

## Conference Program

### 14th International Conference on Product Lifecycle Management

**Date: Monday, 10/Jul/2017**

8:00am	<b>WELC1: WELCOME</b>	
-	Location: <b>HALL - First Floor</b>	
9:00am	<b>OPEN: OPENING CEREMONY</b>	
-	Location: <b>Salón de Grado - First Floor</b>	
9:30am	<b>KN1.1: KEY NOTE 1.1</b>	
-	Location: <b>Salón de Grado - First Floor</b>	
10:15am	Chair: <b>Abdelaziz Bouras</b> , Qatar University, Qatar	
	<b>Digitising European Industry. The Role of PLM. - Dr Erastos Filos (European Commission, DG Research &amp; Innovation)</b>	
	European companies must turn to innovation, productivity, resource-efficiency and create high value-added in order to compete in global markets. And for this, they will have to rely on innovation and ICT as main sources of competitiveness. PLM, along other key technologies such as AI, big data and block chain will play an increasingly important role in this respect.	
10:15am	<b>CB1: COFFEE BREAK</b>	
-	Location: <b>Cafeteria - Ground Floor</b>	
10:45am	<b>KN1.2: KEY NOTE 1.2</b>	
-	Location: <b>Salón de Grado - First Floor</b>	
11:45am	Chair: <b>Alain Bernard</b> , Ecole Centrale de Nantes, France	
	<b>Digital Transformation of PLM to enable intelligent Systems and Life Cycle Engineering - Prof. Dr.-Ing. Rainer Stark (Technical University of Berlin and IPK)</b>	
	PLM has been evolving during the last 25 years from initial CAD centric data management to an overall suite of IT tools and related methods to manage any type of information or model associated mainly to the begin of life phase of a product. This keynote does address the necessary digital transformation of PLM, i.e. it covers the opportunities, threats and the technological stair steps to support and enable the core elements of future PLM in order to meets the requirements of the target capability "Intelligent Systems and Life Cycle Engineering".	
11:45am	<b>PS1.1: PARALLEL SESSION 1.1 - SS on PLM Maturity, Implementation and Adoption.</b>	<b>PS1.2: PARALLEL SESSION 1.2 - PLM/CAX and Knowledge Management</b>
-	Location: <b>A114 - First Floor</b>	Location: <b>A113 - First Floor</b>
1:45pm	Chair: <b>Mourad Messaadia</b> , CESI, France Chair: <b>Sergio Terzi</b> , Politecnico di Milano, Italy	Chair: <b>Benoit Eynard</b> , UTC, France Chair: <b>Sebti Foufou</b> , Qatar University, Qatar
	For this session, contributors are challenged to discuss the collaboration levels and PLM maturity, the barriers that discourage enterprises from taking advantage of PLM and adoption aspects, strategies and approaches of PLM deployment and implementation.  It comprises works dealing with modular approaches to set based PLM implementation, models for SMEs, maturity models and tools for enabling Smart Manufacturing Systems, integration of design automation into a global PLM, PLM customizing, challenges of adopting PLM in the automotive supply chain and review of 20 years of PLM.	This session comprises works dealing with how engineering knowledge can be used to develop CAX solutions to assist product designers in their engineering tasks.  The last two presentations illustrate how such idea is also common to other disciplines which are closer to the construction and building sectors.  In this way, it allows introducing the next parallel session devoted to BIM.
1:45pm	<b>LUN1: LUNCH</b>	
2:45pm	<b>PS1.3: PARALLEL SESSION 1.3 - PLM for Digital Factories</b>	
-	Location: <b>A114 - First Floor</b>	
4:30pm	Chair: <b>Louis Rivest</b> , ETS, Canada	
	After the prior session PS1.1, where the implementation and adoption of PLM were discussed, this PS1.3 session brings works dealing with the integration of PLM and other techniques within the context of digital factories and Industry 4.0.	
	<b>PS1.4: PARALLEL SESSION 1.4 - SS on BIM</b>	
	Location: <b>A113 - First Floor</b>	
	Chair: <b>Julie Jupp</b> , University of Technology Sydney, Australia Chair: <b>Singh Vishal</b> , Aalto University, Finland	
	For this session, contributors are challenged to discuss the conceptual similarities and related research challenges between PLM and BIM. This special session aims showing the particularities of BIM and related issues. For instance, the link between BIM, Facility Management and Architectural, Engineering and Constructions activities. The compliance management of a product lifecycle. The integration of PLM and BIM approaches, named Building Lifecycle Management. The session ends with a contribution, focused on BIM and Education, dealing with a better understanding of BIM skills requirements to help the planning and implementation of a BIM curriculum.	
4:30pm	<b>CB2: COFFEE BREAK</b>	
-	Location: <b>Cafeteria - Ground Floor</b>	
5:00pm	<b>PS1.5: PARALLEL SESSION 1.5 - Cyber-Physical Systems</b>	
-	Location: <b>A114 - First Floor</b>	
6:30pm	Chair: <b>Peter Hehenberger</b> , University of Applied Sciences Upper Austria, Austria	
	The way towards Industry 4.0 adoption requires the development, implementation and use of cyber-physical systems and related techniques. This session PS1.5 comprises works in that area.	
	<b>PS1.6: PARALLEL SESSION 1.6 - Product, Service, Systems (PSS)</b>	
	Location: <b>A113 - First Floor</b>	
	Chair: <b>Sergio Terzi</b> , Politecnico di Milano, Italy	
	Product, Service and System approaches are business models facilitated by the trend in Industry 4.0 adoption. Collaboration, big data and other techniques are enablers of these approaches. This session comprises works showing the impact and implications in the PLM solutions.	
6:30pm	<b>FT1: FREE TIME</b>	
7:30pm	<b>SE1: SOCIAL EVENT - VISIT TO LOS ALCAZARES AND WELCOME COCKTAIL</b>	
-	Buses will depart from the Hotel Al-Andalus.	
11:00pm		

**Date: Tuesday, 11/Jul/2017**

8:00am	<b>WELC2: WELCOME</b> Location: <a href="#">HALL - First Floor</a>
9:00am	
9:00am	<b>IS2.1: INDUSTRIAL SESSION 2.1</b> Location: <a href="#">Salón de Grado - First Floor</a>
10:00am	Chair: <b>Carmelo Del Valle</b> , Universidad de Sevilla, Spain <i>Víctor de la Torre (Fujitsu Laboratories of Europe)</i>
10:00am	<b>CB3: COFFEE BREAK</b> Location: <a href="#">Cafeteria - Ground Floor</a>
10:30am	
10:30am	<b>IKN2.1: INDUSTRIAL KEY NOTE 2.1 - Spanish Industry 4.0 Program and ASTI success case.</b> Location: <a href="#">Salón de Grado - First Floor</a>
11:45am	Chair: <b>Klaus-Dieter Thoben</b> , University of Bremen / BIBA, Germany <b>Fernando Valdés</b> ( <i>Deputy-Director for Industry Digitalization and Collaborative Platforms, Ministry of Economy, Industry and Competitiveness</i> ) The presentation includes the main lines of the initiative "Industria Conectada 4.0", and the progresses made in its various strategic lines, since the beginning of the initiative in 2015, including some successful stories about digital transformation in the Spanish Industry. <b>Verónica Pascual</b> ( <i>ASTI, CEO</i> ) <b>The strategic role of Driverless Vehicles in Industry 4.0</b> We're leaving an exciting time, 4th industrial revolution. Industry 4.0 is not a well-established and experienced reality, but a new milestone in the industrial development that will mark important corporate changes in the coming years, making heavy use of Internet of things, cloud computing capacity and other advanced technologies, with the primary aim to better adapt to customer needs and reduce time to market. Among other technologies, Driverless Vehicles (Automatic Guided Vehicles - AGVs) play a strategic role in "The factory of the future" making production sites significantly more flexible, more respectful with the environment, and production lines much better interconnected between them. Being consistent with this strategic role demands a clear technology and talent strategy.
11:45am	<b>IKN2.2: INDUSTRIAL KEY NOTE 2.2 - SME's Opportunities</b> Location: <a href="#">Salón de Grado - First Floor</a>
12:45pm	Chair: <b>Sebti Fofou</b> , Qatar University, Qatar <b>Domingo Ureña</b> ( <i>Mecanizados y Montajes Aeronáuticos, CEO</i> ) The evolution of technology and the need for SMEs to be aligned with their customers give us opportunities to review our business models and open ourselves to new opportunities. We can be faster, more efficient and competitive for those who realized the benefit of this evolution.
12:45pm	<b>IS2.2: INDUSTRIAL SESSION 2.2 - E2E Digital Continuity</b> Location: <a href="#">Salón de Grado - First Floor</a>
1:30pm	Chair: <b>Dimitris Kiritsis</b> , EPFL, Switzerland <b>John Walkerdine</b> ( <i>AIRBUS, Head of Product Lifecycle Management. Process Methods &amp; Tools</i> ) This speech will discuss how to bring operational performance improvement through digitalisation: create product and services cheaper and faster.
1:30pm	<b>LUN2: LUNCH</b>
2:45pm	
2:45pm	<b>IC2.1: INDUSTRIAL CASES 2.1 - EU Projects: Clean Sky2 &amp; HUMAN</b> Location: <a href="#">Salón de Grado - First Floor</a>
4:00pm	Chair: <b>Felix Nyffenegger</b> , HSR, Switzerland <b>Clean Sky2. Ecoefficiency in aeronautical assembly processes</b> ( <i>António José Caetano Baptista, INEGI</i> ) <b>HUMAN MANUFACTURING - Continuous adaptation of work environments with changing levels of automation in evolving production systems</b> ( <i>Manuel Oliveira, SINTEF</i> )
4:00pm	<b>IC2.2: INDUSTRIAL CASES 2.2 - Local industrial cases.</b> Location: <a href="#">Salón de Grado - First Floor</a>
4:30pm	Chair: <b>Fernando Mas</b> , Airbus / Sevilla University, Spain <b>PLM Solutions as an accelerator of Industry 4.0 - David Junyent</b> ( <i>Industry and PLM Manager, Everis</i> ) PLM is a key factor for new solutions of INDUSTRY 4.0. Everis has different solutions and has participated in different projects that will be presented in the talk in order to analyse learned lessons. The speech is oriented to present, how PLM Solutions can accelerate and improve Industry 4.0.
4:30pm	<b>CB4: COFFEE BREAK</b> Location: <a href="#">Cafeteria - Ground Floor</a>
5:00pm	
5:00pm	<b>IC2.3: INDUSTRIAL CASES 2.3 - Local industrial cases.</b> Location: <a href="#">Salón de Grado - First Floor</a>
6:30pm	Chair: <b>José Ríos</b> , Polytechnic University of Madrid, Spain <b>Product Lifecycle Management in TECNATOM with Windchill - Jaime Carretero</b> , ( <i>Senior Mechanical Design Engineer</i> ), <b>TECNATOM</b> ; <b>Gerardo Díaz</b> ( <i>Senior Project Director</i> ), <b>Integral PLM</b> . Windchill as PLM solution is helping TECNATOM to remain competitive in a global marketplace, mainly because it is helping them in the transformation from being a Project-oriented company to a Product-oriented company. This PLM is helping them to reduce the time to market and the non-quality costs, by arranging and managing a multi-disciplinary product structure that brings together and integrates all the disciplines involved in product development (mechanical, electrical, electronics, etc.) as well as the project/product development stages (design, manufacturing, test, validation, etc.). <b>Kaizen as a catalyst for cultural change in the company. An approach with Aras Innovator PLM - Francisco Zafra</b> ( <i>Marlo Tech</i> ) This speech will go in depth with the idea of combining Product Lifecycle Management tools with Kaizen philosophy, bringing to companies and end-to-end fully integrated methodology and the software system to accomplish with it. In MARLO Technologies, we use Aras Innovator PLM for this approach, the flexible, extensible, open and SOAP-oriented software of Aras Corporation. <b>Traceability and intelligence for the optimization of plant operations - Carmen Fernández</b> ( <i>Solitel</i> ) Industry 4.0 solution designed to monitor the performance of an industrial plant down to the tiniest detail, taking full advantage of the Internet of Things, Systems Interoperability and Big Data technologies, at incredibly low cost. It can be applied in any sector involving elements to be controlled, and we emphasize especially aeronautical and metal sectors. <b>EMPOWER: Your business processes always monitored and under control - Esteban Morillo</b> ( <i>Servinform</i> ) EMPOWER allows non-intrusive access and use of corporate information systems, as well as a highly-efficient way to use processes maps, which become a dynamic tool to manage and monitor the activity in the organisation and a critical resource to help the company respond to a rapidly changing environment.

EMPOWER is a tool for the integral management of the lifecycle of business processes in organisations and in this talk, a global view of its possibilities and application will be presented.

**6:30pm** - **FT2: FREE TIME**

**8:00pm**

**8:00pm** - **SE2: SOCIAL EVENT - GALA DINNER**

Buses will depart from the Hotel Al-Andalus.

**11:00pm**

Date: Wednesday, 12/Jul/2017

8:00am	<b>WELC3: WELCOME</b>	
-	Location: <b>HALL - First Floor</b>	
8:45am		
8:45am	<b>PS3.1: PARALLEL SESSION 3.1 - Ontologies and data models</b>	<b>PS3.2: PARALLEL SESSION 3.2 - New Product Development</b>
-	Location: <b>A114 - First Floor</b>	Location: <b>A113 - First Floor</b>
10:15am	Chair: <b>Franca Giannini</b> , CNR, Italy	Chair: <b>James Xiaoyu Gao</b> , University of Greenwich, United Kingdom
	Ontologies, knowledge models, data models, data structures are key when considering the interoperability among software solutions and the development of applications to support the collaboration by means of exchange and sharing of engineering data. This session comprises works dealing with these topics.	This PS3.2 comprises works dealing with two main aspects. One of them is the development of new products by means of reusing knowledge captured in prior designs. The second aspect is the implications of using PLM in the development of food and fashion related products, which are not the typical sectors where PLM systems are used. The session ends with a work looking into the 'True Lean' concept.
10:15am	<b>CB5: COFFEE BREAK</b>	
-	Location: <b>Cafeteria - Ground Floor</b>	
10:45am		
10:45am	<b>PS3.3: PARALLEL SESSION 3.3 - Knowledge and Data models</b>	<b>PS3.4: PARALLEL SESSION 3.4 - Modular design and products</b>
-	Location: <b>A114 - First Floor</b>	Location: <b>A113 - First Floor</b>
12:00pm	Chair: <b>Thomas Vosgien</b> , V-Research GmbH, Austria	Chair: <b>Henk Jan Pels</b> , Phi Knowledge Process Enabling b.v., Netherlands, The
	This PS3.3 continues with the topics initiated in the prior PS3.1: knowledge models, data models, data structures; but with a focus on the development of applications to support engineering tasks.	This PS3.4 comprises works dealing with the design of modularized products, product configuration, modular design and product modular architectures.
12:00pm	<b>PS3.5: PARALLEL SESSION 3.5 - PLM and Education</b>	<b>PS3.6: PARALLEL SESSION 3.6 - PLM and process simulation</b>
-	Location: <b>A114 - First Floor</b>	Location: <b>A113 - First Floor</b>
1:15pm	Chair: <b>Paolo Chiabert</b> , Politecnico di Torino, Italy	Chair: <b>Lionel Roucoules</b> , Arts et Métiers ParisTech, France
	This PS3.5 starts with a contribution connected to the prior session 3.3, showing an approach to support decision making by discovering decision rules from the past process executions. After this first paper, the PLM and Education contributions takes the stage. First, with a contribution that provides preliminary results concerning the current state in PLM education in Italy and France. The following contribution shows an industry-university collaboration educational program on PLM and IoT. The session ends with a contribution that shows a novel approach in the education of PLM, which also serves as a platform to discuss real world problems with industry and discuss and test new approaches (digitization, industry 4.0) and their impact along the lifecycle of their product.	This PS3.6 comprises works dealing with solutions to support or assist during the decision making process of industrialization tasks. The adoption of cloud based solutions as an enabler of collaboration and adoption of business models oriented to marketplaces. The prediction of components and systems behaviour to design industrialization solutions, and to predict inventory management needs.
1:15pm	<b>CLOSE: CLOSING CEREMONY</b>	
-	Location: <b>Salón de Grado - First Floor</b>	
1:45pm	Chair: <b>Abdelaziz Bouras</b> , Qatar University, Qatar	
1:45pm	<b>LUN3: LUNCH</b>	
-		
3:00pm		
3:00pm	<b>SE3: VISIT INDUSTRIAL SITES</b>	
-	Buses will depart from the Conference venue.	
5:15pm	After the visit, buses will go to the Airport, Main Train Station and Conference Venue.	

## Session

### PS1.1: PARALLEL SESSION 1.1 - SS on PLM Maturity, Implementation and Adoption.

Time: **Monday, 10/Jul/2017: 11:45am - 1:45pm**

Location: **A114 - First Floor**

Session Chair: **Mourad Messaadia**, CESI, France

Session Chair: **Sergio Terzi**, Politecnico di Milano, Italy

For this session, contributors are challenged to discuss the collaboration levels and PLM maturity, the barriers that discourage enterprises from taking advantage of PLM and adoption aspects, strategies and approaches of PLM deployment and implementation.

It comprises works dealing with modular approaches to set based PLM implementation, models for SMEs, maturity models and tools for enabling Smart Manufacturing Systems, integration of design automation into a global PLM, PLM customizing, challenges of adopting PLM in the automotive supply chain and review of 20 years of PLM.

## Presentations

### Set based PLM implementation, a modular approach to PLM process knowledge, management and automation.

**Bas Koomen**

Cadmes, Netherlands, The; [bas@cadmes.com](mailto:bas@cadmes.com)

### PLM Adoption Model for SMEs

**Mourad Messaadia<sup>1</sup>, Fatah Benatia<sup>2</sup>, David Baudry<sup>1</sup>, Anne Louis<sup>1</sup>**

<sup>1</sup>CESI, France; <sup>2</sup>Laboratoire de Mathématiques Appliquées, Université M.Khider, Biskra, Algérie; [mmessaadia@cesi.fr](mailto:mmessaadia@cesi.fr)

### Maturity models and tools for enabling Smart Manufacturing Systems: comparison and reflections for future developments

**Anna De Carolis<sup>1</sup>, Marco Macchi<sup>1</sup>, Boonserm Kulvatunyou<sup>2</sup>, Michael P. Brundage<sup>2</sup>, Sergio Terzi<sup>1</sup>**

<sup>1</sup>Politecnico di Milano, Italy; <sup>2</sup>National Institute of Standards and Technology (NIST), USA; [anna.decarolis@polimi.it](mailto:anna.decarolis@polimi.it), [marco.macchi@polimi.it](mailto:marco.macchi@polimi.it), [sergio.terzi@polimi.it](mailto:sergio.terzi@polimi.it)

### A Federated Enterprise Architecture and MBSE Modeling Framework for integrating Design Automation into a global PLM approach

**Thomas Vosgien<sup>1</sup>, Eugen Rigger<sup>1,2</sup>, Martin Schwarz<sup>3</sup>, Kristina Shea<sup>2</sup>**

<sup>1</sup>V-Research GmbH, Austria; <sup>2</sup>ETH Zürich, Engineering Design and Computing Laboratory, Switzerland; <sup>3</sup>Liebherr-Werk Nenzing GmbH, Austria; [thomas.vosgien@v-research.at](mailto:thomas.vosgien@v-research.at), [eugen.rigger@v-research.at](mailto:eugen.rigger@v-research.at)

### PLM customizing: Results of a Qualitative Study with Industrial Experts

**Ezgi Sucuoglu<sup>1</sup>, Konrad Exner<sup>2</sup>, Rainer Stark<sup>1,2</sup>**

<sup>1</sup>Technische Universität Berlin, Berlin, Germany; <sup>2</sup>Fraunhofer Institute for Production Systems and Design Technology, Berlin, Germany; [rainer.stark@ipk.fraunhofer.de](mailto:rainer.stark@ipk.fraunhofer.de)

### The Challenges of Adopting PLM Tools Involving Diversified Technologies in the Automotive Supply Chain

**Joseph Paul Zammit<sup>1</sup>, James Gao<sup>1</sup>, Richard Evans<sup>2</sup>**

<sup>1</sup>University of Greenwich, United Kingdom; <sup>2</sup>University of Westminster, United Kingdom; [J.Zammit@greenwich.ac.uk](mailto:J.Zammit@greenwich.ac.uk), [J.Gao@greenwich.ac.uk](mailto:J.Gao@greenwich.ac.uk)

### Twenty years of PLM – The Good, the Bad and the Ugly

**Urs Meier, Florian Fischli, Anita Sohrweide, Felix Nyffenegger**

HSR (University of Applied Science of Rapperswil), Switzerland; [urs.meier@hsr.ch](mailto:urs.meier@hsr.ch), [felix.nyffenegger@hsr.ch](mailto:felix.nyffenegger@hsr.ch)

## Session

### PS1.2: PARALLEL SESSION 1.2 - PLM/CAX and Knowledge Management

Time: **Monday, 10/Jul/2017: 11:45am - 1:45pm**

Location: **A113 - First Floor**

Session Chair: **Benoit Eynard**, UTC, France

Session Chair: **Sebti Foufou**, Qatar University, Qatar

This session comprises works dealing with how engineering knowledge can be used to develop CAX solutions to assist product designers in their engineering tasks.

The last two presentations illustrate how such idea is also common to other disciplines which are closer to the construction and building sectors.

In this way, it allows introducing the next parallel session devoted to BIM.

## Presentations

### SUPPORTING DEVELOPMENT TEAMS IN THE EARLY STAGES OF PRODUCT DEVELOPMENT THROUGH DFX-BASED KNOWLEDGE MANAGEMENT AND COMMUNICATION PLATFORM

**Sinan Ugurlu, Detlef Gerhard**

TU Wien, Austria; [sinan.ugurlu@tuwien.ac.at](mailto:sinan.ugurlu@tuwien.ac.at), [detlef.gerhard@tuwien.ac.at](mailto:detlef.gerhard@tuwien.ac.at)

### COST ESTIMATION AIDED SOFTWARE FOR MACHINED PARTS: AN HYBRID MODEL BASED ON PLM TOOLS AND DATA

**Marc-Antoine Michaud, Roland Maranzana**

Ecole de Technologie Superieure, Canada; [marc-antoine.michaud.1@ens.etsmtl.ca](mailto:marc-antoine.michaud.1@ens.etsmtl.ca)

### Transformable product formal definition with its implementation in CAD tools

**Elise Gruhier<sup>1</sup>, Robin Kromer<sup>2</sup>, Frederic Demoly<sup>3</sup>, Nicolas Perry<sup>1</sup>, Samuel Gomes<sup>3</sup>**

<sup>1</sup>Arts et Métiers ParisTech / I2M, France; <sup>2</sup>IRT Saint Exupery, France; <sup>3</sup>Université de Technologie de Belfort-Montbéliard, France; [elise.gruhier@ensam.eu](mailto:elise.gruhier@ensam.eu)

### Empty space modelling for Detecting spatial conflicts across multiple design domains

**Arun Kumar Singh<sup>1,2</sup>, B. Gurumoorthy<sup>1</sup>, Latha Christie<sup>2</sup>**

<sup>1</sup>Indian Institute of Science, India; <sup>2</sup>Microwave Tube Research and Development Centre (DRDO); [arunsingh\\_aks@yahoo.com](mailto:arunsingh_aks@yahoo.com)

### Design and Development of Orthopedic Implants through PLM Strategies

**Clara Isabel López Gualdrón, Andrea Patricia Murillo Bohórquez, Javier Mauricio Martínez Gómez**

Universidad Industrial de Santander, Colombia; [clalogu@uis.edu.co](mailto:clalogu@uis.edu.co)

### Digitization and Preservation of Cultural Heritage Products

**Abdelhak Belhi<sup>1,2</sup>, Sebti Foufou<sup>1</sup>, Abdelaziz Bouras<sup>1</sup>, Abdul H. Sadka<sup>3</sup>**

<sup>1</sup>CSE, Qatar University, Doha, Qatar; <sup>2</sup>DISP Laboratory, University Lumière Lyon 2, Lyon, France; <sup>3</sup>Brunel University, London, United Kingdom; [abdelhak.belhi@qu.edu.qa](mailto:abdelhak.belhi@qu.edu.qa), [sfoufou@qu.edu.qa](mailto:sfoufou@qu.edu.qa), [abdelaziz.bouras@qu.edu.qa](mailto:abdelaziz.bouras@qu.edu.qa), [abdul.sadka@brunel.ac.uk](mailto:abdul.sadka@brunel.ac.uk)

### Towards modelling and standardisation techniques for railway infrastructure

**Chen Zheng<sup>1</sup>, Samir Assaf<sup>2</sup>, Benoît Eynard<sup>1</sup>**

<sup>1</sup>Université de Technologie de Compiègne, France; <sup>2</sup>Institut de Recherche Technologique Railenium, France; [benoit.eynard@utc.fr](mailto:benoit.eynard@utc.fr)

## Session

### PS1.3: PARALLEL SESSION 1.3 - PLM for Digital Factories

Time: Monday, 10/Jul/2017: 2:45pm - 4:30pm

Location: A114 - First Floor

Session Chair: Louis Rivest, ETS, Canada

After the prior session PS1.1, where the implementation and adoption of PLM were discussed, this PS1.3 session brings works dealing with the integration of PLM and other techniques within the context of digital factories and Industry 4.0.

## Presentations

### PLM 4.0 – Recalibrating Product Development and Management for the Era of Internet of Everything (IoE)

**Julius Golovatchev, Prodip Chatterjee, Florian Kraus, Roger Schüssl**

Detecon International GmbH / Deutsche Telekom Group, Germany; [julius.golovatchev@detecon.com](mailto:julius.golovatchev@detecon.com)

### Role of openness in industrial internet platform providers' strategy

**Karan Menon<sup>1</sup>, Hannu Kärkkäinen<sup>1</sup>, Thorsten Wuest<sup>2</sup>**

<sup>1</sup>Tampere University of Technology, Finland; <sup>2</sup>West Virginia University, USA; [karan.menon@tut.fi](mailto:karan.menon@tut.fi), [hannu.karkkainen@tut.fi](mailto:hannu.karkkainen@tut.fi), [thwuest@mail.wvu.edu](mailto:thwuest@mail.wvu.edu)

### Value chain: from iDMU to shopfloor documentation of aeronautical assemblies.

**MANUEL OLIVA<sup>1</sup>, Jesus Racero<sup>2</sup>, Domingo Morales<sup>2</sup>, Carmelo del Valle<sup>2</sup>, Fernando Mas<sup>1</sup>**

<sup>1</sup>AIRBUS, Seville, Spain; <sup>2</sup>University of Seville, Seville, Spain; [MANUEL.OLIVA@AIRBUS.COM](mailto:MANUEL.OLIVA@AIRBUS.COM)

### Agent Based Framework to support Manufacturing Problem Solving integrating Product Lifecycle Management and Case-Based Reasoning

**Alvaro Camarillo<sup>1,2</sup>, José Ríos Chueco<sup>1</sup>, Klaus-Dieter Althoff<sup>3,4</sup>**

<sup>1</sup>Universidad Politécnica de Madrid, Germany; <sup>2</sup>Exide Technologies GmbH; <sup>3</sup>German Research Center for Artificial Intelligence (DFKI); <sup>4</sup>University of Hildesheim; [Alvaro.Camarillo1@gmail.com](mailto:Alvaro.Camarillo1@gmail.com)

### PLM-MES integration to support Industry 4.0

**Gianluca D'Antonio<sup>1</sup>, Lisa Macheda<sup>2</sup>, Joel Sauza Bedolla<sup>1</sup>, Paolo Chiabert<sup>1</sup>**

<sup>1</sup>Politecnico di Torino, Italy; <sup>2</sup>AEC Soluzioni, Italy; [gianluca.dantonio@polito.it](mailto:gianluca.dantonio@polito.it)

## Session

### PS1.4: PARALLEL SESSION 1.4 - SS on BIM

Time: **Monday, 10/Jul/2017: 2:45pm - 4:30pm**

Location: **A113 - First Floor**

Session Chair: **Julie Jupp**, University of Technology Sydney, Australia

Session Chair: **Singh Vishal**, Aalto University, Finland

For this session, contributors are challenged to discuss the conceptual similarities and related research challenges between PLM and BIM. This special session aims showing the particularities of BIM and related issues. For instance, the link between BIM, Facility Management and Architectural, Engineering and Construction activities. The compliance management of a product lifecycle. The integration of PLM and BIM approaches, named Building Lifecycle Management. The session ends with a contribution, focused on BIM and Education, dealing with a better understanding of BIM skills requirements to help the planning and implementation of a BIM curriculum.

## Presentations

### **BIM-FM and Information Requirements Management: Missing Links in the AEC and FM Interface**

**Julie Jupp<sup>1</sup>, Ramsey Awad<sup>2</sup>**

<sup>1</sup>University of Technology Sydney, Australia; <sup>2</sup>University of Newcastle, Australia; [Julie.Jupp@uts.edu.au](mailto:Julie.Jupp@uts.edu.au)

### **Automating Conventional Compliance Audit Processes**

**Johannes Dimyadi, Robert Amor**

University of Auckland, New Zealand; [j.dimyadi@auckland.ac.nz](mailto:j.dimyadi@auckland.ac.nz)

### **From traditional Construction Industry Process Management to Building Lifecycle Management**

**Ada Malagnino, Giovanna Mangialardi, Giorgio Zavarise, Angelo Corallo**

Università del Salento, Italy; [ada.malagnino@unisalento.it](mailto:ada.malagnino@unisalento.it)

### **BIM and PLM associations in current literature**

**Giovanna Mangialardi, Carla Di Biccari, Claudio Pascarelli, Mariangela Lazoi, Angelo Corallo**

University of Salento, Italy; [giovanna.mangialardi@unisalento.it](mailto:giovanna.mangialardi@unisalento.it)

### **What do students and professionals think of BIM competence?**

**Manish Yakami<sup>1</sup>, Vishal Singh<sup>2</sup>, Sunil Suwal<sup>2</sup>**

<sup>1</sup>HAMK, Finland; <sup>2</sup>Aalto University, Finland; [Vishal.Singh@aalto.fi](mailto:Vishal.Singh@aalto.fi)



## Session

### PS1.5: PARALLEL SESSION 1.5 - Cyber-Physical Systems

Time: Monday, 10/Jul/2017: 5:00pm - 6:30pm

Location: A114 - First Floor

Session Chair: **Peter Hehenberger**, University of Applied Sciences Upper Austria, Austria

The way towards Industry 4.0 adoption requires the development, implementation and use of cyber-physical systems and related techniques. This session PS1.5 comprises works in that area.

## Presentations

### Lean Thinking in the Digital Era

**Laura Cattaneo**<sup>1</sup>, **Monica Rossi**<sup>1</sup>, **Elisa Negri**<sup>1</sup>, **Daryl Powell**<sup>2,3</sup>, **Sergio Terzi**<sup>1</sup>

<sup>1</sup>Politecnico di Milano, Italy; <sup>2</sup>Kongsberg Maritime AS, Horten, Norway; <sup>3</sup>Norwegian University of Science and Technology, Department of Economics and Technology Management, Trondheim, Norway; [monica.rossi@polimi.it](mailto:monica.rossi@polimi.it)

### The evolution of the V-model: From VDI 2206 to a System Engineering based Approach for Developing Cybertronic Systems

**Martin Eigner**, **Thomas Dickopf**, **Hristo Apostolov**

Technical University Kaiserslautern, Germany; [thomas.dickopf@mv.uni-kl.de](mailto:thomas.dickopf@mv.uni-kl.de)

### Replacement of parts by part agents to promote reuse of mechanical parts

**Hiroyuki Hiraoka**, **Atsushi Nagasawa**, **Yuki Fukumashi**, **Yoshinori Fukunaga**

Chuo University, Japan; [hiraoka@mech.chuo-u.ac.jp](mailto:hiraoka@mech.chuo-u.ac.jp)

### Role of VR throughout the life of low volume products towards digital extended enterprises

**Simo-Pekka Sakari Leino**<sup>1</sup>, **Antti Pulkkinen**<sup>2</sup>, **Juha-Pekka Anttila**<sup>1</sup>

<sup>1</sup>VTT Technical Research Centre of Finland, Finland; <sup>2</sup>Tampere University of Technology, Finland; [simo-pekka.leino@vtt.fi](mailto:simo-pekka.leino@vtt.fi)

### Storytelling Platform for Virtual Museum Development: Lifecycle Management of an Exhibition

**Chaowanan Khundam**, **Frederic Noel**

University Grenoble Alpes, France; [chaowanan.kh@gmail.com](mailto:chaowanan.kh@gmail.com)

### A Conceptual Framework of Platform-based Ecosystem Strategy: Case Study of IoT

**Young Won PARK**

Saitama University, Japan; [ywparkjp@gmail.com](mailto:ywparkjp@gmail.com)

## Session

### PS1.6: PARALLEL SESSION 1.6 - Product, Service, Systems (PSS)

Time: Monday, 10/Jul/2017: 5:00pm - 6:30pm

Location: A113 - First Floor

Session Chair: Sergio Terzi, Politecnico di Milano, Italy

Product, Service and System approaches are business models facilitated by the trend in Industry 4.0 adoption. Collaboration, big data and other techniques are enablers of these approaches. This session comprises works showing the impact and implications in the PLM solutions.

## Presentations

### The Design for Product Service Supportability (DfPSS) methodology: generating sector-specific guidelines and rules to improve Product Service Systems (PSSs)

**Claudio Sassanelli**<sup>1,2</sup>, **Giuditta Pezzotta**<sup>2</sup>, **Roberto Sala**<sup>2</sup>, **Angelos Koutopes**<sup>3</sup>, **Sergio Terzi**<sup>1</sup>

<sup>1</sup>Politecnico di Milano, Italy; <sup>2</sup>Università di Bergamo, Italy; <sup>3</sup>N.BAZIGOS S.A. DESIGN AND MANUFACTURING OF MOULDS, Greece; [claudio.sassanelli@polimi.it](mailto:claudio.sassanelli@polimi.it)

### Secure Concept for Online Trading of Technology Data in Global Manufacturing Market

**Ghaidaa Shaabany**, **Simon Frisch**, **Reiner Anderl**

TU Darmstadt, Germany; [shaabany@dik.tu-darmstadt.de](mailto:shaabany@dik.tu-darmstadt.de)

### Changing Information Management in Product-Service System PLM: Customer-Oriented Strategy

**Nikolay Shilov**<sup>1,2</sup>, **Alexander Smirnov**<sup>1,2</sup>, **Andreas Oroszi**<sup>3</sup>, **Mario Sinko**<sup>3</sup>, **Thorsten Krebs**<sup>4</sup>

<sup>1</sup>SPIIRAS, Russian Federation; <sup>2</sup>ITMO University, Russian Federation; <sup>3</sup>Festo AG & Co., Germany; <sup>4</sup>encoway GmbH, Germany; [smir@iias.spb.su](mailto:smir@iias.spb.su)

### A method for lifecycle design of product/service systems using PLM software

**Tomohiko Sakao**<sup>1</sup>, **Yang Liu**<sup>1</sup>, **Rolf Gustafsson**<sup>2</sup>, **Gabriel Thörnblad**<sup>2</sup>

<sup>1</sup>Linköping University, Sweden; <sup>2</sup>Maxiom AB, Sweden; [tomohiko.sakao@liu.se](mailto:tomohiko.sakao@liu.se)

### Defining a PSS lifecycle management system: main characteristics and architectural impacts

**Giuditta Pezzotta**<sup>3</sup>, **Mariangela Lazoi**<sup>1</sup>, **Roberto Sala**<sup>3</sup>, **Fabiana Pirola**<sup>3</sup>, **Antonio Margarito**<sup>1</sup>, **Lorenzo Quarta**<sup>2</sup>

<sup>1</sup>Università del Salento, Italy; <sup>2</sup>EKA Srl; <sup>3</sup>Università degli Studi di Bergamo; [lorenzo.quarta@eka-systems.com](mailto:lorenzo.quarta@eka-systems.com)

## Session

### PS3.1: PARALLEL SESSION 3.1 - Ontologies and data models

Time: Wednesday, 12/Jul/2017: 8:45am - 10:15am

Location: A114 - First Floor

Session Chair: Franca Giannini, CNR, Italy

Ontologies, knowledge models, data models, data structures are key when considering the interoperability among software solutions and the development of applications to support the collaboration by means of exchange and sharing of engineering data. This session comprises works dealing with these topics.

## Presentations

### A methodological framework for ontology-driven instantiation of Petri Net manufacturing process models

**Damiano Arena**, Dimitris Kiritsis

École Polytechnique Fédérale de Lausanne, Switzerland; [damiano.arena@epfl.ch](mailto:damiano.arena@epfl.ch)

### Engineering Knowledge Extraction for Semantic Interoperability between CAD, KBE and PLM Systems

**Jullius Cho**<sup>1</sup>, Thomas Vosgien<sup>2</sup>, Detlef Gerhard<sup>1</sup>

<sup>1</sup>TU Wien, Vienna, Austria; <sup>2</sup>V-Research GmbH, Dornbirn, Austria; [jullius.cho@tuwien.ac.at](mailto:jullius.cho@tuwien.ac.at)

### Towards a Proactive Interoperability Solution in Systems of Information Systems: a PLM perspective

**Zoubida Afoutni**<sup>1,2</sup>, Julien Le-Duigou<sup>1</sup>, Marie-Hélène Abel<sup>2</sup>, Benoit Eynard<sup>1</sup>

<sup>1</sup>Roberval UMR 7337, Université de Technologie de Compiègne; <sup>2</sup>Heudiasyc UMR CNR 7253 Université de Technologie de Compiègne; [zoubida.afoutni@utc.fr](mailto:zoubida.afoutni@utc.fr)

### Design and implementation of a prototype for information exchange in digital manufacturing processes in aerospace industry

**Andrés Padillo**<sup>1</sup>, Jesús Racero<sup>1</sup>, Manuel Oliva<sup>2</sup>, Fernando Mas<sup>2</sup>

<sup>1</sup>Fundación para la Investigación y el Desarrollo de las Tecnologías de la Información en Andalucía, Spain; <sup>2</sup>Airbus Group; [andres.padillo@p2lm.org](mailto:andres.padillo@p2lm.org)

### Study of Data Structures and Tools for the Concurrent Conceptual Design of Complex Space Systems

**Clement Fortin**<sup>1</sup>, Grant McSorley<sup>2</sup>, Dominik Knoll<sup>1</sup>, Alessandro Golkar<sup>1</sup>, Ralina Tsykunova<sup>1</sup>

<sup>1</sup>Skoltech, Russian Federation; <sup>2</sup>University of Prince Edward Island, Charlottetown, Canada; [c.fortin@skoltech.ru](mailto:c.fortin@skoltech.ru)

### Data Model in PLM system to Support Product Traceability

**Dharmendra Kumar Mishra**, Aicha Sekhari, Sebastien Henry, Yacine Ouzrout

University Lumiere, Lyon 2, France, Nepal; [mishra\\_dharmendra@hotmail.com](mailto:mishra_dharmendra@hotmail.com)

## Session

### PS3.2: PARALLEL SESSION 3.2 - New Product Development

Time: Wednesday, 12/Jul/2017: 8:45am - 10:15am

Location: A113 - First Floor

Session Chair: **James Xiaoyu Gao**, University of Greenwich, United Kingdom

This PS3.2 comprises works dealing with two main aspects. One of them is the development of new products by means of reusing knowledge captured in prior designs. The second aspect is the implications of using PLM in the development of food and fashion related products, which are not the typical sectors where PLM systems are used. The session ends with a work looking into the 'True Lean' concept.

## Presentations

### Towards Smart Product Lifecycle Management with an integrated Reconfiguration Management

**Philipp Savarino, Michael Abramovici, Jens Christian Göbel, Philip Gebus**

Chair of Information Technology in Mechanical Engineering (ITM), Germany; [philipp.savarino@itm.rub.de](mailto:philipp.savarino@itm.rub.de)

### CAD Assembly retrieval and browsing

**Matteo Rucco<sup>1</sup>, Katia Lupinetti<sup>1,2</sup>, Franca Giannini<sup>1</sup>, Marina Monti<sup>1</sup>, Jean-Philippe Pernot<sup>2</sup>**

<sup>1</sup>IMATI- CNR Genova, Italy; <sup>2</sup>LSIS - Arts et Métiers ParisTech, Aix-En-Provence, France; [katia.lupinetti@ge.imati.cnr.it](mailto:katia.lupinetti@ge.imati.cnr.it), [franca.giannini@ge.imati.cnr.it](mailto:franca.giannini@ge.imati.cnr.it), [marina.monti@ge.imati.cnr.it](mailto:marina.monti@ge.imati.cnr.it)

### Analysing Product Development process and PLM features in the Food & Fashion industries

**Elisa d'Avolio<sup>1</sup>, Claudia Pinna<sup>2</sup>, Romeo Bandinelli<sup>1</sup>, Sergio Terzi<sup>2</sup>, Rinaldo Rinaldi<sup>1</sup>**

<sup>1</sup>University of Florence, Italy; <sup>2</sup>Politecnico di Milano, Italy; [elisa.davolio@unifi.it](mailto:elisa.davolio@unifi.it), [claudia.pinna@polimi.it](mailto:claudia.pinna@polimi.it)

### Applying Closed-Loop Product Lifecycle Management to Enable Fact Based Design of Boats

**Moritz von Stietencron<sup>1</sup>, Karl A. Hribernik<sup>1</sup>, Carl Christian Røstad<sup>2</sup>, Bjørnar Henriksen<sup>2</sup>, Klaus-Dieter Thoben<sup>1,3</sup>**

<sup>1</sup>BIBA - Bremer Institut für Produktion und Logistik GmbH at the University of Bremen, Bremen, Germany; <sup>2</sup>SINTEF Technology and Society, Trondheim, Norway; <sup>3</sup>Faculty of Production Engineering, University of Bremen, Bremen, Germany; [sti@biba.uni-bremen.de](mailto:sti@biba.uni-bremen.de)

### Impact of PLM system in the New Food Development process performances: an empirical research

**Claudia Pinna<sup>1</sup>, Laureline Plo<sup>2,3</sup>, Monica Rossi<sup>1</sup>, Vincent Robin<sup>3</sup>, Sergio Terzi<sup>1</sup>**

<sup>1</sup>Politecnico di Milano, Italy; <sup>2</sup>Groupe POULT, France; <sup>3</sup>University of Bordeaux, France; [claudia.pinna@polimi.it](mailto:claudia.pinna@polimi.it)

### Implementing Total Lifecycle Product Sustainability through True Lean Thinking

**Michael Abbot Maginnis<sup>1</sup>, Buddhika Minendra Hapuwatte<sup>2</sup>, I. S. Jawahir<sup>2</sup>**

<sup>1</sup>Institute of Research for Technology Development (IR4TD), Lean Systems Program, University of Kentucky, Lexington, KY, USA;

<sup>2</sup>Institute for Sustainable Manufacturing (ISM), Department of Mechanical Engineering, University of Kentucky, Lexington, KY, USA; [amaginnis@uky.edu](mailto:amaginnis@uky.edu)

## Session

### PS3.3: PARALLEL SESSION 3.3 - Knowledge and Data models

Time: Wednesday, 12/Jul/2017: 10:45am - 12:00pm

Location: A114 - First Floor

Session Chair: **Thomas Vosgien**, V-Research GmbH, Austria

This PS3.3 continues with the topics initiated in the prior PS3.1: knowledge models, data models, data structures; but with a focus on the development of applications to support engineering tasks.

## Presentations

### Deriving Information from Sensor Data - A general approach for the introduction of IoT technologies for field data analysis in complex technical systems

**Marco Lewandowski**, **Klaus-Dieter Thoben**

BIBA - Bremer Institut für Produktion und Logistik GmbH at the University of Bremen, Germany; [tho@biba.uni-bremen.de](mailto:tho@biba.uni-bremen.de)

### Context of text: concepts for recognizing context of acquired knowledge from documents

**Madhusudanan N.**, **Gurumoorthy B.**, **Amaresh Chakrabarti**

Indian Institute of Science, India; [madhu@cpdm.iisc.ernet.in](mailto:madhu@cpdm.iisc.ernet.in)

### Knowledge Modelling for an Electrical PLM System in Aeronautics

**Christophe MERLO**<sup>1,2</sup>, **Eric VILLENEUVE**<sup>1</sup>, **Sebastien BOTTECCHIA**<sup>1</sup>, **Pierre DIAZ**<sup>1</sup>

<sup>1</sup>ESTIA, ESTIA Research, France; <sup>2</sup>IMS, UMR5218, U.Bordeaux, France; [c.merlo@estia.fr](mailto:c.merlo@estia.fr)

### Development of a Smart Assembly Data Model

**Luiz Fernando C. S. Durão**<sup>1</sup>, **Sebastian Haag**<sup>2</sup>, **Reiner Anderl**<sup>2</sup>, **Klaus Schützer**<sup>3</sup>, **Eduardo Zancul**<sup>1</sup>

<sup>1</sup>University of São Paulo (USP), Brazil; <sup>2</sup>Technische Universität Darmstadt, Germany; <sup>3</sup>Methodist University of Piracicaba, Brazil; [luiz.durao@usp.br](mailto:luiz.durao@usp.br)

### Managing maturity states in a collaborative platform for the iDMU of aeronautical assembly lines

**Domingo Morales-Palma**<sup>1</sup>, **Ignacio Eguía**<sup>2</sup>, **Manuel Oliva**<sup>3</sup>, **Fernando Mas**<sup>3</sup>, **Carpóforo Vallengano**<sup>1</sup>

<sup>1</sup>Dpt. Mechanical Engineering and Manufacturing, University of Seville, Spain; <sup>2</sup>Dpt. Industrial Management, University of Seville, Spain; <sup>3</sup>Airbus Group, Seville, Spain; [dmpalma@us.es](mailto:dmpalma@us.es)

## Session

### PS3.4: PARALLEL SESSION 3.4 - Modular design and products

Time: Wednesday, 12/Jul/2017: 10:45am - 12:00pm

Location: A113 - First Floor

Session Chair: **Henk Jan Pels**, Phi Knowledge Process Enabling b.v., Netherlands, The

This PS3.4 comprises works dealing with the design of modularized products, product configuration, modular design and product modular architectures.

## Presentations

### Automatic configuration of modularized products

**Joel Sauza Bedolla<sup>1</sup>, Stefano Amato<sup>2</sup>, Alfredo Fantetti<sup>2</sup>, Andrea Radaelli<sup>2</sup>, Alex Saja<sup>2</sup>, Gianluca D'Antonio<sup>1</sup>, Paolo Chiabert<sup>1</sup>**

<sup>1</sup>Politecnico di Torino, Italy; <sup>2</sup>Alta Scuola Politecnica, Italy; [alfredo.fantetti@asp-poli.it](mailto:alfredo.fantetti@asp-poli.it), [paolo.chiabert@polito.it](mailto:paolo.chiabert@polito.it)

### Deployment of product configurators: analysis of impacts within and outside the user company

**Gianluca D'Antonio<sup>1</sup>, Sara Mottola<sup>2</sup>, Giovanni Prencipe<sup>2</sup>, Arianna Rosa Brusin<sup>2</sup>, Joel Sauza Bedolla<sup>1</sup>, Paolo Chiabert<sup>1</sup>**

<sup>1</sup>Politecnico di Torino, Italy; <sup>2</sup>Alta Scuola Politecnica, Italy; [giovanni.prencipe@asp-poli.it](mailto:giovanni.prencipe@asp-poli.it), [paolo.chiabert@polito.it](mailto:paolo.chiabert@polito.it)

### Secure modular design of configurable products

**Henk Jan Pels**

Phi Knowledge Process Enabling b.v., Netherlands, the; [h.j.pels@phi-kpe.nl](mailto:h.j.pels@phi-kpe.nl)

### Modular architectures management with PLM for the adaptation of frugal products to regional markets

**Farouk Belkadi<sup>1</sup>, Ravi Kumar Gupta<sup>1</sup>, Stéphane Natalizio<sup>2</sup>, Alain Bernard<sup>1</sup>**

<sup>1</sup>ECN-LS2N, France; <sup>2</sup>Audros Technology, France; [farouk.belkadi@ec-nantes.FR](mailto:farouk.belkadi@ec-nantes.FR)

### A multi-leveled ANP-LCA model for the selection of sustainable design options

**Manel Sansa<sup>1</sup>, Ahmed Badreddine<sup>2</sup>, Taieb Ben Romdhane<sup>3</sup>**

<sup>1</sup>INSAT, Tunisia; <sup>2</sup>ISG, Tunisia; <sup>3</sup>INSAT, Tunisia; [manel.sansa@outlook.com](mailto:manel.sansa@outlook.com)

## Session

### PS3.5: PARALLEL SESSION 3.5 - PLM and Education

Time: Wednesday, 12/Jul/2017: 12:00pm - 1:15pm

Location: A114 - First Floor

Session Chair: **Paolo Chiabert**, Politecnico di Torino, Italy

This PS3.5 starts with a contribution connected to the prior session 3.3, showing an approach to support decision making by discovering decision rules from the past process executions. After this first paper, the PLM and Education contributions takes the stage. First, with a contribution that provides preliminary results concerning the current state in PLM education in Italy and France. The following contribution shows an industry-university collaboration educational program on PLM and IoT. The session ends with a contribution that shows a novel approach in the education of PLM, which also serves as a platform to discuss real world problems with industry and discuss and test new approaches (digitization, industry 4.0) and their impact along the lifecycle of their product.

## Presentations

### A Process Mining Based Approach to Support Decision Making

**Widad Es-Soufi**, Esma Yahia, Lionel Roucoules

Arts et Métiers ParisTech, France; [widad.ES-SOUFI@ensam.eu](mailto:widad.ES-SOUFI@ensam.eu)

### PLM in Engineering Education: insights on actual and future trends

**Joel Sauza Bedolla**<sup>1</sup>, **Gianluca D'Antonio**<sup>1</sup>, **Frédéric Segonds**<sup>2</sup>, **Paolo Chiabert**<sup>1</sup>

<sup>1</sup>Politecnico di Torino, Italy; <sup>2</sup>Ecole Nationale Supérieure d'Arts et Métiers, Paris, France; [gianluca.dantonio@polito.it](mailto:gianluca.dantonio@polito.it), [frederic.segonds@ensam.eu](mailto:frederic.segonds@ensam.eu)

### Preliminary Study on Workshop Facilitation for IoT Innovation as Industry-University Collaboration PLM Program for Small and Medium sized Enterprises

**Satoshi Goto**<sup>1,2</sup>, **Osamu Yoshie**<sup>1</sup>, **Shigaru Fujimura**<sup>1</sup>, **Kin'ya Tamaki**<sup>3</sup>

<sup>1</sup>Graduate School of Information, Production and Systems, Waseda University, Japan; <sup>2</sup>Business Transformation Management, PTC Japan Co. Ltd., Japan; <sup>3</sup>Human Innovation Research Center, Aoyama Gakuin University, Japan; [satoshi-goto@fuji.waseda.jp](mailto:satoshi-goto@fuji.waseda.jp)

### PLM in Education – The Escape from Boredom

**Bernhard Fradl**, **Anita Sohrweide**, **Feli Nyffenegger**

HSR (University of Applied Sciences of Rapperswil), Switzerland; [bernhard.fradl@hsr.ch](mailto:bernhard.fradl@hsr.ch)

## Session

### PS3.6: PARALLEL SESSION 3.6 - PLM and process simulation

Time: Wednesday, 12/Jul/2017: 12:00pm - 1:15pm

Location: A113 - First Floor

Session Chair: **Lionel Roucoules**, Arts et Métiers ParisTech, France

This PS3.6 comprises works dealing with solutions to support or assist during the decision making process of industrialization tasks. The adoption of cloud based solutions as an enabler of collaboration and adoption of business models oriented to marketplaces. The prediction of components and systems behaviour to design industrialization solutions, and to predict inventory management needs.

## Presentations

### Towards cloud in a PLM context: A proposal of Cloud Based Design and Manufacturing methodology

**Hussein Khelifi<sup>1,2</sup>, Abhro Choudhury<sup>1</sup>, Siddharth Sharma<sup>1</sup>, Frédéric Segonds<sup>1</sup>, Nicolas Maranzana<sup>1</sup>, Vincent Frerebeau<sup>2</sup>, Damien Chasset<sup>2</sup>**

<sup>1</sup>ENSAM, France; <sup>2</sup>Dassault Systemes; [khelifihussein@yahoo.fr](mailto:khelifihussein@yahoo.fr), [abhro.choudhury@ensam.eu](mailto:abhro.choudhury@ensam.eu), [siddharth.sharma@ensam.eu](mailto:siddharth.sharma@ensam.eu), [frederic.segonds@ensam.eu](mailto:frederic.segonds@ensam.eu), [nicolas.maranzana@ensam.eu](mailto:nicolas.maranzana@ensam.eu), [vincent.frerebeau@3ds.com](mailto:vincent.frerebeau@3ds.com), [damien.chasset@3ds.com](mailto:damien.chasset@3ds.com)

### Flexible best fit assembly of large aircraft components. Airbus A350 XWB case study

**Rebeca Arista, Falgarone Hugo**

Airbus; [rebeca.arista@airbus.com](mailto:rebeca.arista@airbus.com)

### An Integrated Framework for Simulation and Analysis of Manual Assembly Process

**KyungHee Lee<sup>1</sup>, JongYoul Lee<sup>2</sup>, KyoungYun Kim<sup>2</sup>, SangDoh Noh<sup>1</sup>, SungJun Kang<sup>3</sup>, DooMyun Lee<sup>3</sup>**

<sup>1</sup>Sungkyunkwan University, Korea, Republic of (South Korea); <sup>2</sup>Wayne State University, MI, USA; <sup>3</sup>SEGOS CO.,LTD., Korea, Republic of (South Korea); [schnlui@skku.edu](mailto:schnlui@skku.edu)

### Analysis of the Robustness of Production Scheduling in Aeronautical Manufacturing Using Simulation: A Case Study

**Raúl Pulido<sup>1</sup>, Tamara Borreguero-Sanchidrian<sup>2</sup>, Álvaro García-Sánchez<sup>1</sup>, Miguel Ortega-Mier<sup>1</sup>**

<sup>1</sup>Universidad Politécnica de Madrid, Spain; <sup>2</sup>Aribus Group, Spain; [tamara.borreguero@airbus.com](mailto:tamara.borreguero@airbus.com)

### Development of a Part criticality Index in Inventory Management

**Clint Saily<sup>1</sup>, Liudas Panavas<sup>1</sup>, Ramy Harik<sup>1</sup>, Abdel-Moez Bayoumi<sup>1</sup>, Joseph Khoury<sup>2</sup>**

<sup>1</sup>McNair Center, University of South Carolina, United States of America; <sup>2</sup>Methode Electronics Middle East S.A.L.; [lpnavas@email.sc.edu](mailto:lpnavas@email.sc.edu)