# Information and Data Management by KG

##### Session 3.4 (SEMANTiCS)

#### Time: Thursday, September 19, 2024 - 10:30 to 12:00

#### Chair: Cornelis Bouter

## **Talks**

### How Shared Knowledge Graphs Help Us Build Distributed Applications Within The semantic.works Framework

During the talk, we want to highlight the challenges and points of attention required for successful sharing of knowledge graphs. Our main takeaway is that you shouldn't be afraid of treating RDF as a first-class citizen in your application. It's production-ready technology (as proven by semantic.works) with a huge potential benefit in breaking up data silos, and being one step closer to a distributed, interoperable internet as initially envisioned by Tim Berners-Lee.

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| Aad Versteden | Niels Vandekeybus | Felix Ruiz de Arcaute |

### A Foundational Ontology of Deepfake Attacks and Knowledge Graph Application

The authors used knowledge engineering methodology with 7 steps, including ontology scope determination, existing ontologies evaluation, and classes, properties, and relations definitions. The authors utilized Protégé Desktop and the W3C Web Ontology Development Language for ontology creation, the WIDOCO tool for ontology documentation, and OOPS for ontology validation. The authors developed a small-size deepfake events knowledge base to implement knowledge graphs, where the developed ontology defined the nodes and relations. GraphDB, a graph database, was used for knowledge graph.

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| Faiza Khalid | Oğuzhan Menemencioğlu |

### Data-driven Energy-efficient Manufacturing at Dell Technologies’ Ireland Campus

Dell Technologies presents an industry use case focused on enhancing energy efficiency in manufacturing through advanced data analytics and semantic technologies, as part of the Horizon Europe funded GLACIATION project. Situated at the Cork (Ireland) Campus Manufacturing facility, this initiative analyzes data generated by Collaborative Robots (Cobots) and Autonomous Mobile Robots (Tugbots), integrating their operational and diagnostic data via the GLACIATION platform. The platform leverages a distributed knowledge graph, swarm intelligence for distributed search, and semantic web technologies as a metadata fabric to optimize the use of renewable energy sources, minimize energy consumption, and improve operational efficiencies. This innovative approach addresses the fragmented analysis of data from various robots, which previously hindered the facility's ability to optimize energy consumption and leverage advanced analytics.

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| Aidan O Mahony |

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