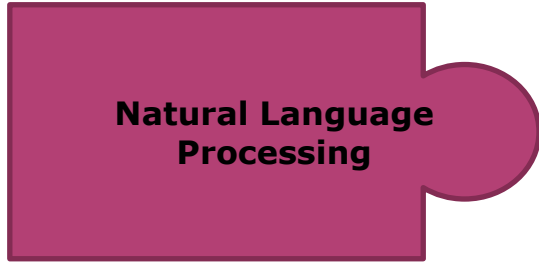




Recommendation 10:



Using 'Natural Language Processing' to meet the public sector need 'Digitization'

Status quo:

There are several NLP solutions on the market, such as Clarabridge NLP, RASA NLU, Ignitho NLP, NLP Technologies, Data Genic NLP, Vocali.

Potential applications of the NLP technology which could cater for the need of the public sector for further digitization include:

- Conversational interfaces
- Automated online assistants
- Sentiment analysis
- Native language identification

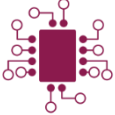
Recommended actions:

Technical challenges:

- Resolution of semantics and pragmatics issues (finding the meaning of a word or a word sense, determining scopes of quantifiers, finding referents of anaphora, relation of modifiers to nouns and identifying meaning of tenses to temporal objects);
- Development of domain-specific ontologies;
- Development of language-specific dictionaries;
- Development of efficient, large-scale solutions.

Non-technical challenges:

Training: cultivate expertise in data science and related fields to effectively analyse text/speech and build efficient models and ontologies.



Links – text to be shown when clicking on the technology or the need:

Digitization:

A need reflecting the "digital by default" paradigm. Although considerable advances have been made on this front, much of the e-government initiatives are still informative rather than interactive. This need reflects the urge towards more interactive e-government initiatives and enabling communication through electronic and internet channels (wherever non-existent). Specific illustrations include: "Manual processes (especially those regarding citizens' data processing should be fully automated.", "Still not possible to do the paperwork regarding a relocation to another city online."

Natural Language Processing:

Natural Language Processing (NLP) is a field of computer science, artificial intelligence, and computational linguistics concerned with the interactions between computers and human (natural) languages. As such, NLP is related to the area of human-computer interaction. NLP technology involves the ability to turn text or audio speech into encoded, structured information, based on an appropriate ontology**. NLP solutions enable communication between human and machine by analysing the content written and spoken in natural human language and converting it into the machine understandable language***.*

* Wikipedia-Natural Language Processing, https://en.wikipedia.org/wiki/Natural_language_processing

** Gartner IT Glossary – Natural Language Processing, <http://www.gartner.com/it-glossary/natural-language-processing-nlp/>

*** Future Market Insights, Natural Language Processing NLP Market: Global Industry Analysis and Opportunity Assessment 2015-2025, <http://www.futuremarketinsights.com/reports/natural-language-processing-nlp-market>