FOMI 2022
12th International Workshop on
Formal Ontologies Meet Industry

Proceedings of the 12th International Workshop on
Formal Ontologies Meet Industry
co-located with workshops about the Industrial Ontology
Foundry (IOF) and OntoCommons (EU H2020 project)

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PREFACE

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The FOMI series is supported by the International Association for Ontology and its Applications (IAOA)[1] and organized by the IAOA-ISTC committee.[2] The current members of the committee are:

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[1] https://iaoa.org/

[2] https://iaoa.org/index.php/faq/industry-and-standards-technical-committee/

FOMI is an international forum where academic researchers and industrial practitioners meet to analyze and discuss application issues related to methods, theories, tools and applications based on formal ontologies.[3] There is wide agreement that knowledge modeling and the semantic dimension of information play an increasingly central role in a networked economy: semantic-based applications aim to provide a framework for reliable data and knowledge sharing, exchange, and integration, as well as for automated reasoning over knowledge and data, meaning negotiation and coordination between distinct organizations or among members of the same organization.

Theoretical ideas are often promising but their actual implementation may bring up unexpected problems and issues. Every ontology development is also required to follow a robust technical principle regarding metadata documentation, licensing, version and release management to be sustainable for long-term use. Hence, the main purpose of the FOMI workshop series is to collect and share useful experiences and lessons learned by the presentations from both academia and industry of:

1. New research results;
2. New insights on known problematic issues;
3. Experience with problems in ontology application;
4. Successes and observations in ontology implementation;
5. Lessons learned on the best way to apply ontological methodologies and tools to real-world situations;
6. Demo of ontology-based applications in industry.

Similar problems arise in disparate application contexts and an open discussion helps to highlight commonalities and to spread ideas for possible solutions. FOMI welcomes researchers and practitioners that embrace this perspective without restrictions on the domains they deal with: business, medicine, engineering, finance, law, biology, geography, electronics, etc.

To achieve FOMI's mission, the 2022 edition takes place in tandem with other international events related to the use of ontologies and ontology-based information systems in industry. These events are organized within the scope of both the European project OntoCommons (EU H2020 project)[4] and the Industrial Ontology Foundry (IOF).[5] In this way, the workshop participants will have the chance of engaging with a broad community of international researchers, stakeholders, and practitioners in industry to share experiences, insights, and discuss common research and application challenges.

Workshop Topics (not limited to):

Problems in ontology application:

- Practical issues in using ontologies in enterprises;
- Real cases of successful/unsuccessful use of ontology;

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[3]Visit https://iaoa.org/index.php/about/events/ for some information about the history of FOMI.
[4]https://ontocommons.eu/
[5]https://www.industrialontologies.org/

- From legacy systems to ontology-driven systems;
- Application of FAIR principles for ontologies in industry;
- Experiences acquired wrt ontology-based software applications (e.g., tools for developing ontologies,

Ontology and knowledge management:

- Ontological methodologies in data modeling and knowledge management;
- Adaptation of formal ontologies for companies and organizations;
- Ontology development and change within companies/organizations;
- Ontology effectiveness and evaluation;
- Ontologies for the know-how;
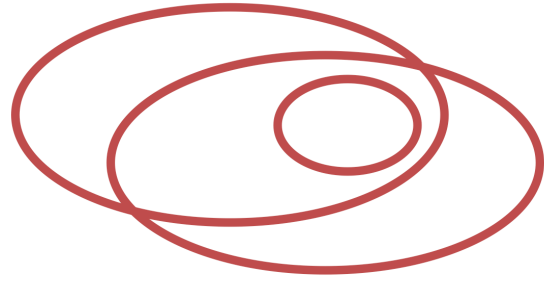- Ontologies for corporate knowledge.

Ontology in practice:

- Ontologies for engineering (manufacturing, design, etc.);
- Ontologies for material science;
- Ontologies for electronic catalogs, e-commerce, e-government, etc.;
- Ontologies for marketing;
- Ontologies for finance;
- Ontologies for medical sciences;
- Ontologies for IoT.

The proceedings present 14 papers with 7 regular papers, 3 short papers, and 4 poster papers; they all originate from academic research at the intersection with industry, and stakeholders' experience with the use of ontologies in real-world application settings. The papers address topics spanning from multiple research contexts including aerospace industry (Maleki et al., Rodriguez et al.), petroleum and multi-energy industry (Leclerc et al., Santos et al.), material sciences (Del Nostro et al., Ekaputra et al., Konchakova et al.), maintenance (Aceta et al.), manufacturing (Sarkar et al.), and functional modeling (Compagno and Borgo). In addition, some papers show application and methodological results relative to requirement elicitation and representation (Katsumi et al.,), as well as the use of meta-models or foundational ontologies in industry (Drobnjakovic et al., Morales-Palma et al., Terkaj et al.).

Acknowledgements

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