

Semantic technologies and techniques for interoperable information in smart environments

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SOFIA aims to:

- Connect physical world with information world to **enrich user experience** through **smart environments**
- Promote **innovation** and maintain existing **legacy**
- Create **new user interaction**
- Maintain cross-industry interoperability through **Interoperability Open Platform**



SMART ENVIRONMENTS AXIOMS

- The cost of interoperability agreements increases when moving towards implementations
- Interoperability is unavoidable step in the evolution of information world
- There is no single technology that can master the variety of needs
- World can not be built or changed instantaneously
- A single company can not build the world

SOFIA Semantic Needs

SOFIA Semantic Needs must be solved through **different technologies**

SOFIA deals with a variety of **ontology languages** taking into account **technology restrictions**

	Bossam	FACT++	Hoolet	Jena	KAON2	Pellet	Racer Pro	Sweet Rules
Expressivity	?	SROIQ (D)	?	Incomplete DL support	SHIQ(D)	SROIQ (D)	SHIQ	Not Applicable
OWL-DL Entailment	Partial / under development	Yes	Yes	Incomplete OWL-DL model	Yes	Yes	Yes	No
Consistency checking	?	?	Yes	Incomplete OWL-DL model	?	Yes	Yes	No
DIG Support	No	Yes	No	Yes	Yes	Yes	Yes	No
SPARQL Support	No	No	No	Yes	Yes	Yes	No	No
Rule Support	Yes (SWRL, own)	No	Yes (SWRL)	Yes (Own)	Yes (SWRL)	Yes (SWRL, others)	Yes (SWRL)	Yes (SWRL, others)
Documentation available	Yes	Not readily	Not readily	Yes	Not readily	Yes	Yes	Yes
Licensing	Free/closed-source	Free/open-source	Free/open-source	Free/open-source	Free/Closed Source	Several	Non-Free/closed-source	Free/open-source

SOFIA's Benchmark Suite of Reasoners

NEW BENCHMARKS

IMPORT/EXPORT A LANGUAGE
natively non-natively

INTEROPERABILITY

MODEL SYSTEM INFORMATION
(Heterogeneous formalisms)

COORDINATION OF INTERACTIONS
orchestration choreography

New goal: Develop a new semantic environment with a high degree of interoperability