discovery of information and tools for thorough analysis of content.

"46% Publishers of Scientific journals are semantically enriching their content" says a study on Journal Article Mining by the Publishing research consortium.

3RDi solves all of your content enrichment, content discovery and result analysis problems.

HOW CAN SEMANTICS HELP?

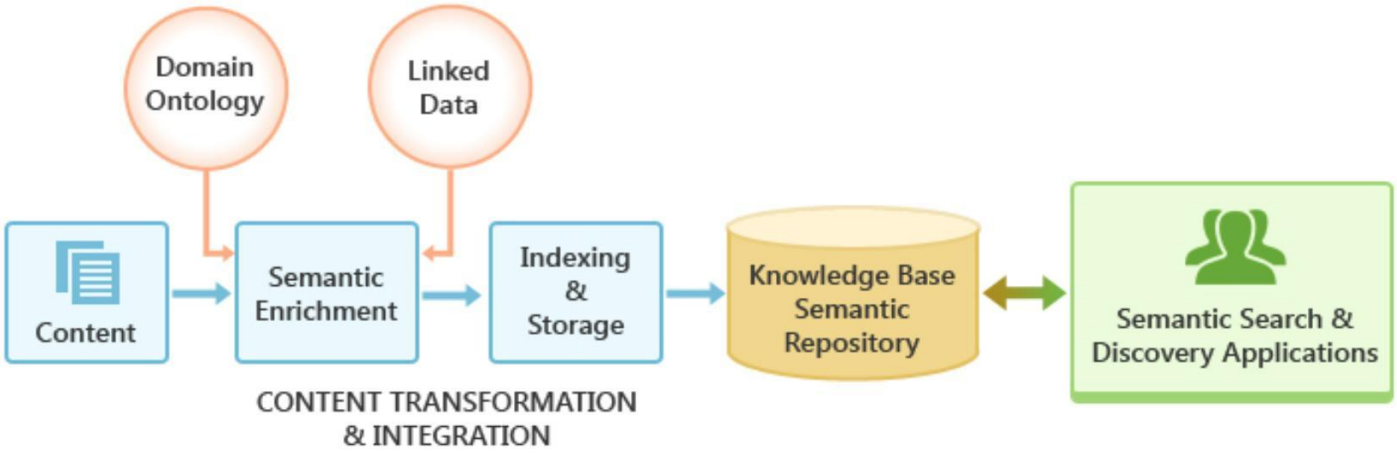
Giving meaning to content!

"Use of semantics makes content more contextual, more discoverable, and thereby, more valuable."

Semantics is about computers interpreting and understanding the content at a deeper level, assisted by its meaning and context. It helps in information search and discovery by associating additional information with the content.

Semantic Enrichment is the process of adding or associating semantic tags – usually concepts, relationships, events and properties described in an ontology – to augment unstructured data items.

Enrichment frees you from manual 'meta-data' tagging. It identifies several interesting properties and associations of your content which go a long way in **empowering the information search and analysis process**.



The process of semantic enrichment, integrates the content with the identified ontologies and links it to available open data. This adds more information to the content – referred to as Enrichment. The enriched content is indexed & stored and serves as a base for search and discovery applications.

Vocabulary Support

- WordNeT 3.1
- YAGO
- DBpedia 2014
- UNESCO 2.0
- EUROVOC 4.3
- UMLS Metathesaurus 2015
- MeSH 2015
- UIMA 2.7
- cTAKES 3.2.2
- SNOMED CT 2015
- Custom and Legacy Vocabularies
- SKOS-RDF, OWL

SEMANTIC ENRICHMENT AND SEARCH WITH 3RDi

Discovery, beyond search!

3RDi takes holistic view on the problem of Search, Discovery and Analysis. It provides comprehensive semantic enrichment of unstructured content and unlike most other products in the market, it also provides a complete Semantic Search Solution to leverage the enrichment for Search, Discovery and Analysis applications.

"3RDi embodies semantic interpretation in all phases of information retrieveal systems – content integration, search, result navigation, and search analytics."

SEMANTIC ENRICHMENT CAPABILITIES OF 3RDi

3RDi's semantic and natural language processing (NLP) capabilities are built on a strong base of machine learning and look-up based algorithms, which are pre-integratred with comprehensive set of general and domain specific thesauraus & taxonomies and built on top of best-in-class tools.

Here is what 3RDi provides for content enrichment.

Named Entity Recognition	**Sentiment Analysis**	**Content Classification**
Semantic Similarity	**Content Summarization**	**Ontology & LOD Mapping**

- Recognizing the mentions of entities in the content and identifying their types – a process called Named Entity Recognition.
- Automatic analysis of sentiment represented in the content.
- Identifying the key topics from the content and classifying the content as per those
- Disambiguation of entities based on context in which they appear.
- Refining the entities by mapping them to standardized terms from taxonomies and ontologies
- Enriching content by linking it to URI's of other open data (like DBpedia)

- Domain Specific Semantic Enrichment
- Ready support for Bio-Medical, Legal, Education and Publishing domains.
- LOD Linking
- Thesauri and custom Vocabulary Support

"Semantic Search matches items intelligently across unstructured data by enriching data with semantic information during indexing."

SEMANTIC ANALYSIS PROCESS IN 3RDi

Semantic analysis, within 3RDi, is split into several stages. In each stage, the system uses fast and superior algorithms that result in comprehensive enrichment and faster integration of content.

Semantic Analysis Process in 3RDi

Tokenization: splitting a text into individual sentences and words.

Morphological analysis, stemming: recognizing when two different word forms come from the same root word.

Grammatical analysis, part-of-speech tagging: labeling when a word is used as a noun, verb, adjective, adverb, etc.

Word sense disambiguation: is "crane" in a given text a type of bird or a type of machine.

Vocabulary, ontology mapping: does "crane" have synonyms or "crane" belongs to class of "construction automobile"

Linked Open Data: map to Wikipedia, DBpedia and link to useful information about, say, manufacturers of "crane"

3RDi SEMANTIC SEARCH EXPERIENCE

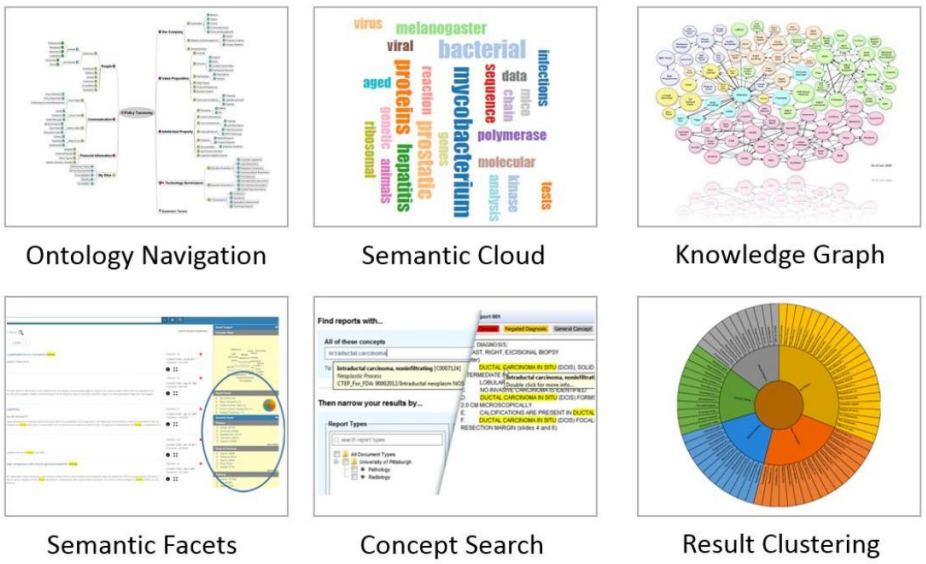
Semantic search tries to understand what a user is asking in a query by placing it in context through analysis of the query's terms and language. It produces meaningful results, even though the retrieved items contain none of the query terms, or the search involves no query text at all. Further, instead of only returning a set of results, semantic search addresses the user information need more directly with aids like semantic facets, results clustering etc.

White Paper

3RDi provides a powerful way of finding, discovering and analyzing information.

- Similar Documents
- Related Recommendation
- Concept Search
- Knowledge Graph
- Sentiment
- Clustering
- Semantic Cloud

3RDi's Semantic Search makes the information retrieval process more efficient. A range of tools, like automatic facets, concept search, taxonomy browsing, clustering etc., help the user skim through the content quickly and easily locate the desired information



3RDi-Enabled Semantic Search and Analysis

Ontology navigation: With an easy to use graphical interface, you can navigate through the taxonomy (or ontology), and select any combination of concepts you wish to explore. You can search content that relate to these concepts and also broaden or target your search by including or excluding synonyms, hyponyms and related terms.

Semantic Cloud: Gain a quick insight into the content using the semantic cloud which sums up your content at a stretch.

Knowledge Graph: Without having to read the content at all, you can get an insight into it using the graphical representation of the entities and their interrelations as contained in the text.

Semantic Facets: You can drill down on the search results using dynamically created business-centric navigational facets.

Concept Search: You can search for documents that relate conceptually to the query word even when the query word does not exist anywhere in the content.

Result Clustering: Automatic grouping of search results depending on their content help you discover information faster.

3RDi Healthcare Edition

'3RDi Healthcare Edition' is customized and optimized to cater to their specific needs of researches in biomedical area. The tool is integrated with the most trusted healthcare terminology and ontologies that include UMLS, Mesh, ICD, SNOMED CT etc. Though the specialized Bio Medical entity extraction – including difficult to identify 'Diseases', 'Chemicals', 'Drugs', 'Equipment', 'Anatomy' and 'Procedures' - and the rich semantic analysis of the results, 3RDi fosters improved bio-medical research and helps healthcare professionals with evidence based medicine.

For Medical Researchers

Identify Scientific Publications
Relevant to my research area...

Find insights

- Biological Pathways
- Disease Mechanisms
- New targets/leads/markers
- Drug Side Effects
- New uses for existing drugs

Protect Against Infringement

For Healthcare Practitioners

Diagnose Quickly & Correctly

Confront Observations with Authoritative Knowledge & Facts

- Visuals
- Comprehensive
- Critical