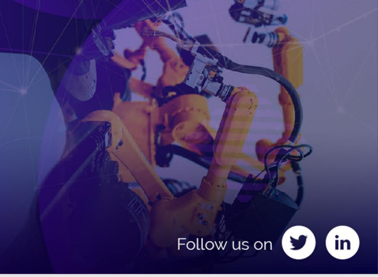
# Ontology Commons addressing challenges of the Industry 5.0 transition

## Standardised data documentation and data sharing valorisation to foster data-driven innovation



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# Agenda

## 2 November 2021

| | Time (CET) | Sessions | | | |
|---|---|---|---|---|---|
| Plenary | 10:30 - 10:50 | Welcome, introduction of OntoCommons.eu and scope of the workshop | Nadja Adamovic, TU-WIEN, Project Coordinator | | |
| | 10:50 - 11:25 | The International Association for Ontology and its Applications: 12 years of promoting Applied Ontology with an interdisciplinary approach | Laure Vieu (President of the IAOA) | | |
| | 11:25 - 11:30 | Poster presentation: VIPCOAT - Natalia Konchakova, Helmholtz-Zentrum Hereon | | | |
| | 11:30 - 11:45 | Coffee Break | | | |
| | | **Room 1** | | **Room 2** | |
| Parallel sessions | | **Industry commons translator** | Chair: Gerhard Goldbeck (GCL) | **Ontology Interoperability** | Chair: Stefano Borgo (Laboratory for Applied Ontology ISTC-CNR) |
| | 11:45 - 11:55 | Advancing Translation in Materials Modelling | Peter Klein (Fraunhofer ITWM) | Introduction to ontology matching and alignment | Jérôme Euzenat (INRIA and Université Grenoble Alpes) |
| | 11:55 - 12:00 | Q&A | | Q&A | |
| | 12:00 - 12:10 | Translation of Innovation challenges | Michael Noeske (Fraunhofer IFAM) | Ontology alignments: semantics, ontlogy integration, multiple logics | Till Mossakowski (Otto-von-Guericke University of Magdeburg) |
| | 12:10 - 12:15 | Q&A | | Q&A | |
| | 12:15 - 12:25 | Knowledge Engineering Translation - early experiences from the Biomedical Domain | Nicolas Matentzoglu (Independent Contractor) | Conceptual heterogeneity: the case of time | Claudio Masolo (Laboratory for Applied Ontology ISTC-CNR) |
| | 12:25 - 12:30 | Q&A | | Q&A | |
| | 12:30 - 13:15 | Discussions | Chair: Gerhard Goldbeck (GCL) | Discussions | Chair: Stefano Borgo (Laboratory for Applied Ontology ISTC-CNR) |

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|---|---|---|---|---|---|
| | 13:15 - 14:15 | Lunch Break | | | |
| Parallel sessions | | **Enabling intra-ontology interoperability through shared terminology** | Chair: Silvana Muscella (Trust-IT Services) | **Ontologies Stratification** | Chair: Hedi Karray (ENIT) |
| | 14:15 - 14:25 | Ontology Standards in ISO | Barry Smith (Director, National Center for Ontological Research) | Experience of ontology stratification strategy and Issues with TLO alignment in IOF | William Sobel (MTConnect Institute) |
| | 14:25 - 14:30 | Q&A | | Q&A | |
| | 14:30 - 14:40 | Improving the efficiency and effectiveness of systems integration and interoperability using ontology | Boonserm Kulvatunyou, EAB (National Institute of Standards and Technology) | The EMMO Structure and Perspectives | Emanuele Ghedini (Università di Bologna) |
| | 14:40 - 14:45 | Q&A | | Q&A | |
| | 14:45 - 14:55 | Standardisation in the IoT domain | Ulrike Parson (Parson parson AG) | Layered patterns in design workflows | Aldo Gangemi (MAC) |
| | 14:55 - 15:00 | Q&A | | Q&A | |
| | 15:00 - 15:10 | Ontology Standards in Industry 5.0 | Nicolas Figay (Airbus) | Discussions | Chair: Hedi Karray (ENIT) |
| | 15:10 - 15:15 | Q&A | | | |
| | 15:15 - 15:45 | Discussions | Chair: Silvana Muscella (Trust-IT Services) | | |
| | 15:45 - 16:00 | Coffee break | | | |
| | 16:00 - 16:25 | Sessions summary | | Nadja Adamovic, TU-WIEN, Project Coordinator | |

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## 3 November 2021

| | Time (CET) | Sessions | |
|---|---|---|---|
| Plenary | 10:00 - 10:05 | Welcome | Mohamed Hedi Karray (ENIT) |
| | 10:05 - 10:50 | Ontologies for everyone | Peter Murray-Rust (University of Cambridge, Yusuf Hamied Department of Chemistry) |
| | 10:50 - 11:25 | Extraction of common conceptual components from multiple ontologies | Valentina Presutti (Università di Bologna) |
| | 11:25 - 11:30 | Poster presentation: Ontologies Modularization to Support Digital Continuity in Industrial Domains, Nadia Chouchani, Railenium | |
| | 11:30 - 11:45 | Coffee break | |

|  |  | Room 1 |  | Room 2 |  |
|---|---|---|---|---|---|
| 1st break out |  | **Establishing a Knowledge Exchange Space** | Chair: Yann Le Franc (e-science data factory) | **User Experience on Ontology Engineering Tools** | Chair: Marìa Poveda (UPM) |
|  | 11:45 - 11:55 | Presentation of KeXs | Florina Piroi (TU-WIEN) | HCI for ontologies | Enrico Motta (The Open University) |
|  | 11:55 - 12:00 | Q&A |  | Q&A |  |
|  | 12:00 - 12:10 | GOing FAIR | Barbara Magagna (GOFAIR Foundation) | Terminology Services for Community Driven Ontology Development | Felix Engel (TIB) |
|  | 12:10 - 12:15 | Q&A |  | Q&A |  |
|  | 12:15 - 12:25 | Overview of EOSC | Karel Luyben (EOSC Association) | Ontology Engineering Tools for Heavy Industry: There is no such thing | Arild Waaler (UiO) |
|  | 12:25 - 12:30 | Q&A |  | Q&A |  |
|  | 12:30 - 12:40 | The Research Data Alliance (RDA) a global, public asset | Hilary Hanahoe (RDA) | Discussions | Chair: Marìa Poveda (UPM) |
|  | 12:40 - 12:45 | Q&A |  |  |  |
|  | 12:45 - 13:15 | Discussions | Chair: Yann Le Franc (e-science data factory) |  |  |
|  | 13:15 - 14:15 | Lunch break |  |  |  |
|  | 14:15 - 14:50 | Ontology in the petroleum industry: conceptual models for knowledge discovery, interpretation and information search |  | Mara Abel (UFRGS on behalf of ONTOBRAS) |  |
| 2nd break out |  | **Ontology-based digital marketplaces for Industry Commons** | Chair: Ebrahim Norouzi (Fraunhofer) | **Ontology adoption** | Chair: John Breslin (NUI Galway) |
|  | 14:50 - 15:00 | EC vision and recommendations | Laszlo Hetey (Health and Digital Executive Agency - HaDEA) | Ontology adoption in the aircraft industry | Gianmaria Bullegas (Perpetual labs) |
|  | 15:00 - 15:05 | Q&A |  | Q&A |  |
|  | 15:00 - 15:15 | Experiences of marketplace projects | Daniele Toti (Marketplace), Silvia Chiacchiera (STFC UKRI on behalf of VIMMP), Kosmas Alexopoulos & Vasilis Maratos (University of Patras, on behalf of Market 4.0) | Web Ontologies in Practice: Lessons Learned from Conceptual Modeling at Scale | Martin Hepp (Universität der Bundeswehr Munich) |
|  | 15:15 - 15:20 | Q&A |  | Q&A |  |
|  | 15:20 - 15:30 | DOME 4.0 requirements | Bjørn Tore Løvfall (SINTEF) | Experiences with ontology repositories | Clement Jonquet (LIRMM) |
|  | 15:30 - 15:35 | Q&A |  | Q&A |  |
|  | 15:35 - 15:45 | Marketplaces interoperability demonstrator | Silvia Chiacchiera (UKRI) | Discussions | Chair: John Breslin (NUI Galway) |
|  | 15:45 - 15:50 | Q&A |  |  |  |
|  | 15:50 - 16:20 | Discussions | Chair: Ebrahim Norouzi (Fraunhofer) |  |  |
|  | 16:20 - 16:25 | Coffe break |  |  |  |
|  | 16:25 - 16:50 | Session Summary |  | Hedi Karray, ENIT |  |

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## 4 November 2021

| | Time (CET) | Sessions | | | |
|---|---|---|---|---|---|
| | 10:30 - 10:40 | Welcome | Gerhard Goldbeck (GCL) | | |
| Plenary | 10:40 - 11:15 | Use of ontologies in the manufacturing and production sector | Dr. Jorge Martinez-Gil (SCCH) | | |
| | 11:15 - 11:20 | Poster presentation: SSHOCro, Athina Kritsotaki (FORTH) | | | |
| | 11:20 - 11:25 | Poster presentation: MAMBO, Fabio Le Piane (CNR-ISMN) | | | |
| | 11:25 - 11:45 | Coffee break | | | |
| | | **Room 1** | | **Room 2** | |
| 1st break out | | **FAIR Technology Adoption in Demonstrators** | Chair: Umutcan Simsek (University of Innsbruck) | **Domain Ontology for manufacturing and supply chain** | Chair: Dimitris Kiritsis (EPFL) |
| | 11:45 - 11:55 | FAIR Principles and GO FAIR | Barbara Magagna (GOFAIR Foundation) | Ontology engineering for Industrial Maintenance | Melinda Hodkiewicz (University of Western Australia) |
| | 11:55 - 12:00 | Q&A | | Q&A | |
| | 12:00 - 12:10 | Showcasing good FAIR adoption in a demonstrator | Sebastian Scholze (ATB-Bremen)<br>Ana Correia (ATB-Bremen) | Systems Engineering as the foundation for industrial domain ontologies | Jinzhi Lu (EPFL) |
| | 12:10 - 12:15 | Q&A | | Q&A | |
| | 12:15 - 12:25 | The FAIR cookbook, by the IMI FAIRplus project: a brief tour | Philippe Rocca-Sera (Oxford e-Research Centre) | Ontology engineering for supply chain, procurement and logistics | Farhad Ameri (Texas State University) |
| | 12:25 - 12:30 | Q&A | | Q&A | |
| | 12:30 - 13:15 | Discussions | Chair: Umutcan Simsek (University of Innsbruck) | Discussions | Chair: Dimitris Kiritsis (EPF) |
| | 13:15 - 14:15 | Lunch break | | | |
| 2nd break out | | **OntoCommons Demonstrators** | Chair: Anna Fensel (University of Innsbruck) | **Industrial Engineering** | Chair: Stefano Borgo (STC-CNR Laboratory for Applied Ontology) |
| | 14:15 - 14:25 | Measuring the impact of industrial ontology application | Evgeny Kharlamov (BOSCH) | How to use competency questions in ontology requirement analysis? | Michael Grüninger (University of Toronto) |
| | 14:25 - 14:30 | Q&A | | Q&A | |
| | 14:30 - 14:40 | Characterising Tribological Experiments: Current Status and Impact of OntoCommons on TEKNIKER Demonstrator | Iker Esnaola (TEKNIKER) | Ontologies for manufacturing | Walter Terkaj (STIIMA-CNR) |
| | 14:40 - 14:45 | Q&A | | Q&A | |
| | 14:45 - 14:55 | Demonstrating the FAIR Data Station for managing metadata in the life sciences | Jasper Koehorst (WUR) | Experience with SAREF for Industry | Mauro Dragoni (FBK) |
| | 14:55 - 15:00 | Q&A | | Q&A | |
| | 15:00 - 15:45 | Discussions | Chair: Anna Fensel (University of Innsbruck) | Discussions | Chair: Stefano Borgo (STC-CNR Laboratory for Applied Ontology,) |
| | 15:45 - 16:00 | Break 2 | | | |

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|---|---|---|---|
| Plenary | 16:00 - 16:35 | Community-based Ontology Development: Lessons Learned from the Financial Industry Business Ontology (FIBO) | Elisa F. Kendall (Thematic partner LLC) |
| | 16:35 - 16:40 | Poster presentation: CommonAction, Ellie Young (Common Action) | |
| | 16:40 - 17:00 | Session Summary | Hedi Karray (ENIT) |

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## 5 November 2021

| Time (CET) | | Sessions | |
|---|---|---|---|
| Plenary | 10:00 - 10:05 | Welcome | Michela Magas (ICF, OntoCommons) |
| | 10:05 - 10:50 | Enterprise Knowledge Graphs as a Basis for Company-lead Innovation | Katariina Nyberg Kari (Inter-IKEA Systems) |
| | 10:50 - 11:05 | Coffee break | |

1st break out

### Room 1

| | | |
|---|---|---|
| | **Use Cases for innovative ontology applications (Panel discussion)** | Chair: Michela Magas (ICF, OntoCommons) |
| 11:05 - 12:35 | Moderated discussion | Michela Magas (ICF, OntoCommons) |
| | Volvo electric cars | Fredrik Folkestad (Folkestad Sino-Skandinavien) |
| | P2P Foundation | Simon Grant (P2P Foundation) |
| | Accessibility | Tim Yates |
| | Lead Ontologist Inter-IKEA Systems (IKEA Global) | Katariina Nyberg Kari (Inter-IKEA Systems) |

### Room 2

| | | |
|---|---|---|
| | **Ontology Engineering in Material Science** | Chair: Martin Horsch (STFC - UKRI) |
| 11:05 - 11:15 | FAIRness in Material Ontology | Alexandru Todor (Fraunhofer) |
| 11:15 - 11:20 | Q&A | |
| 11:20 - 11:30 | Development of the Battery Interface Ontology (BattINFO) for battery data interoperability | Simon Clark (SINTEF) |
| 11:30 - 11:35 | Q&A | |
| 11:35 - 11:45 | Ontology Development in Process Engineering and Catalysis – Current Status in NFDI4Cat | Alexander Behr (Technische Universität Dortmund) |
| 11:45 - 11:50 | Q&A | |
| 11:50 - 12:35 | Discussions | Chair: Martin Horsch (STFC - UKRI) |

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|---|---|---|---|
| | 12:35 - 12:40 | Coffee break | |
| Plenary | 12:40 - 12:55 | Session Summary | Nadja Adamovic, TU-WIEN, Project Coordinator |
| | 12:55 - 13:00 | Poster presentation: Market4.0, Kosmas Alexopoulos, University of Patras | |
| | 13:00 - 13:30 | Conclusion of the workshop | Nadja Adamovic, TU-WIEN, Project Coordinator<br>Hedi Karray (ENIT) |