

# Linguamatics I2E Web Portal: Effective natural language processing text mining for your data silos

## Challenge

In the pharmaceutical industry, critical information is often “locked away” in textual reports, in data silos. Throughout the drug development process, documents are generated to capture information around assays, animal models, drug toxicities, exposure data, and much more. These require considerable resource investment to generate, but re-use of these valuable data is difficult and costly. Enterprise search tools can provide some access, but **while keyword search is easy to use, search recall and precision are low, and the user has considerable work to do once the results are returned in order to gain any actionable insight.**

## Solution

### Empowering end-users with effective web portal searches

Natural language processing (NLP) can overcome these challenges, extracting structured facts from unstructured documents. Using I2E NLP-based text mining, search across unstructured text brings back structured results (not just links to lists of documents), meaning much quicker analysis of the original data. Linguamatics I2E Web Portal provides effective, easy-to-use access to powerful text mining, to empower a broad base of users—access that can be tailored to suit specific business needs across life science and healthcare organizations.

Using Linguamatics I2E Web Portal, organizations can provide custom search interfaces for broad end-user access. The Linguamatics I2E Web Portal can be designed for a specific business issue (such as access to internal safety reports), or for scientific search across public domain sources for more effective search, using fielded form-building combined with ontologies and basic NLP functionality.

The I2E Web Portal gives end-users effortless access to deep NLP capabilities right from their web browser (rather than the I2E client). Users can easily build powerful queries using fielded forms, or employ I2E Smart Queries, tailored by expert users, for particular use cases.

## Benefits

- ◆ **Discover relevant information fast:** Transform text into data for rapid analysis and decision support, to answer critical questions in specific business areas.
- ◆ **Provide Linguamatics NLP text-mining I2E power to your broad user base.** Accurate. Powerful. Higher recall. Higher precision.
- ◆ **Customize an easy-to-use GUI for your corporate needs.** Focused. Defined. Branded.
- ◆ **Single search over internal proprietary and hosted public domain data.**

## Linguamatics I2E Web Portal use case

A top-10 pharma company needed a Safety Search Portal so that its safety team could effectively mine both internal Clinical Investigator Brochure documents and scientific literature—to quickly get answers to a set of predefined questions, as well as providing a form for flexible searches. The business wanted to reduce the cognitive load for its users, and present a custom view with internal department and company branding.

Figure 1: An example I2E Web Portal. Simple Search provides a Google-type search bar. With Advanced Search (illustrated), the user can easily build effective, Boolean-type queries over one or more data sources. Users can select data sources and date ranges, search in specific document regions, and use the power of ontologies for more accurate search. The Smart Search form provides access to powerful I2E queries, written by NLP experts, to generate results sets that answer specific user challenges.

The types of question their safety teams wanted to extract from valuable legacy documents included:

- ◆ Which compounds have kidney effects in any species?
- ◆ Which compounds have toxicology studies with >1 non-rodent species?
- ◆ Which compounds cause liver enzymes elevations in preclinical and clinical studies?
- ◆ Which compounds target a tyrosine kinase and cause a cardiac toxicity?

Linguamatics worked with the safety team to define the NLP queries that would best extract the key information from the Clinical Investigator Brochure documents, and to establish the requirements for a flexible search form. Using the I2E Web GUI Toolkit, the team developed a Safety Search Portal that they rolled out to the entire safety assessment team.

### Benefits of the Safety Search Portal

- ◆ Many more people were able to access the Safety Search Portal, increasing productivity across the team.
- ◆ All key data needed for safety reviews or risk-benefit assessment could now be found in a systematic, comprehensive way, thanks to the powerful underlying I2E text-mining capabilities.
- ◆ The customer described the alternative (i.e. not using I2E and this workflow) as “very, very hard.” This alternative relies on implicit knowledge: Knowing the expert in the area, having ready access to the expert, and the expert remembering all the details.

If you are interested in the power of the I2E Web Portal for your valuable document sets, please contact us at [enquiries@linguamatics.com](mailto:enquiries@linguamatics.com)