Resilient and Responsible Collaborative Networks

PROGRAMME

Valencia, Spain

27 – 29 September 2023
Resilient and Responsible Collaborative Networks

Trends in Industry 5.0 and Society 5.0 place the emphasis on human-centric systems and the need to address societal challenges in a responsible way. Instead of purely technocentric or even business-centric approaches that have characterized most past developments, we need a balanced approach between “automation” and human/society involvement contributing to well-being.

On the other hand, we live in an era with more and more disruptive events, including natural and human-caused ones, which demands systems with a high degree of resilience. As frequent disruptive events become the “new normal”, we need advanced forms of transformative resilience and even antifragility. In other words, how to design and manage collaborative ecosystems that can strive and become better throughout a sequence of attacks/disruptions.

**PRO-VE 2023** aims to analyze and discuss the contribution of Collaborative Networks to these challenges and to identify how these challenges can influence our research agenda.

Contributions from a wide array of disciplines foster the debate on topics like: Collaborative networks in healthcare, Collaborative risk management, Collaborative cyber-physical systems, Human-machine collaboration, Resilient collaborative systems, Collaboration – Competition environment, Digital twin and collaboration, Hybridization of collaboration, and Learning and skills in collaborative networks.

**PRO-VE 2023**, organized in Valencia, Spain is the 24th event of this series of successful conferences, including:

PRO-VE 1999 (Porto, Portugal), PRO-VE 2000 (Florianopolis, Brazil), PRO-VE 2002 (Sesimbra, Portugal), PRO-VE 2003 (Lugano, Switzerland), PRO-VE 2004 (Toulouse, France), PRO-VE 2005 (Valencia, Spain), PRO-VE 2006 (Helsinki, Finland), PROVE2007 (Guimarães, Portugal), PRO-VE 2008 (Poznan, Poland), PRO-VE 2009 (Thessaloniki, Greece), PRO-VE 2010 (St. Etienne, France), PRO-VE 2011 (São Paulo, Brazil), PRO-VE 2012 (Bournemouth, UK), PRO-VE 2013 (Dresden, Germany), PROVE 2014 (Amsterdam, The Netherlands), PRO-VE 2015 (Albi, France), PRO-VE 2016 (Porto, Portugal), PRO-VE 2017 (Vicenza, Italy), PRO-VE 2018 (Cardiff, UK), PRO-VE 2019 (Torino, Italy), PRO-VE 2021 (Valencia, Spain), PRO-VE 2021 (Saint-Etienne, France), and PRO-VE 2022 (Lisbon, Portugal).
Welcome to Valencia

On behalf of the Research Centre on Production Management and Engineering (CIGIP) and the Universitat Politècnica de Valencia (UPV), it is a great pleasure to welcome you to the 24th edition of PRO-VE, hosted in Valencia, an ancient Roman yet charming modern city located in the Mediterranean coast which is becoming a central technological hub.

The conference venue is The Industrial Engineering School, one of the UPV founder schools, Spain’s leading technological School. For over half of a century, UPV has provided uninterrupted teaching and created an innovative environment that supports research and technological development.

At CIGIP, we develop our activity in R&D projects, technology transfer to companies and advanced postgraduate training in Industrial Engineering and Logistics. The CIGIP comprises a multidisciplinary team of professors, contracted research staff and PhD students. Collaborative Networks is one of the research areas of CIGIP. This is the third PRO-VE edition organised by CIGIP at UPV; past editions, 2005 (Collaborative Networks and Theirs Breeding Environment) and 2020 (Boosting Collaborative Networks 4.0 - online due to the pandemic), fueled CIGIP to grow in the area.

I am proud to say that the world’s leading researchers and practitioners around Collaborative Networks are attending this year's edition, transforming UPV into an agora for debating how the business environment is reacting to the challenges brought forward by Industry 5.0 and Society 5.0.

The plenary lectures, workshops and oral presentations included in the program ensure that PRO-VE 23 is a unique forum for exchanging visions, ideas, research results and industrial experiences, dealing with the risks and opportunities of developing collaborative networks.

The organising committee and the co-chairs have made every effort to ensure that all participants enjoy their stay and knowledge exchange during the PRO-VE Conference. We are at your disposal during the Conference for any assistance you may need.

I would like to close this welcome by thanking all the participants for being here and making PRO-VE another successful conference, as well as the keynote speakers, the scientific and industrial panel participants, the co-chairs and the organising committee.

I am looking forward to seeing you at PRO-VE 2023 in Valencia.

Angel Ortiz
General Chair
Welcome to PRO-VE 2023

In its 24th edition, PRO-VE offers a very rich and exciting program, centered on the pivotal role of Resilient and Responsible Collaborative Networks. Since its first edition in Porto, Portugal, in 1999, PRO-VE has been a cornerstone in advancing the field of Collaborative Networks (CNs) and nurturing its research community. Over the years, PRO-VE has been recognized by a number of distinct characteristics, such as: providing space for lively discussions of leading edge topics, promoting highly inspiring interactions among the experts from different backgrounds and disciplines with mutual appreciation, and recognition of the need for an interdisciplinary perspective to address collaborative networks challenges, and seeking excellence through adopting scientific solutions to real world applications; thus contributing to development of sounder theories, methods, and tools.

The main theme for this edition aligns with contemporary imperatives for building a resilient and responsible world. Several factors influence the resilience and responsibility of collaborative networks. As these networks expand, they encompass a diverse array of participants, spanning individuals, organizations, and even autonomous agents and cyber-physical systems. In this complex milieu, ethics, trust, and security emerge as pivotal elements, necessitating the establishment of robust systems that safeguard sensitive information and cultivate reliable collaborations. Human-machine collaboration stands as a vital constituent of resilient collaborative networks, harnessing the complementary strengths of both realms to elevate decision-making capabilities. Within the realm of business ecosystems, the notion of antifragility underscores their capacity not only to withstand disruption but also to thrive and fortify in its wake.

Supported by SOCOLNET and IFIP, particularly through WG 5.5 COVE, PRO-VE has strengthened the Collaborative Networks research community and charted future research paths. We trust that our 24th edition will uphold this legacy, thanks to your active participation.

A special word of thanks goes to the members of the International Program Committee that carried out the heavy task of evaluating the large number of submissions. Finally, we also want to express our gratitude for the work of the local organizing committee coordinated by Prof. Angel Ortiz, as well as the support of the various sponsors of this year’s event.

We wish you a great and memorable working conference in Valencia.

Luis M. Camarinha-Matos
Program Committee Chair

Xavier Boucher
Program Committee Co-chair
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Special Session on Cyber-Physical Systems in Field- and Customer-Services
Giulia Wally Scurati, Blekinge Institute of Technology, Sweden
Marco Bertoni, Blekinge Institute of Technology, Sweden
Shaun West, Lucerne University of Applied Sciences and Arts, Switzerland
Petra Müller-Csernetzk, Lucerne University of Applied Sciences and Arts, Switzerland
Kyle Alves, Bristol Business School – UWE, UK

Special Session on Enabling Technologies for Healthcare 5.0
Daniele Spoladore, National Research Council of Italy, Italy
Vera Colombo, National Research Council of Italy, Italy
Elena Pessot, University of Siena, Italy
Mariano Alcañiz Raya, Universidad Politecnica Valencia, Spain

Special Session on Collaborative Networks in Personalized Healthcare
Vincent Augusto, Ecole des Mines de Saint-Etienne, France
Franck FONTANILI, IMT Mines Albi, France
Xavier Boucher, Ecole des Mines de Saint-Etienne, France

Special Session on Collaborative Interactions in Human-Digital Contexts
Adrian Florea, Lucian Blaga University of Sibiu, Romania
Lasse Berntzen, University of South-Eastern Norway, Norway
Maria Vințan, Lucian Blaga University of Sibiu, Romania

Special Session on Collaborative Value Creation
Arkadiusz Jurczuk, Bialystok University of Technology, Poland
Lili AUNIMO, Haaga-Helia University of Applied Sciences, Finland
Paul Grefen, Eindhoven University of Technology, Netherlands
Damian Kedziora, Lappeenranta Lahti-University of Technology, Finland

Special Session on Enterprisess and Human Integration towards Industry 5.0
Hervé Panetto, University of Lorraine, France
Ricardo J. Rabelo, Federal University of Santa Catarina, Brazil
Arturo Molina, Tecnológico de Monterrey, Mexico
Georg Weichhart, Johannes Kepler University Linz, Austria
Luís Osório, Polytechnic Institute of Lisbon, Portugal

Special Session on Collaboration in the AECO Sector Supported by Digital Twins
Christoph Stranadl, Software AG, Austria
Karsten Menzel, TU Dresden, Germany
Peter Katranuschkov, TU Dresden, Germany
Markus Achenbach, LGA Hof, Germany
Joern Ploennigs, University of Rostock, Germany
Special Session on Technological Advancements, Future Skills and CNs
Christian Zinke-Wehlmann, Institute of Applied Informatics, Germany
Julia Friedrich, University of Leipzig, Germany

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IFIP WG 5.5 COVE
Co-Operation infrastructure for Virtual Enterprises and electronic business

Society of Collaborative Networks

ORGANIZATIONAL SPONSORS
Venue: ETSII engineering school (UPV)
Camino de Vera s/n, building 5F 46022 Valencia.
Auditorium Salón de Actos ETSII (5F Building, 2nd floor)
Sessions:
- Welcome session,
- Keynote 1 and Keynote 2,
- Industry Panel,
- Scientific Panel,
- Parallel sessions: A1, B1, C1, D1, F1
- Closing session.

Auditorium Salón de Grados I (5F Building, 2nd floor)
Sessions:
- Keynote 3,
- Parallel sessions: A2, B2, C2, D2, E1, F2

Auditorium Salón de Grados II (5F Building, 2nd floor)
Sessions:
- Keynote 3,
- Parallel sessions: A3, B3, C3, D3, E2, F3

Room 111 (5F Building, 1st floor)
Sessions: Workshop

HALL ETSII (5F Building, 1st floor)
Coffee and lunch
**Wednesday – 27 Sep 2023**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Activity</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30</td>
<td>Registration</td>
<td></td>
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<tr>
<td>09:30</td>
<td><strong>Parallel Sessions A:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>A1: Risks and Resilience in Networks (Salón de Actos)</strong></td>
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<td><strong>Chair: Luis Osório</strong></td>
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<tr>
<td></td>
<td>The Impact of Industry 4.0 on Supply Chain Resilience Management</td>
<td>Antonio Zavala-Alcivar, Maria José Verdecho, Juan-José Alfaro-Saiz, and Roberto González Ortega</td>
</tr>
<tr>
<td></td>
<td>CSC-RMM: A Method for Collaborative Supply Chain Risk Mitigation</td>
<td>Bart Bogaard, Baris Ozkan, and Sybren de Kinderen</td>
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<td>‘If only I knew’: Extending the SCSN Vocabulary to Improve the Resilience of Supply Chain Networks</td>
<td>Jelte Bootsma and Wico Mulder</td>
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<td><strong>A2: Enterprises and Human Integration towards Industry 5.0 (Salón de Grados I)</strong></td>
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<td><strong>Chairs: Arturo Molina and Ricardo Rabelo</strong></td>
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<td>Emerging Approaches for Enterprises and Human Integration towards Industry 5.0</td>
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<td>Arturo Molina</td>
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<td>Development Developing a Collaboration Planning Method for Knowledge Heterogeneity in Construction Supply Chain Management</td>
<td>Shuyao He, Juanqiong Gou, Xiaowei Zhang, and Xifei Tong</td>
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<td>A Business Technology Alignment Strategy for Digital Collaborative Networks</td>
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<td>A. Luís Osório, Ricardo J. Rabelo, and Carlos Gonçalves</td>
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<td>Gamification Operation Design Method for Supply Chain Collaboration</td>
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<td>Ming Zhu, Juanqiong Gou, and Xiaowei Zhang</td>
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<td><strong>A3: Enabling Technologies for Healthcare 5.0 (Salón de Grados II)</strong></td>
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<td><strong>Chairs: Daniele Spoladore and Elena Pessot</strong></td>
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<td>Digital Applications in Pulmonary Rehabilitation: Preliminary Evaluation of a Hybrid Program for the Continuity of Care</td>
<td>Vera Colombo, Marta Mondellini, Alessia Fumagalli, and Marco Sacco</td>
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<td>ActivE3: Fostering Social Inclusion through Collaborative Physical and Cognitive Exercise</td>
<td>Daniele Spoladore, Atieh Mahroo, Vera Colombo, and Marco Sacco</td>
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<td>Linguistic Indicators of Depressive Symptoms in Conversations with Virtual Humans</td>
<td>Lucía Gómez-Zaragozá, María Eleonora Minissi, Jose Llanes-Jurado, Alberto Altozano, Mariano Alcañiz Raya, and Javier Marín-Morales</td>
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<td>Start-up Innovation and Growth in Health-related Industries</td>
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<td>Elena Pessot, Valerio Natale, and Elena Casprini</td>
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<td>11:30</td>
<td>Coffee break</td>
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<td>12:00</td>
<td><strong>Welcome session (Salón de Actos)</strong></td>
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<td>12:30</td>
<td><strong>Keynote 1 (Salón de Actos)</strong></td>
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<td>Redesigning International Manufacturing Networks for Resilience</td>
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<td>Prof. Jan Olhager, Lund University, Sweden</td>
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</tbody>
</table>
13:30  Lunch

15:00  Parallel Sessions B:

**B1: Collaborative Networks in Personalized Healthcare (Salón de Actos)**

*Chair: Xavier Boucher*

Towards a Digital Collaborative Framework for an Efficient Medication Errors Management

_Hanae Touati, Rafika Thabet, Franck Fontanili, and Elyes Lamine_

Analysis of a Collaborative Resilient Solution based on Real-time Re-optimization for Home Health Care Routes Subject to Disruptions by Discrete Event Simulation

_Guillaume Dessevre, Cléa Martinez, Liwen Zhang, Christophe Bortolaso, and Franck Fontanili_

Capacity Planning for Ambulatory Surgeries in Collaborative Network of Hospitals

_Canan Pehlivan and Franck Fontanili_

**B2: Emerging Technologies Towards Circular & Resilient Networks (Salón de Grados I)**

*Chair: Ricardo Rabelo*

How the COVID-19 Pandemic Has Affected Digital Transformation and Its Relationship to Supply Chain Resilience

_Ricardo Zimmermann, Pedro Senna, and Diana Cardoso_

Towards a Flow-oriented Reference Model for Educational Organizations

_Paul Savignac, Eva Petitdemange, Matthieu Lauras, and Jocelyn Gac_

The Design of Digital Platform Ecosystem Supporting Circular Economy

_Gonçalo Marantes, António Lucas Soares, and Henrique Diogo Silva_

**B3: Collaborative Interactions in Human-Digital Contexts (Salón de Grados II)**

*Chair: António Lucas Soares*

Using Adversarial Reinforcement Learning to Improve the Resilience of Human-Robot Collaboration in Industrial Assembly

_Dario Antonelli and Khurshid Aliev_

A Maturity Model for Collaborative Agents in Human-AI Ecosystems

_Wico Mulder and André Meyer-Vitali_

Integrated Modeling and Collaborative Decision-Making Method Based on Event Logic Knowledge Graph

_Xinyi Liu, WenXin Mu, JuanQiong Gou, Qianyu Zhou, and Jiaxin Zhang_

16:30  Coffee break

17:00  Industry Panel (Salón de Actos)

*Industry Challenges for resilient and responsible Collaborative Network*

*Chair: Raul Rodriguez Rodriguez*

Participating companies:

- Power Electronics (leading manufacturer of solar inverters)
- Factor (expert solutions for advanced industry)
- Multiscan Technologies (leader in inspection, verification and manipulation systems)
- DCN (Boutique consulting firm specialized in internationalization and technology)

19:00  City tour & Welcome reception
Thursday – 28 Sep 2023

09:30 Parallel Sessions C:
C1: Collaborative Value Creation *(Salón de Actos)*
*Chair: Paul Grefen*

- Simulating the Enhanced Value-Capturing by Using Digitalization in Monetary and Non-Monetary Collaborative Networks  
  *Christian Zinke-Wehlmann, Julia Friedrich, Sebastian Frericks, and Andreas Kluge*
- Supporting the Definition of Key Performance Indicators for Business Models  
  *Montijn van de Ven, Paola Lara Machado, Banu Aysolmaz, and Oktay Turetken*
- Collaborative Value Exploration for Early Product-Service Systems Design: A Group Model Building Approach  
  *Carl Toller Melén and Matilda Watz*
- Towards Digital Immersive Experiences for Collaborative Value Co-creation in Design  
  *Marco Bertoni*

C2: Cyber-Physical Systems in Field- and Customer-Services *(Salón de Grados I)*
*Chair: Shaun West*

- Leveraging Information Visualization through Extended Reality (XR) for Incorporating Changeability in Product-Service Systems  
  *Raj Jiten Machchhar, Giulia Wally Scurati, and Alessandro Bertoni*
- Extended Reality-Assisted Risk Assessment in Conceptual Product Development  
  *Leon Peter Poot and Giulia Wally Scurati*
- Economic Assessment of Smart PSS Multi-actor Delivery Networks: Case Study in the Heating Appliance Sector  
  *Xavier Boucher, Damien Lamy, and Camilo Murillo Coba*
- Value of Digital in Field Service  
  *Sven Träger, Petra Müller-Csernetzky, Oliver Stoll, and Shaun West*

C3: Collaboration in the AECO Sector Supported by Digital Twins *(Salón de Grados II)*
*Chair: Karsten Menzel*

- AI-supported Commissioning of Buildings: Verification of Collaboration Achievements as Pre-requisite for Intelligent Building Operations  
  *Karsten Menzel, Prathap Valluru, and Björn Schuster*
- Improving Safety on Construction Sites by Exploiting IoT, Digital Twins, and Data Fusion  
  *Janakiram Karlapudi, Korbinian Röhrl, Marco Di’Pasquale, and Karsten Menzel*
- Computer Vision for Construction Progress Monitoring: A Real-Time Object Detection Approach  
  *Jiesheng Yang, Andreas Wilde, Karsten Menzel, Md Zubair Sheikh, and Boris Kuznetsov*
- Digital Twins as Enabler for Long Term Data Management Using Building Logbooks  
  *Nidhal Al-Sadoon, Judith Fauth, and Karsten Menzel*

11:30 Coffee break
12:00 Keynote 2 *(Salón de Actos)*
*Circular manufacturing and twin transition: a must-do step for global collaborative manufacturing*

*Prof. Sergio Terzi, Politecnico de Milano, Italy*

13:00 Lunch
14:30 **Scientific Panel (Salón de Actos)**

**Research Challenges for resilient and responsible Collaborative Network**

*Chairs: Xavier Boucher and Luis M. Camarinha-Matos*

*Panelists:*
  - Rosanna Fornasiero, Italy
  - Arturo Molina, Mexico
  - Hervé Panetto, France
  - Ricardo Rabelo, Brazil
  - António Lucas Soares, Portugal
  - Paul de Vrieze, UK

17:00 **Coffee break**

17:30 **Parallel Sessions D:**

**D1: Learning and Human-centered Networks (Salón de Actos)**

*Chair: Paula Urze*

- Collaborative Network 5.0: By Design Human Values and Human-Centred based Extended Collaborative Networks  
  *Eda Marchetti, Sanaz Nikghadam-Hojjati, and José Barata*
- The Operation Model of the Centre for Learning Technological Entrepreneurship – The CDIT Innovation Hub for Entrepreneurs in Mexico City Case Study  
  *Daniel Cortés, Jose-Bernardo Rosas-Fernandez, and Arturo Molina*
- Dual-Mode: Learning in Higher Education as a Strategy in the Development of Collaborative Networks of the Social and Solidarity Economy for Community Resilience  
  *A. L. Barcenas, M. Salgado, D. Cortés, L. D. García and E. Martínez*

**D2: Sustainability of Collaborative Ecosystems (Salón de Grados I)**

*Chair: Beatriz Andrés*

- Influencing Collaboration in Sustainable Business Ecosystems  
  *Paula Graça and Luis M. Camarinha-Matos*
- The Role of Aggregators and Hubs in Collaborative Prosumer Networks  
  *Lasse Berntzen and Adrian Florea*
- Social Sustainability and Resilience in Supply Chains: The Role of Collaboration to Face Risks  
  *Frida Betto, Andrea Zangiacomi, and Rosanna Fornasiero*

**D3: Technological Advancements, Future Skills and CNs (Salón de Grados II)**

*Chairs: Christian Zinke-Wehlmann and Julia Friedrich*

- Future Learning in a Collaborative "Laboratory" Environment - Requirements to Build up Future Skills  
  *Joachim Kutzera, Romy Wöhlert, Julia Friedrich, Vanita Römer, and Pätrick Richter*
- Factors Affecting the Adoption of AI by Organizations - from the Perspective of Knowledge Workers  
  *Lili Aunimo, Janne Kauhtonen, Anna Lahtinen, Altti Lagstedt, and Ari Alamäki*
- Getting Data Literacy Education Ready for the Future  
  *Konstantin Hilger, Juliane Gamböck-Strätz, and Christian Biedermann*

21:00 **Conference dinner**
09:30 Parallel Sessions E & WS

E1: Artificial Intelligence and Collaborative Environments (Salón de Grados I)
Chair: Juanqiang Gou

AI-powered Chatbots and the Transformation of Work: Findings from a Case Study in Software Development and Software Engineering
Thomas Süße, Maria Kober, Simon Grapenthin, and Bernd-Friedrich Voigt

Artificial Intelligence to Support Collaboration in the Industrial Equipment Life Cycle
Beatriz Andres, Miguel Angel Mateo-Casali, J. P. Fiesco, and Raúl Poler

Time and Networks: Reflections and Good Practices for the AI-based Digital Era
Emilia Araújo, Paula Urze, and Luis M. Camarinha-Matos

Brain-Computer-Interface (BCI) based Smart Home Control using EEG Mental Commands
Ahmed Zakzouk, Karsten Menzel, and Mohamed Hamdy

E2: Collaborative Interactions and Processes (Salón de Grados II)
Chair: Adrian Florea

Laurent Navarro, Pierre-Eddy Dandrieux, Karsten Hollander, and Pascal Edouard

A Synergistic Approach Towards Agile and Resilient Command and Control and Collaborative Networks
Ovidiu Noran

Understanding the Relationship between Business Model and Business Process Elements
Paola Lara Machado, Montijn van de Ven, Banu Aysolmaz, and Oktay Türetken

Blockchain in supply chain management: Evaluation of efficiency improvements and cost saving potentials
Marc Hübschke, Eugen Buss, Stefan Lier, and Elmar Holschbach

Workshop: Extended Reality (XR) technologies for collaborative resilient PSS design
(Room 111)
Chairs: Giulia Walli Scurati and Shaun West

11:30 Coffee break

12:00 Keynote 3 (Salón de Grados I)
European Digital Infrastructure Consortium as an enabler for Collaborative Networks
Javier Orozco, European Comission (DG CNECT, unit C3), Spain

13:00 Lunch

14:30 Parallel Sessions F:

F1: Resilient and Secure Collaborative Networks (Salón de Actos)
Chair: Hervé Panetto

Collaborative Networks Resilience Approaches: An Enterprise Architecture Perspective
Ovidiu Noran

Roadmap for Resilient Networks Building through Artificial Intelligence
Marco Arias-Vargas, Raquel Sanchis, and Raúl Poler

Securing Collaborative Networks: Requirements of Supporting Secured Collaborative Processes
Paul de Vrieze and Lai Xu
### F2: Agile Production Networks in the Digitalization Era *(Salón de Grados I)*

**Chair:** Ovidiu Noran

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborative Network for the Development of Non-Destructive Inspection Technologies:</td>
<td>Joan Lario, Javier Mateos, Raúl Poler, and Ángel Ortiz</td>
</tr>
<tr>
<td>Elicitation Requirements in an Industrial Environment</td>
<td>Selma Ferhat, Eric Ballot, Matthieu Lauras, and Raphael Oger</td>
</tr>
<tr>
<td>Towards an Analysis of the Adaptability Potential of a Collaborative Manufacturing System</td>
<td>Chaimae Ben Brahim, Qussay Jarrar, Maria Chiara Magnanini, and Khaled Medini</td>
</tr>
<tr>
<td>Digital Platforms and Enterprise Agility: A Systematic Literature Review</td>
<td>Chaimae Ben Brahim, Qussay Jarrar, Maria Chiara Magnanini, and Khaled Medini</td>
</tr>
</tbody>
</table>

### F3: Intelligent Frameworks *(Salón de Grados II)*

**Chair:** Dario Antonelli

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<tbody>
<tr>
<td>Making Sense of Digital Twins: An Analytical Framework</td>
<td>Fabrício Martins Mendonça, Jairo Francisco de Souza, and António Lucas Soares</td>
</tr>
<tr>
<td>RPA Experiments in SMEs through a Collaborative Network</td>
<td>Heli Kortesalmi, Lili Aunimo, and Damian Kedziora</td>
</tr>
<tr>
<td>Can Artificial Intelligence-enabled Service Interactions Improve the Perception of Service Quality?</td>
<td>Zuo Li, Pan Mengyu, Feng Yao, and Lv Xiyan</td>
</tr>
</tbody>
</table>

16:00  **Coffee break**

16:30  **Closing Session & Awards *(Salón de Actos)***
Redesigning International Manufacturing Networks for Resilience

Prof. Jan Olhager, Lund University, Sweden

Much has changed since the pandemic, not least the continuing widespread disruptions in international trade and the public’s appreciation of the role of global supply chains. Manufacturing companies are reviewing their international supply, manufacturing, and distribution networks, and in doing so, more factors than ever before are being considered. For example, the perspectives of risk and resilience and the balance between global and local supply chains are included to a much greater extent than before the pandemic. Such considerations raise new questions and options for design and management of plants and networks. We will highlight various aspects of the design and redesign of international manufacturing networks, such as the relationship between plants and networks, the role of the customer order decoupling point, offshoring versus reshoring as options for manufacturing relocations, and resilience.

Short biography: Jan Olhager is Professor in Supply Chain & Operations Strategy at Lund University, Sweden. He received an M.Eng. in Industrial Engineering and Operations Research from University of California at Berkeley, USA and a Ph.D. in Production Economics from Linköping University, Sweden. He was previously Professor in Operations Management at Linköping University, Sweden, and Visiting Professor in Supply Chain Management at Monash University, Melbourne, Australia. He is Fellow of Decision Sciences Institute (DSI) and Honorary Fellow of the European Operations Management Association (EurOMA). He is Associate Editor of Decision Sciences and IJOPM and serves on the editorial boards of IJPRand PPC. He has published more than 80 papers in international scientific journals and a couple of books. His research has received as number of awards, including the Emerald best paper award at the POM World conference in Havana, Cuba in 2016, and has accumulated over 11000 citations in Google Scholar. His research interests include international manufacturing networks, operations strategy, decoupling points, supply chain integration and operations planning and control. He teaches Supply Chain & Operations Management in the Master programmes at Lund University and has supervised more than 150 master’s theses over the years. He has been recognized as Excellent Teaching Practitioner by the Faculty of Engineering at Lund University, and his recent teaching case on “IKEA Goes Online: Implications for its Manufacturing” – co-authored with Kasra Ferdows – received the Case Centre Award for Best Case in the category Production and Operations Management in 2023. In his role as researcher, executive trainer, and consultant, he has worked with a broad range of companies such as ABB, Alfa Laval, AstraZeneca, Autoliv, Coca-Cola, Ericsson, GKN Aerospace, Husqvarna, IKEA, Kraft Foods, Sandvik, Scania, Toyota, and Volvo.
Circular manufacturing and twin transition: a must-do step for global collaborative manufacturing

Prof. Sergio Terzi, Politecnico de Milano, Italy

In the global complex world, manufacturing is facing relevant challenges. Like most of the human activities, manufacturing is asked to provide its contribution to the continuous evolution of our modern times, becoming more sustainable (mainly reshaping its linear model to a more circular one) and taking the leap (with all the opportunities and all the risks) of the digital transformation. This double (or twin) transition is in some way mandatory for all the manufacturing “economic actors”, from companies to single operators, from production chains to global services, from geographical territories to countries.

In this presentation, we would like: (i) to give a name to such challenges, (ii) to identify some of the paths which manufacturing should / could take, (iii) to investigate the intertwined connections of the mutual transitions currently on place (or next to be).

Presenting case studies from the practice as well as some foreground works from the research (mainly from EU research projects), we would then provide our contribution and point of view on the main discussion about the future of manufacturing.

Short biography: Sergio Terzi is Full Professor of Industrial Technologies, Department of Economics, Management and Industrial Engineering, within the School of Management of Politecnico di Milano, Manufacturing Group. He is author of more than 130 papers, in the fields of product lifecycle management, sustainable and circular manufacturing, and Industry 4.0 digital technologies, plus 3 books. He is coordinator of several EU projects and national projects in this field. He is member of IFIP WG 5.1 and IFIP WG 5.7. He is also co-founder of Miraitek, a spin-off company of Politecnico di Milano in the context of digital solutions for manufacturing. He is also serving as Associate Dean of the Graduate School of Management of Politecnico di Milano, and Director of the Executive Program in Industry 4.0 and Director of the Master in Smart Operations.
European Digital Infrastructure Consortium as an enabler for Collaborative Networks

**Javier Orozco, European Commission (DG CNECT, unit C3), Spain**

On this presentation, the new European Digital Infrastructure Consortiums (EDICs) and their initial launch will be presented as a key enabler for Collaborative Networks. EDICs are the brand-new administrative procedure by the European Commission to foster cooperation at the European Union level. Selected policy objectives will be deployed in a harmonious, inclusive, and sustainable way, through a purposely coordinated joint governance. Specifically, the Smart Communities federation of data and digital services will be collaboratively co-designed for advanced digital twinning towards the citizen virtual participation (CitiVERSE).

*Short biography: Javier Orozco was born in Valencia (Spain) in September 1962. He is an industrial engineer from the Industrial Engineering School of the Universitat Politècnica de València (Spain) and has a PhD in Engineering. He made a Postdoc grant in the National High Magnetic Field Lab (Florida, USA). He has worked both in Industry (Grupo Lladró), and at the University. His work has always focused on R+D and education responsibilities. He has been a senior manager with an applied science focus for many years and has several patents. Currently, he is acting as Policy Officer at the European Commission (DG CNECT, unit C3), and his research interests are focused on Materials for Energy and Building Sustainability.*
SOCIAL EVENTS

Welcome Reception
Wednesday, 27 September, 19:00 – 23:00

The Welcome reception will take place at Centre Cultural “La Beneficència”.

Leaving point: At the end of Conference Sessions by bus at Gate L (Close to Galileo Galilei Building).

Returning: To enjoy the magnificent area of Valencia, the return will be by the participants means.

Before the reception, there will be a tourist visit through the city centre with an approximate duration of 1 hour and 40 minutes. It will be a walking tour where the guides will show us the most remarkable aspects of the ancient city of Valencia. The meeting point will be at the main door of “Ayuntamiento de Valencia” for attendees who come by their means.

The guided tour will end around 21:00 hours in the place where we will hold the reception and welcome, “La Beneficència”. The address for attendees who come by their means is “Calle de la Corona, nº 36, Valencia”. It is planned for the welcoming cocktail to end around 23:00.

La Beneficència is a building that has had different uses throughout its history. It began as a convent at the beginning of the 16th century and was a House of Charity since the mid-19th century, where orphans and beggars were helped and prepared for the world of work. With the democracy, it became a museum center that houses two of the most important museums in the city: Valencia Museum of Prehistory (founded in 1927) and Valencian Museum of Ethnology (created in 1983). Other institutions of the Diputació de València, the Alfons el Magnànim Institution and the Service for Cultural Resources and Assistance (Servicio de Assistència i Recursos Culturals - SARC) are also located there. The architecture of the building stands out for the old chapel, the current Alfons El Magnànim assembly hall, its patios and the maintained vegetation.

Gala Dinner
Thursday, 28 September, 21:00 – 23:00

The Conference dinner will take place in Valencia’s Oceanogràfic (Ciudad de las Artes y las Ciencias). Dinner will be served in a specially designated room within the exhibition grounds, surrounded by aquariums with very colorful and attractive environments.

Leaving and Return: To enjoy the magnificent area of Valencia, the leaving and return will be by participant’s means.

Address: C/ d'Eduardo Primo Yúfera, 1b, 46024 Valencia
PRO-VE 2023

24th IFIP / Socolnet Working Conference on Virtual Enterprises

Resilient and Responsible Collaborative Networks