



## IMPROVING UPTAKE OF TEXT AND DATA MINING IN THE EU

### Facts

Project No: 665940

Program: H2020 | CSA | GARRI

Duration: 09/2015 - 08/2017

## KCONNECT

### Search technologies for medical information



from KConnect website

*Radiologists are drowning in images. At larger hospitals more than 100.000 images (over 100 Gb) are produced per day.*

### What is Kconnect?

Radiologists and other clinicians are facing an information overload caused by an increasing number of images and an increasing complexity of radiological protocols. That is why the Kreshmoi project (2010-2014) developed a multilingual multimodal search and access system for biomedical information and documents.

Khresmoi continued in 2015 as KConnect to bring the developed medical text analysis and search technologies to the market. KConnect offers multilingual medical text and search services that can help users find the best and most relevant medical information available. During the process of bringing the technology to market, the project is dealing with economic and legal barriers for commercialising TDM research projects.

### How does KConnect system use text mining and analysis?

KConnect provides Medical Text Analysis, Semantic Annotation and Semantic Search services aimed at healthcare professionals, researchers in the biomedical industry and the public. Text analysis, classification and semantic annotation with the aid of a large medical Knowledge Base allows for improved semantic search results.

Text analysis can also add value to textual information that is normally locked, such as inside EHRs (Electronic Healthcare Records). This can for example help increase treatment efficiencies, by letting clinicians know how similar patients were treated.

### How can the use of TDM improve healthcare?

When a patient is prescribed or administered two or more drugs that can interact, exposure to a potential drug-drug interaction (PDDI) occurs. This is a significant source of preventable drug-related harm.





Text mining can help to avoid this from happening by providing more information. There is a strong need for informatics research on how to best organize both existing and emerging PDDI information for search and retrieval. A recommended best practice is that systems should provide results using an interoperable common data model for PDDIs.

### What challenges did KConnect face in bringing TDM technology to market?

Because Kconnect works with medical records, they face issues of confidentiality and data protection. In many countries, there are specific regulations about accessing medical data. In case of personal data or sensitive personal data when the data for example holds medical information about a person, the use is strictly limited for other purposes than the one for which the personal data was collected.

As a solution KConnect has developed a Clinical Record Interactive Search (CRIS) application which allows research use of the anonymised mental health electronic records data.

The Dementia Clinical Record Interactive Search (D-CRIS) is a resource that enables large patient datasets to be pooled so that dementia research can be conducted at scale, providing researchers with access to one million patient records and enabling them to identify trends in

*"As a researcher you can even build your own pipeline to combine and process medical texts!"*

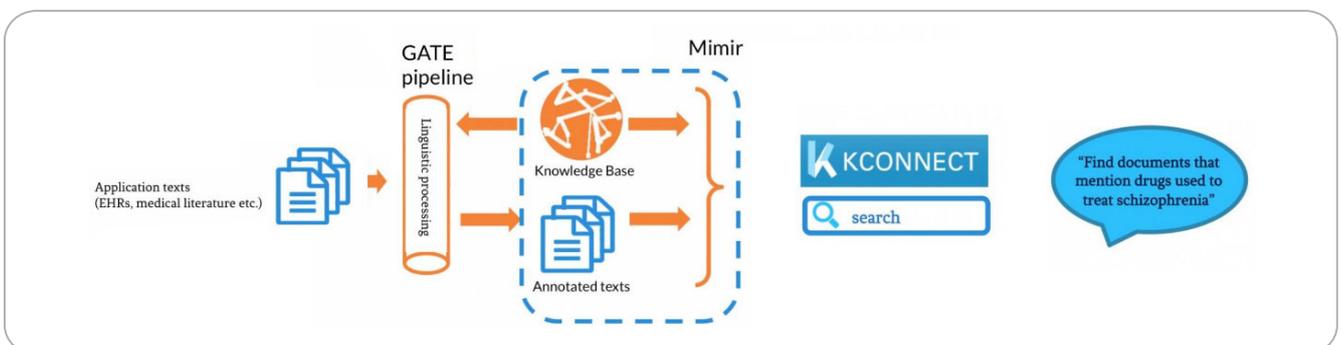
*KConnect*

the data. In this way they can investigate why treatments work for some patients and are not as effective for others.

Another major challenge is license interoperability. The project analyses medical literature across publishers and makes use of many different types of datasets, vocabularies and ontologies which often have different, restrictive licenses. In practice this makes it complicated to know how these sources can be used and how much you have to pay for using them.

Finally, Kconnect also experiences issues with the quality of data. For example, relevant for KConnect service is how to handle text in Electronic Health Records which often includes misspellings, neologisms, organisation-specific acronyms, and heavy use of negation and hedging.

As KConnect develops further in bringing the technology to market they will be able to provide more insights into possible best practices dealing with economic and legal barriers for commercialising TDM research projects. More information on KConnect is available from <http://www.kconnect.eu>



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