10th INTERNATIONAL CONFERENCE ON INTEROPERABILITY FOR ENTERPRISE SYSTEMS AND APPLICATIONS

"INTEROPERABILITY IN THE ERA OF ARTIFICIAL INTELLIGENCE"

Online Event, November 17th-19th

ORGANIZED BY

InterOP - VLab   INP TOULOUSE   ÉNIT ÉCOLE NATIONALE D'INGÉNIEURS DE TARBES   InterOP - VLab Pôle GSO

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IFIP Workgroup WG 5.8 Enterprise Interoperability

PLEASE NOTE THAT ALL THE TIME SLOTS CORRESPOND TO CET (Central European Time)

	TUESDAY November 17th				WEDNESDAY November 18th				THURSDAY November 19th
									Special event Digitalisation in Industry and Health in Europe
08:30 - 09:00	Opening & Welcome								
09:00 - 10:00	Keynote speaker 1 - Pr. Dimitris Kiritsis CT FOR SUSTAINABLE MANUFACTURING AT EPFL, SWITZERLAND				Keynote speaker 2 - Pr. Fernando Mas - CTO (CHIEF TECHNOLOGY OFFICER) AT M&M Aeronauticos, Sapin				Keynote speaker 3 - Arian Zwegers, European Commission, DG Connect
10:00 - 10:30	Coffee break				Coffee break				Coffee break
10:30 - 12:00	Track 1. Semantics-Driven approaches	Track 2. Digital Twin	Track 3. IOT & Digital Platforms	Track 4. Model-driven approaches	Track 5. Ontology-based engineering	Track 6. Data and Knowledge Modeling	Track 7. Business oriented applications	Workshop 8. Pathways towards a Modelling and Architecture Language for Interoperable Cyber-Physical Systems	Session Industry Presentation DIH4CPS European Project (Digital Innovation Hub for Cyber Physical System)
12:00 - 12:30									
12:30 - 13:30	Lunch Break				Lunch break				Lunch break
13:30 - 15:30	Workshop 1.1 A Future Vision of Flexible Configurable Manufacturing in a Digitised World	Workshop 2.1 Smarter interoperability with federation and artificial intelligence	Workshop 3.1 Interoperability for Crisis Management: Increasing Organizational Resilience	Workshop 4.1 Interoperability for maintenance: Semantic model, terminology and ontology, advances and way forward for the maintenance of the future	Workshop 5.1 Industrial Ontology Foundry (IOF) – achieving data interoperability	Workshop 6.1 Zero defects Manufacturing platforms	Workshop 7.1 Digital Platform Ecosystems: From Interoperability to Federation	Workshop 9.1 Challenges of Enterprise Interoperability in industry	Session Health Presentation of 3 European Projects Smart4Health: Citizen-centred EU-EHR exchange for personalised health Cross-border person-centred health information exchange: the InteropEHRate approach Smart Bear - An Elderly-driven approach for Personalised Support, Healthy and Independent Living at Home
15:30 - 16:00	Coffee break				Coffee break				Coffee break
16:00 - 17:00	Workshop 1.2 A Future Vision of Flexible Configurable Manufacturing in a Digitised World	Workshop 2.2 Smarter interoperability with federation and artificial intelligence	Workshop 3.2 Interoperability for Crisis Management: Increasing Organizational Resilience	Workshop 4.2 Interoperability for maintenance: Semantic model, terminology and ontology, advances and way forward for the maintenance of the future	Workshop 5.2 Industrial Ontology Foundry (IOF) – achieving data interoperability	Workshop 6.2 : Zero defects Manufacturing platforms	Workshop 7.2: Digital Platform Ecosystems: From Interoperability to Federation	Workshop 9.2 : Challenges of Enterprise Interoperability in industry	Panel discussion How to introduce Digitalisation in Industry and Health Technical, Economic and Social aspects
17:00 - 17:30									

Tuesday 17-November -2020	
08:30 - 09:00	Opening & Welcome
09:00 - 10:00	Keynote speech: **Industrial Data Sharing for Cognitive Analytics & Manufacturing**. By **Prof. Dimitris Kiritsis** Professor of ICT for Sustainable Manufacturing at EPFL Session Chair: Hedi Karray
10:00 - 10:30	Coffee break

10:30-12:30	Semantics-Driven approaches Track	**Chairs: Bob Young, Antonio De Nicola**
		Transition from Work-As-Imagined to Work-As-Done Processes through Semantics: An Application to Industrial Resilience Analysis *Antonio De Nicola, Giordano Vicoli, Maria Luisa Villani, Francesco Costantino, Giulio Di Gravio, Andrea Falegnami, Riccardo Patriarca, Massimo Tronci*
		Knowledge Extraction for an Integrated Product Development Process based on Ontology-Driven Semantic Interoperability *Athon F. C. S. de Moura Leite, Matheus Beltrame Canciglieri, Anderson Szejka, Osiris Canciglieri Junior, Bob Young*
		Towards Adaptive, Interactive, Assistive and Collaborative Assembly Workplaces through Semantic Technologies *Izaskun Fernandez, Patricia Casla, Iker Esnaola, Laure Parigot, Angelo Marguglio*
		A Semantic Interface model to support the integration of drones in a Cyber-Physical factory *Puviyarasu Subramaniam anbuchezhian, Farouk Belkadi*
	Digital Twin Track	**Chairs: Gregory Zacharevwicz, Raymond Houe-Ngouna**
		A Digital Twin Model Driven Architecture for Cyber-Physical and Human Systems *Milad Poursoltan, Mamadou Kaba Traoré, Bruno Vallespir, Nathalie Pinède*
		Digital Twin-Driven Design: A framework to enhance system interoperability in the era of Industry 4.0 *Lebjioui Safaa, Mamadou Kaba Traoré, Yves Ducq*
		Governance Mechanisms for Federated Digital Platform Ecosystems *Violeta Damjanovic-Behrendt, Wernher Behrendt*
	IOT & Digital Platforms Track	**Chairs: Nejib Moalla, Joao Moreira**
		A B2B Marketplace eCommerce Platform Approach Integrating Purchasing and Transport Processes.

		Suat Gönül,Doğukan Çavdaroğlu,Yıldıray Kabak,Dietmar Glachs ,Fernando Gigante-Valencia,Quan Deng **Analysis of Data Exchange among Heterogeneous IoT Systems** *Jannik Laval, Nejib Moalla, Nawel Amokrane, Mustapha Derras* **Applying distributed ledger technology to facilitate IIoT data exchange: an approach based on IOTA Tangle** *Xiaochen Zheng, Shengjing Sun, Joaquín Ordieres-Meré, Dimitris Kiritsis, Jinzhi Lu*
10:30-12:30	Model-driven approaches Track	**Chairs: Martin Zelm, Thomas Knothe** **Integrated Model Based Configuration of Production Systems – Reflection of ISO 19440 and MDA and MDI.** *Thomas Knothe, Patrick Gering, Frank-Walter Jaëkel, Jan Torka* **A usage model to enrich MDSEA approach.** *Christophe Merlo, Véronique Pilnière, Katarzyna Borgiel* **Combining reference models for eliciting requirements in Industry 4.0 projects: A Demonstration Case** *Nuno Santos, Jaime Pereira, Francisco Morais, Joao Mendonca, Ricardo Machado* **A Reference Model for Interoperable Living Labs Towards Establishing Productive Networks.** *Majid Zamiri, Joao Sarraipa,Ricardo Goncalves*
12:30 - 13:30	Lunch Break	
13:30-15:30	Future Vision of Flexible Configurable Manufacturing in a Digitised World session 1	**Chair: Bob Young** **An Integrators perspective on AI-Enhanced Cyber-Physical Systems to support Flexible Configurable Manufacturing.** *Gash Bhullar, Control2K* **Integrated Enterprise modelling to achieve interoperability.** *Frank-Walter Jaekel, IPK* **An Embedded Intelligence Future Vision of Flexible Configurable Manufacturing.** *Paul Goodall et al, Loughborough University* **Flexible Peer-to-Peer Production in a Digital Business Ecosystem.** *Michele Missikoff, IASI-CNR, Rome*
13:30-15:30	Smarter interoperability with federation and artificial intelligence session 1	**Chair: Marten Van Sinderen, João Luiz Rebelo Moreira** *Keynote (Luiz Olavo Bonino)* - **Personal Health Train: a federated metadata approach to support data interoperability** **A federated interoperability approach for achieving data driven logistics support to SMEs.** *Jean Paul Sebastian Piest, Maria-Eugenia Iacob and Marten van Sinderen* **Increasing interoperability in the Web of Things using Autonomous Agents.** *Edison Chung, - Maxime Lefrancois and Olivier Boissier.*

		Examining Enterprise Architecture for Digital Transformation *Daniel Rozo, João Moreira and Marten van Sinderen*
13:30-15:30	Interoperability for Crisis Management: Increasing Organizational Resilience session 1	**Chairs: Antonio De Nicola, Frederick Benaben** **Towards a unified approach of interoperability to facilitate the transfer from research to industry: application to crisis management.** *Sébastien Truptil Philippe Limousin, Louis-Pierre Berge, Radhouene Azzabi, Hubert Dudois.* **An approach to support enterprises during an economic crisis** *Ibrahim Koura, Frederick Benaben, Juanqiong Gou* **Towards a Framework for Definition of Enterprise Safety Indicators**. *Francesco Costantino, Antonio De Nicola, Giulio Di Gravio, Andrea Falegnami, Riccardo Patriarca, Massimo Tronci, Giordano Vicoli, Maria Luisa Villani*
13:30-15:30	Interoperability for maintenance: Semantic model, terminology and ontology, Advances and Way forward for the maintenance of the future Session1	**Chairs: Yves Keraron, Karl Hribernik** **Scheduling predictive maintenance with production tasks: A steel industry case study** *-Nikolaos Nikolakis Lms - University of PATRAS, Xanthi Bampoula, Kosmas Alexopoulos* **How Data Models Can Contribute to Linking Real-Life Assets with their Digital Twin – A Case Study in Predictive Maintenance**. *Moritz von Stietencron, BIBA, Karl Hribernik, Biba, Klaus-Dieter Thoben, Biba* **Ontologies combining design semantics and semantics used in operation and maintenance: Feedback from EDF power plants case studies** *Dourgnon Anne - EDF, Antoine Alain - Université de Lorraine, Samba Mansor - ATOS Sénégal* **Maintenance terminology standards: some issues and the need of a shared framework for interoperability** *Yves Keraron - ISADEUS, Antoine Despujols - AFIM/EFMS*
15:30 - 16:00	Coffee break	
16:00 - 17:30	Future Vision of Flexible Configurable Manufacturing in a Digitised World session 2	**Chair: Bob Young** **PANEL DISCUSSION**
16:00 - 17:30	Smarter interoperability with federation and artificial	**Chairs: Marten Van Sinderen, João Luiz Rebelo Moreira** **Smarter interoperability based on automatic schema matching and intelligence.** *Jean Paul Sebastian Piest and Lucas O. Meertens.*

	intelligence session 2	**Improving the planning of a logistic service provider with the use of machine learning**. *Thomas Wijnhoven and Prince Singh* **FAIRificaton platform: a federated approach for semantic rich FAIR data.** *Joao Moreira, Luis Ferreira Pires, Marten van Sinderen and Luiz Olavo Bonino*
16:00 - 17:30	Interoperability for Crisis Management: Increasing Organizational Resilience session 2	**Chair: Antonio De Nicola** **PANEL DISCUSSION**
16:00 - 17:30	Interoperability for maintenance: Semantic model, terminology and ontology, Advances and Way forward for the maintenance of the future session 2	**Chairs: Yves Keraron, Karl Hribernik** **PANEL DISCUSSION**

Wednesday **18-November-2020**		
09:00 - 10:00	Keynote speech – *From concept to delivery in large business jets industry: how ontologies can help to the End-2-End process* By **Dr. Fernando Mas, M&M** Chief Technology Officer Science, Technology and R&D at M&M Aeronauticos, Spain Session Chair: Raymond Houé-Ngouna	
10:00 - 10:30	Coffee break	
10:30-12:30	Ontology-based engineering Track	**Chairs: Dimitris Kirtsis, João Mendonça** **Towards Manufacturing Ontologies for Resources Management in the Aerospace Industry** *Rebeca Arista, Fernando Mas, Manuel Oliva, Carpoforo Vallellano, Domingo Morales-Palma* **Upper-level ontology driven integration of domain ontologies: Application to disaster management** *Linda Elmhadhbi, Maroua Masmoudi, Mohamed-Hedi Karray, and Bernard Archimède* **Ontology Driven Semantic Reconciliation In A Multi-Domain Product Development Process** *Matheus Beltrame Canciglieri, Anderson Szejka, Osiris Canciglieri Junior, Athon Francisco Curi Staben de Moura Leite, Eduardo de Freitas Rocha Loures, Robert Young* **Implementing Semantic Interoperability in Cloud Collaborative Manufacturing: A Demonstration Case for an Asset Efficiency Testbed** *Jaime Pereira, João Mendonça, Daniel Pimenta, Daniel Dias, Paula Monteiro, Francisco Morais, Nuno Santos, Fernando Pereira, João Carvalhal*
10:30-12:30	Data and Knowledge Modeling Track	**Chairs: Raul Poler, Antonio De Nicola** **Knowledge representation for hierarchical and interconnected business contexts.** *Elena Jelisic, Nenad Ivezic, Boonserm Kulvatunyou, Scott Nieman, Hakju Oh, Nenad Anicic, Zoran Marjanovic* **Modeling and sharing knowledge in expertise processes.** *Serge Sounchio, Laurent Geneste, Bernard Kamsu* **A Benchmarking of Reference Models for Digital Manufacturing Platforms** *Francisco Fraile, Raquel Sanchis, Angel Ortiz, Raul Poler, Victor Anaya* **Learning with Gaussian Processes for Interoperable Weather Data Modeling** *Bernard Kamsu Foguem, Lassana Coulibaly, Fana Tangara*

		Metadata for Complementing Standards and Formalisation of the Technical Reserve Calculation *Ana Halabi-Echeverry, Juan C. Aldana-Bernal, Giusty Guerrero-De la Hoz*
10:30-12:30	Business oriented applications Track	**Chairs: Bruno Vallespir, Elyes Lamine, Yves Ducq,**
		Introduction to a physics-based theory to manage risks and opportunities in supply chains. *Thibaut Cerabona, Frederick Benaben, Louis Faugère, Matthieu Lauras, Jean-Philippe Gitto, Benoit Montreuil*
		A declarative approach for change impact analysis of business processes. *Adeel Ahmad, Henri Basson, Mourad Bouneffa, Michiko Matsuda*
		A Framework to formulate Models and identify Algorithms to solve large sized industrial planning problems Beatriz Andres, Raul Poler, Eduardo Guzman
		Empowering Process Quality through Microservices. A ZDMP Perspective Victor Anaya, Raul Poler, Angel Ortiz, Francisco Fraile
		Interoperability concerns for Multidimensional Urban Mobility within the frame of MaaS Faheem Ahmed Abassi, Mohammed Hedi Karray, Raymond Houe, Muhammad Ali Memon, Bernard Archimède
10:30-12:30	Workshop On Pathways towards a Modelling and Architecture Language for Interoperable Cyber-Physical Systems	**Chairs: Georg Weichhart, Herve Panetto**
		Rethinking Interoperable Cyber-Physical Systems (CPS) as Interactive Behavior *Designs* *Christian Stary*
		Path simulation in BPMN workflow using resource aggregation *Kawtar Ougaabal, Grégory Zacharewicz, Yves Ducq and Said Tazi*
		How to design a smart factory? *Magnus Åkerman, Patrik Fager and Åsa Fast-Berglund*
		Pathways to CP(P)S Modelling & Architecting *Georg Weichhart, Herve Panetto,*
12:30 - 13:30	Lunch Break	
13:30-15:30	Industrial Ontology Foundry (IOF) – achieving data interoperability session 1	**Chairs: Dimitris Kiritsis, Neil Otte**
		An Analysis of the IOF Architecture – a Systems Integration Perspective. *Boonserm Kulvatunyou, Minchul Lee and Megan Katsumu*
		Towards a Reference Ontology for Maintenance Work Management. *Melinda Hodkiewicz, Caitlin Woods, Farhad Ameri and Emily Low*
		Progress on IOF's Process and Production Planning Reference Ontology. *Dušan Šormaz, Arkopaul Sarkar, Evan Wallace, Walter Terkaj and Cris Will*

		Towards a Reference Ontology for Supply Chain Management. *Farhad Ameri, Evan Wallace, Boonserm Kulvatanyou and Chris Wil*
13:30-15:30	Zero defects Manufacturing Platforms session 1	**Chairs: Raul Poler, Ricardo Gonçalves**
		A European Manufacturing Platform for Zero-Defects *Stuart Campbell, Santiago Cáceres, Gerardo Pagalday, Raul Poler, Ricardo Gonçalves* **ZDMP Technical Challenge** *Christian Melchiorre, Philip Usher, Tim Dellas, Alessia Focareta, Mircea Vasile* **ZDMP Core Services and Middleware** *Artem Nazarenko, Carlos Lopes, Jose Ferreira, Philip Usher, João Sarraipa* **Evolution of Industry 4.0 Platforms within H2020 Projects** *Tim Dellas, Laura Caroline Ribeiro ᴅᴇ Melo*
13:30-15:30	Digital Platform Ecosystems: From Interoperability to Federation Session 1	**Chair: Damjanovic-Behrendt**
		B2B Platform Federation *Yoav Tock, Benjamin Mandler, Suat Gönül, Doğukan Çavdaroğlu, Nir Naaman and Nir Rozenbaum* **A new data model for logistics in furniture B2B collaborations** *María José Núñez, Juan Del Agua, Fernando Gigante, Suat Gönül, Doğukan Çavdaroğlu* **Evaluation as a Catalyst for the Efficient Cluster Establishment** *Elsa Marcelino-Jesus, Artem Nazarenko, João Sarraipa, Joao Martins and Ricardo Jardim-Goncalves* **Federated Search** *Dileepa Jayakody, Nirojan Selvanathan, Violeta Damjanovic-Behrendt*
13:30-15:30	Challenges of Enterprise Interoperability in industry session 1 *(Room E4)*	**Chair: Frank-Walter Jaëkel**
		Digitalisation toolkit for SMEs. *Patrick Gering* **OPC-UA based IIoT and CPS interoperability validation.** *Frank-Walter Jaëkel* **Trainings center / learning factory for digitization of smart enterprises.** *Burkhard Schallock* **Mapping IEM to Enterprise Modelling Ontology.** *Ting LIU, David Chen* **Evaluating and Improving the Internal Security of OPC-UA based Software Applications** *Marija Jankovic, Miltiadis Siavvas, Dionisis Kehagias*

15:30 - 16:00	Coffee break		
16:00 - 17:30	Industrial Ontology Foundry (IOF) – achieving data interoperability session 2	**Chairs: Dimitris Kiritsis, Chris Will**	
		The Industrial Ontologies Foundry (IOF) perspectives. *Mohamed Hedi Karray, Neil Otte, Dimitris Kiritsis, Farhad Ameri, Boonserm Kulvatunyou, Chris Will, Rebeca Arista, Rahul Rai, and Barry Smith*	
		PANEL DISCUSSION	
16:00 - 17:30	Zero defects Manufacturing Platforms session 2	**Chairs: Raul Poler, Ricardo Gonçalves.**	
		A Technical Approach to Achieve Zero Defects Manufacturing Process in the ZDMP Project *Víctor Anaya, Daniela Kirchberger, Juan Pardo, Óscar Salgado, Francisco Fraile*	
		Modelling, predicting, inspecting and supervising product quality for Zero Defects Manufacturing in ZDMP project *Mauro Fabrizioli, Pedro Miguel Villalba, Juan Pardo, Óscar Salgado*	
		Security Implications of Interoperability *Michael Boniface, Nic Fair, Stefano Modafferi, Juri Papay*	
16:00 - 17:30	Digital Platform Ecosystems: From Interoperability to Federation Session 2	**Chair: Damjanovic-Behrendt**	
		PANEL DISCUSSION	
16:00 - 17:30	Challenges of Enterprise Interoperability in industry session 2	**Chair: Frank-Walter Jaëkel**	
		PANEL DISCUSSION	

		Thursday 19- November- 2020
09:00 - 10:00		Keynote speech - **Building ICT capacities in Europe** By **Dr. Arian Zwegers –** Programme Officer, European Commission, DG Communications Networks, Content & Technology Session Chair: Guy Doumeingts & Bernard Archimède
10:00 - 10:30		Coffee break
10:30 - 12:30	DIH4CPS (Digital Innovation Hub for Cyber Physical System)	**Chairs:** *Ricardo Gonçalves (UNINOVA)* **& Guy Doumeingts (INTEROP-VLAB)** **Presentation DIH4CPS Project:** - The development of the Network: Methods, Tools and Evaluation of the results, - Formalisation of the necessary knowledge based on an ontology - Presentation of 11 Initial Applications Experiments that will be executed within the DIH4CPS project - The preparation of two waves of Open Call to extend the overall network During the session the following topics will be presented: **Introduction to DIH4CPS project by Ricardo Goncalves**, UNINOVA, Coordinator **Network Setup & Management by Claudio Sassanelli,** POLIMI (Milano), **Network Ontology Modelling & Networking by Jen-Frederik Uhlenkamp,** BIBA(Bremen), **Application Experiments by José Ferreira** (UNINOVA), **Expanding Network & Experimentation by Sylvia de la Maza** (Innovalia), **Dissemination by Gash Bhullar** (Control 2K), **Exploitation & Sustainability by Fabien Durand** (MEWS)
12:30 - 13:30		Lunch Break
13:30- 15:30	Presentation of European projects in the health area	**Chairs:** *Ricardo Gonçalves (UNINOVA)* **& Guy Doumeingts (INTEROP-VLAB)** **Smart4Health: Citizen-centred EU-EHR exchange for personalised health** *Dr.Maria Marques, UNINOVA, Senior Research* **Cross-border person-centred health information exchange: the InteropEHRate approach** *Tino Martin, eHealth Project Manager EHTEL (European Health Telematics Association)* ***Smart Bear - An Elderly-driven approach for Personalised Support, Healthy and Independent Living at Home*** *Dr. Carlos Agostinho, UNINOVA*
15:30- 16:00		Coffee break
16:00 - 17:00		PANEL Discussion Session Chairs persons: Arian Zwegers Ricardo Goncalves, Maria Marqes, Guy Doumeingts **How to introduce Digitalisation in Industry and Health** **Technical, Economic and Social aspects**