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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
08:30 - 09:00	Opening & Welcome								Special event Digitalisation in Industry and Health in Europe
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 12:00 - 12:30	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)
12:30 - 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 17:00 - 17:30	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

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<table>
<tr><th colspan="3">Tuesday
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<tr><td></td><td colspan="2"></td></tr>
<tr><td>08:30 - 09:00</td><td colspan="2">Opening & Welcome</td></tr>
<tr><td>09:00 - 10:00</td><td colspan="2">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</td></tr>
<tr><td>10:00 - 10:30</td><td colspan="2">Coffee break</td></tr>
<tr><td rowspan="5">10:30-12:30</td><td rowspan="2">Semantics-Driven approaches Track</td><td>Chairs: Prof. Bob Young</td></tr>
<tr><td>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</td></tr>
<tr><td rowspan="2">Digital Twin Track</td><td>Chairs: Prof. G. Zacharevwicz & Dr. Raymond Houe-Ngouna</td></tr>
<tr><td>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

A Survey on Public Datasets for Digital Twin-based Automotive Cybersecurity Validation
Violeta Damjanovic-Behrendt</td></tr>
<tr><td rowspan="2">IOT & Digital Platforms Track</td><td>Chairs: Prof. Yacine Ouzrout & Prof. Hervé Pingaud</td></tr>
<tr><td>Governance Mechanisms for Federated Digital Platform Ecosystems
Violeta Damjanovic-Behrendt, Wernher Behrendt</td></tr>
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		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: Prof Yves Ducq & Prof. Martin Zelm** **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: Van Sinderen** **A federated interoperability approach for achieving data driven logistics support to SMEs.** *Jean Paul Sebastian Piest, Maria-Eugenia Iacob and Marten van Sinderen* **FAIRificaton platform: a federated approach for semantic rich FAIR data.** *Joao Moreira, Luis Ferreira Pires, Marten van Sinderen and Luiz Olavo Bonino*

		Increasing interoperability in the Web of Things using Autonomous Agents. *Edison Chung, - Maxime Lefrancois and Olivier Boissier*. **Smarter interoperability based on automatic schema matching and intelligence.** *Jean Paul Sebastian Piest and Lucas O. Meertens*.
13:30-15:30	Interoperability for Crisis Management: Increasing Organizational Resilience session 1	**Chair: Antonio De Nicola** **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.* **Improving crisis management training in critical and sensitive sites using Virtual Reality.** *Aurélie Conges, Alexis Evain, Frederick Benaben, Sébastien Rebiere, Nicolas Salatge*. **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	**Chair: Yves Keraron** **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**
		Chair: Van Sinderen

16:00 - 17:30	Smarter interoperability with federation and artificial intelligence session 2	**Semantic interoperability for thematic integration of digital objects from health collections.** *Claudio Jose S. Ribeiro, Alexandre Medeiros Correia De Sousa And João Luiz Rebelo Moreira* **Improving the planning of a logistic service provider with the use of machine learning**. *Thomas Wijnhoven and Prince Singh* **Examining Enterprise Architecture for Digital Transformation** *Daniel Rozo,*
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	**Chair: Yves Keraron** **PANEL DISCUSSION**
18 :00- 19 :30	Welcome Cocktail	

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<tr><td></td><td colspan="2"></td></tr>
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<tr><td>09:00 - 10:00</td><td colspan="2">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</td></tr>
<tr><td>10:00 - 10:30</td><td colspan="2">Coffee break</td></tr>
<tr><td rowspan="2">10:30-12:30</td><td rowspan="2">Ontology-based engineering Track</td><td>Chairs: Prof. Dimitris Kirtsis & Prof. João Mendonça</td></tr>
<tr><td>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</td></tr>
<tr><td rowspan="2">10:30-12:30</td><td rowspan="2">Data and Knowledge Modeling Track</td><td>Chairs: Prof. Raul Poler & Dr. Antonio De Nicola</td></tr>
<tr><td>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</td></tr>
</table>

		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: Prof. Bruno Vallespir & Dr. Elyes Lamine**
		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	**Chair: Dr. Georg Weichhart**
		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**
		The Industrial Ontologies Foundry (IOF) perspectives. *Mohamed Hedi Karray, Neil Otte, Dimitris Kiritsis, Rahul Rai, Farhad Ameri, Boonserm Kulvatunyou, Chris Will, Rebeca Arista, and Barry Smith* **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 De 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** **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**
19:30- 23:00	**CONFERENCE GALA DINNER**	

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<tr><td>09:00 - 10:00</td><td colspan="2">Keynote speech - Building ICT capacities in Europe
By Dr. Arian Zwegers –
Programme Officer, European Commission,
DG Communications Networks, Content & Technology
Session Chair: Prof. Bernard Archimède
Room: Grand Amphi</td></tr>
<tr><td>10:00 - 10:30</td><td colspan="2">Coffee break</td></tr>
<tr><td rowspan="2">10:30 - 12:30</td><td rowspan="2">DIH4CPS (Digital Innovation Hub for Cyber Physical System)</td><td>Chairs: Prof. Ricardo Gonçalves (UNINOVA) & Prof. Guy Doumeingts (INTEROP-VLAB)</td></tr>
<tr><td>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</td></tr>
<tr><td>12:30 - 13:30</td><td colspan="2">Lunch Break</td></tr>
<tr><td rowspan="2">13:30- 15:30</td><td rowspan="2">Presentation of European projects in the health area</td><td>Chairs: Prof. Ricardo Gonçalves (UNINOVA) & Prof. Guy Doumeingts (INTEROP-VLAB)</td></tr>
<tr><td>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</td></tr>
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Chairs persons: Arian Zwegers Ricardo Goncalves, Maria Marqes, Guy Doumeingts
How to introduce Digitalisation in Industry and Health
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