

Focus on CSIR services in

Cyber Defence: Knowledge Systems Development

By their very nature, complex problems are often not well defined and lacking precise problem statements. Skills to structure and model problems, and formalise and represent domain knowledge, create pathways to solutions for complex domains.



Problem Structuring Expertise

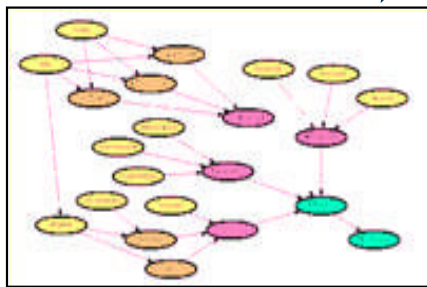
- General Morphological Analysis (GMA)
- Computer- Aided Resource for GMA (CARMA)
- Bayesian Network (BN)

Domain Knowledge Representation

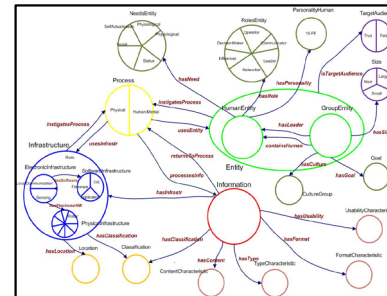
- Ontology Development
- Problem Modelling
- Scenario Experimentation

GMA

Type of PSO mission	Tasks	Capabilities	Threat groups	Geographical area of operations	Non Military stakeholders
Preventative Diplomacy	Preventative Deployment	Navy	Terrorist group	Outside Africa	NGO's
Peace Keeping	Observation, monitoring and supervision	Army	Beligerent groups	Africa-wide	Media
Peace Enforcement	Enforcement of sanctions	Airforce	Political and ethnical extremist group	SADC	Other Gov Departments
Peace Building and Post conflict reconstruction	Forced separations of the parties	Military Health Services	Extreme Religious Group		
Humanitarian Support	Setting up and maintaining protective areas	Joint Ops	Dislocated population flowing into other African countries		
	Humanitarian aid	Av	Hostile local communities		
	VIP Protection	Non military capability	No threats		
	Military aid/support to civil authorities				
	Guarantee or denial of freedom of movement				
	Non combatant evacuation operations				
	Force Protection and Safety				



Structure
(parameterise) a
problem complex
("wicked problems")



Causal
BN model

General Morphological Analysis

The CSIR has a proven methodology and the capabilities that can assist with structuring and analysing multi-dimensional technical and social problem spaces. These spaces are inherently non-quantifiable, contain non-resolvable uncertainties, cannot be causally modelled or simulated and require a judgemental approach.

Ontology Development

- An ontology consists of concepts, attributes, inter-concept relationships and domain logic.
- An ontology provides a shared domain vocabulary.
- Inference engines allow us to reason about the facts contained in an ontology.

Contact details

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