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# Watson to Sherlock – text mining using AI

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# Systematic literature review (SLR)

A systematic review uses an objective and transparent approach for research synthesis, with the aim of minimizing bias.

**With ever-increasing demands for transparency**, SLR is more used by the scientific community and considered a key to evidence-based research.

- The first step in conducting a systematic review is to create a structured question to guide the review.
- The second step is to perform a thorough search of the literature for relevant papers.

A systematic literature review process to a research question consists of
- selection
- appraisal
- synthesis of all the relevant evidence

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# Text mining using AI

## What is Text Mining, Text Analytics and Natural Language Processing?

What is Text Mining?

What is Natural Language Processing (NLP)?

Machine Learning and Natural Language Processing

Big Data and the Limitations of Keyword Search

Ontologies, Vocabularies and Custom Dictionaries

Enterprise-level Natural Language Processing

Home / What is Text Mining, Text Analytics and Natural Language Processing?

Text mining (also referred to as *text analytics*) is an artificial intelligence (AI) technology that uses natural language processing (NLP) to transform the free (unstructured) text in documents and databases into normalized, structured data suitable for analysis or to drive machine learning (ML) algorithms.

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# Watson to Sherlock

# Research funding



**The Research Council of Norway**
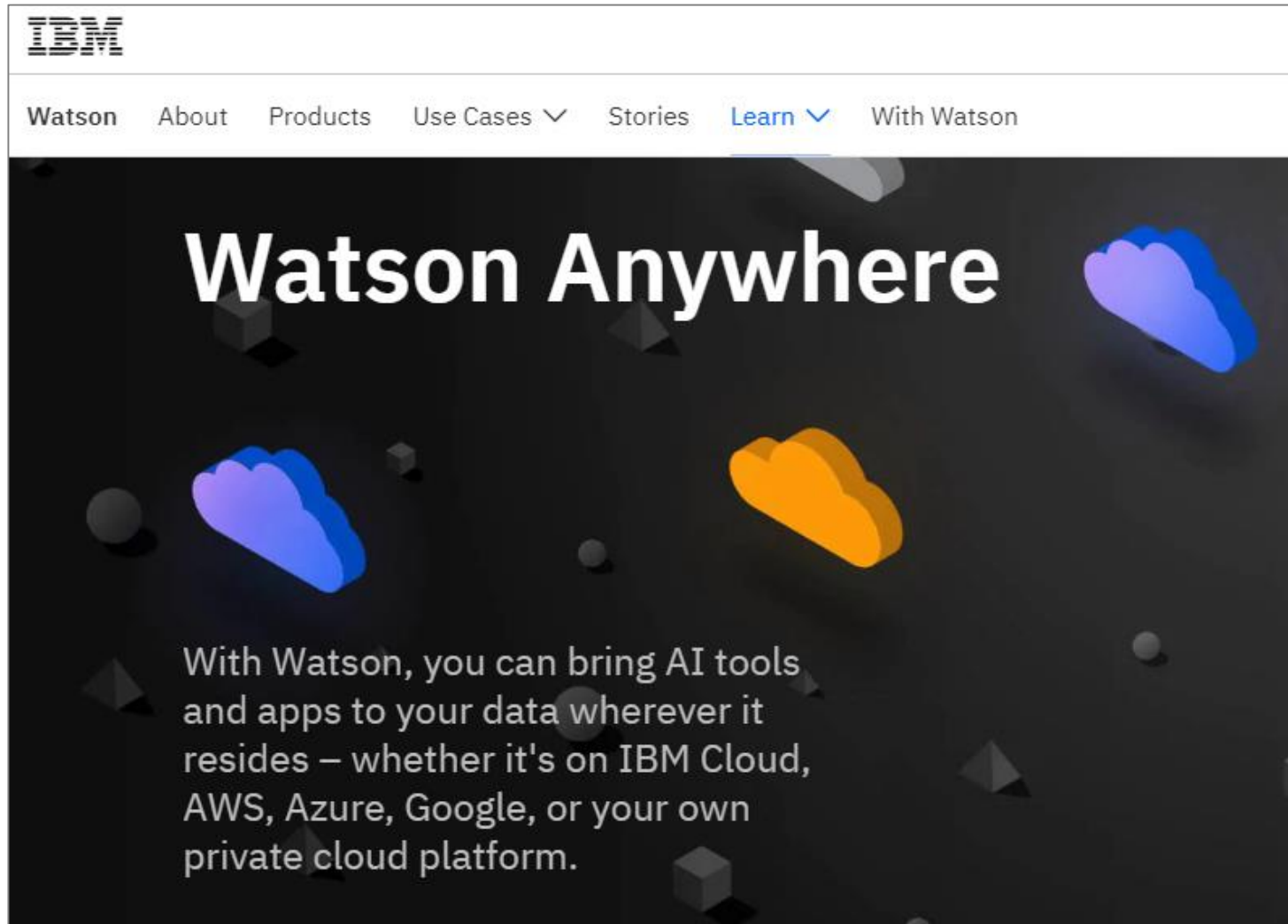
🏠 | International funding | EEA and Norway Grants | EEA and Norway Grants: Poland

## EEA and Norway Grants: Poland

Polish-Norwegian research cooperation is now entering its third period of funding under the EEA and Norway Grants. EUR 129 million has been allocated to two research programmes for basic and applied research.

Each project must as minimum involve a Polish applicant/project coordinator and one partner from Norway, Iceland or Liechtenstein. Multiple partners are allowed. Projects will be implemented in the period 2019–2024.

The agreement on research cooperation with Poland specifies that funding is to be provided for social science and polar research.

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# Cooperation Norway and Poland
## Participants from Norway



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# Participants from Poland

- Warsaw University of Technology
  - Faculty of Mathematics and Information Science

- National Institute of Public Health – National Institute of Hygiene
  - Department of Food Safety

- Industrial Partner – official IBM partner

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# Proposed Work Packages (1)

1. Design of IT systems based on

    – Open Source / R-shiny

    – Watson - contact with industrial partner (license conditions, cost! )

    Potentially useful elements of the Watson system

    - Watson Natural Language Understanding – natural language processing for text analysis
    - Watson Knowledge Studio – ontology creation
    - Watson Explorer – cognitive data exploration
    - Watson Discovery – documents classification based on ontology
    - IBM API's – import and export of data and models

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# Proposed Work Packages (2-6)

2. Determining data sets for building ontology and documents classifiers

3. Building ontology based on structured, unstructed documents and experts knowledge

4. Constructing new documents classifers based on deep learning approach and optimization methods

5. Building test examples (cooperation with EFSA and MS)

6. Analysis of classifiers effectiveness (Watson, Open source) when used in systematic literature review.

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Thank you for the attention!