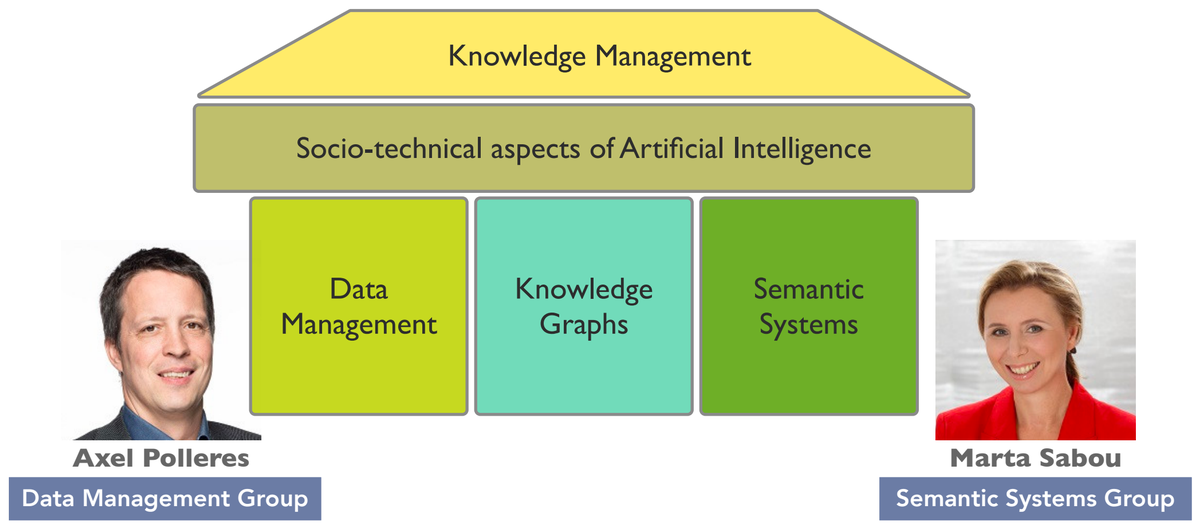
Institute for Data, Process, and Knowledge Management (DPKM)

WIRTSCHAFTS UNIVERSITÄT WIEN VIENNA UNIVERSITY OF ECONOMICS AND BUSINESS

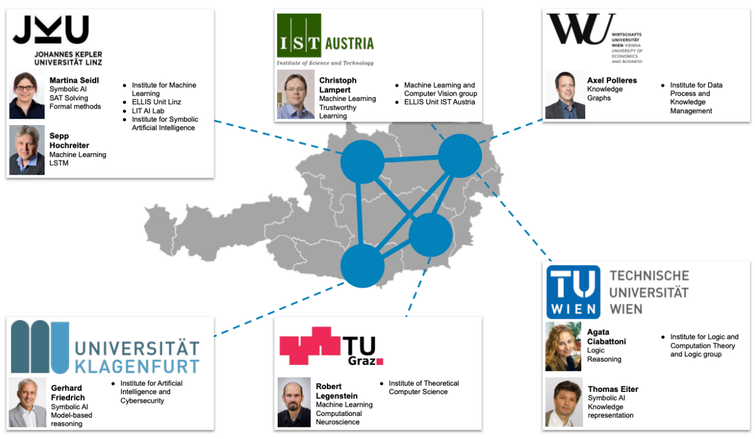
Vision

The Institute for **Data, Process and Knowledge Management** is dedicated to pioneering research at the intersections of *data management and integration*, *the semantic web*, and *artificial intelligence* to tackle intricate challenges within the business and knowledge management domains.



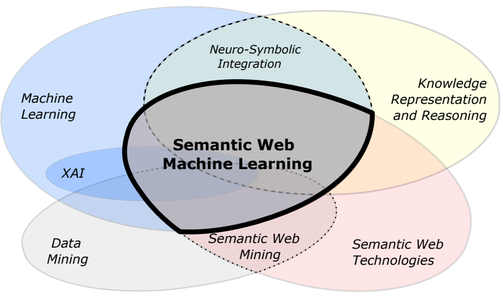
Project Highlight: BILAI

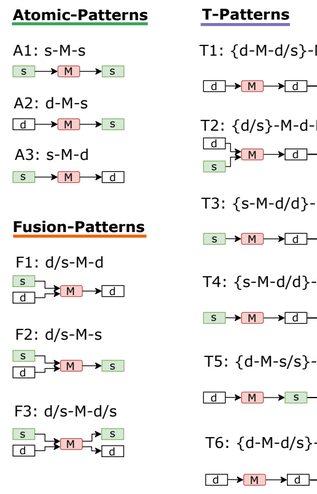
DPKM is part of the **FWF Cluster of Excellence on Bilateral Artificial Intelligence (BILAI)**, which has recently been awarded and will run for at least 5 years as one of Austria's highest-funded research projects to date. BILAI will conduct fundamental research integrating symbolic and sub-symbolic methods as fundamental steps towards Broad AI. DPKM is part of the WU team in the project and will focus on automatically creating and improving knowledge graphs to make machine learning more explainable and robust.

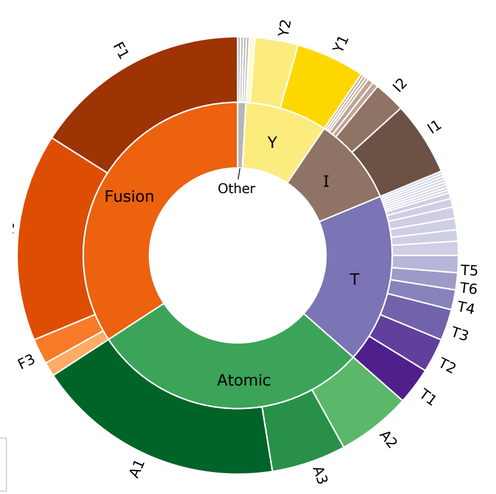


Research Highlight: SWeMLS

We developed a classification system and identified a set of patterns for **Semantic Web Machine Learning Systems (SWeMLS),** systems which make use of a Semantic Web knowledge structure and Machine Learning sub-systems. Our findings are based on a Systematic Mapping Study of almost 500 papers.

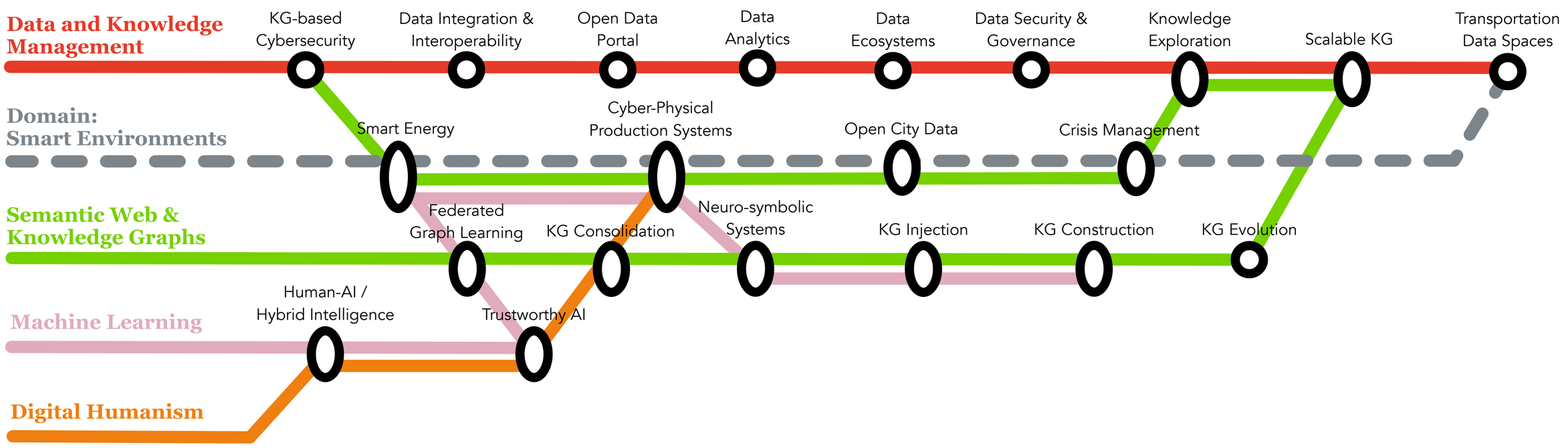






https://w3id.org/semsys/sites/swemls-kg

Research Map



Other Projects

FFG SENSE project aims to advance and strengthen the scientific and technology level of explainable Cyber-physical Systems (ExpCPS) through: (i) the extension of standard Digital Twin architectures; (ii) novel ExpCPS methods based on semantic technologies lead to semantics-based explainability systems (i.e., SENSE systems); (iii) personalized and interactive user interfaces.

https://sense-project.net

Horizon Europe PERKS project supports the holistic governance of industrial Procedural Knowledge (PK) in its entire life cycle, from elicitation to management and from access to exploitation. PERKS bases its solutions on leading-edge AI, data technologies and people, by advancing and integrating existing methodologies and tools in terms of readiness, flexibility and user acceptance.

https://semantic-systems.org/perks

H2020 TEAMING.AI project aims to make a breakthrough in smart manufacturing by introducing greater customisation and personalisation of products and services in AI technologies. Through a new human and AI teaming framework manufacturing processes will be optimised: the greatest strengths of both these elements can be maximised while safety and ethical compliance guidelines are examined & maintained.
https://www.teamingai-project.eu/

FAIR-AI addresses the research gap created by dealing with society-related risks in the application of AI. In particular, it focuses on the requirements of the upcoming European AI Act and the obstacles to its implementation - focusing on risk detection, monitoring, mitigation and anticipation at all levels of system development. The project develops methodologies to disentangle risks and provide active support and guidance.

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