

SEMIOTIKS

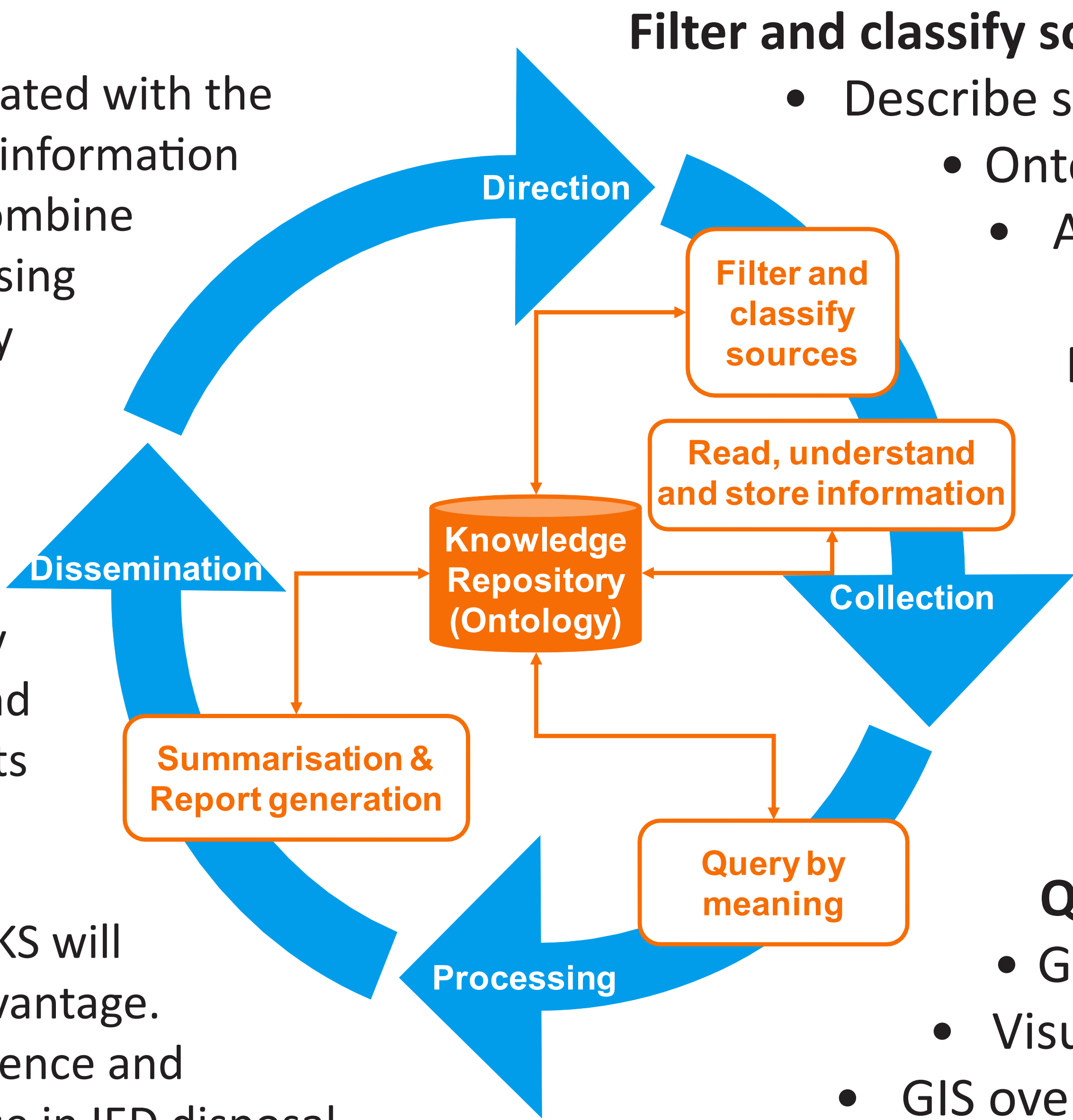
Semantically-Enhanced Information Extraction for Improved Knowledge Superiority

SEMIOTIKS in brief

SEMIOTIKS addresses the challenges associated with the fusion of multiple, disparate, unstructured information sources. We shall create novel tools that combine semantic web and natural language processing technologies to accelerate and enhance key stages of the intelligence processing cycle.

Decision makers will be able to use SEMIOTIKS tools to rapidly identify the most useful intelligence sources, effectively correlate them with known information, and make decisions about how to handle threats and developing situations sooner.

By speeding the intelligence cycle SEMIOTIKS will enable decision makers to gain decisive advantage. SEMIOTIKS is widely applicable, in both defence and civilian domains. We are investigating its use in IED disposal and humanitarian demining.



Filter and classify sources

- Describe specialist domain with an ontology
- Ontology driven document filtering
- Automatic document classification

Read, understand and store information:

- Annotate ontology with WordNet and domain-specific specialist terms
- New machine learning methods for identifying concepts in documents
- Unique ontology-driven information extraction technology

Query by meaning:

- Graphical information browser
- Visual query builder
- GIS overlays for location based information

Aims & Objectives

- state of the art knowledge discovery
- semantically-enhanced information fusion
- improved situation awareness
- innovative interaction and visualization
- demonstrate effectiveness in military context

Keywords

Ontology Fusion Extraction Text
Graphical Unstructured Annotation
Multi-touch Query Semantic Meaning
Structured Classification Browser

Military benefits and potential capabilities

Capability	Example problem/requirement addressed
More accurate and complex information retrieval (searching)	How many pipe bombs longer than 450mm have been found hidden within 10 miles of Basra Airport?
Extensible and re-usable	Can extend my IED intelligence model to include IED with ambushes
Mediation	Different bodies use different terminology to refer to the same concepts. An ontology can ameliorate this
Enables information fusion	Are there any references in open sources to events co-incident with this IED event?
Facilitates visualization	Can I have an I2 model of this event and overlay it on a map?
Enables automatic reasoning	Devices of this kind can't fit into a suitcase

Scenario development

Military and humanitarian scenarios have been developed to demonstrate the utility of SEMIOTIKS technologies.



Visualisation & Interaction

SEMIOTIKS is researching innovative interaction and visualization techniques that are based upon work carried out within the predecessor AKTiveSA project. These techniques will support collection, processing and dissemination:

- GIS views using terrain elevation data and satellite imagery
- Multi-touch/user interfaces
- Natural language interfaces
- Graphical query builders & ontology browsers

SEMIOTIKS PEOPLE

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