

# Curriculum Vitae of ERWIN RAUCH

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## Personal information

### ERWIN RAUCH

Date of birth: 06.02.1982  
Place of birth: Bolzano, Italy  
Nationality: Italian  
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## Education since leaving school

- 2013: **PhD (Dr.-Ing.), Research Doctorate**, dissertation titled "Concept of a changeable and modular production system for franchising models", University of Stuttgart, Germany, grade: "summa cum laude".
- 2004-2007: **Dipl.-Wirtsch.-Ing., Master in Business Administration** with specialization in Accounting-Auditing-Consulting and Logistics, TUM Business School, Munich, Germany.
- 2004-2006: **M.Sc., Master of Science in Mechanical Engineering** with specialization in Production Management, Technical University of Munich, Germany.
- 2001-2004: **B.Sc., Bachelor of Science in Production and Logistics**, Politecnico di Torino / Free University of Bolzano, Italy.
- 1996-2001: **perito industriale, High-School degree** in Mechanical Engineering, Technical Highschool "Max Valier" Bolzano, Italy.

## Present appointments

- **Assistant Professor of manufacturing technology and systems (SSD ING-IND/16) RTD** – Free University of Bolzano, Faculty of Science and Technology – Research area Industrial Engineering and Automation (IEA)
- **Head of "Smart Mini Factory" laboratory** for Industry 4.0 at the Faculty of Science and Technology – [www.smartminifactory.it](http://www.smartminifactory.it)
- **Vice-Director of the study course council for the Master program in Industrial Mechanical Engineering**, coordination of the Double Degree program with Otto v. Guericke University of Magdeburg (Germany)
- **Member of the Ph.D. Collegium** of the program "Sustainable Energy and Technologies", Faculty of Science and Technology, unibz.

## Professional experience

- September - November 2017: **Visiting Research Scholar** – Worcester Polytechnic Institute (WPI), Faculty of Mechanical Engineering, Worcester Massachusetts (USA), September to November 2017.

- February 2017 – February 2018: **Contract Professor** – International School of Management (ISM), visiting lecturer in the course International Operational Management, Master in International Management, Campus Munich (Germany).
- February 2013 – February 2014: **Contract Professor** in the course “Production Planning and Control”, Bachelor in Industrial and Mechanical Engineering, Free University of Bolzano (Italy).
- February 2012 – February 2017: **Associate Partner at Matt & Partner Management Consulting** in Bolzano (Italy).
- February 2007 – February 2012: **Consultant at Matt & Partner Management Consulting** in Bolzano (Italy) - Project management in international consulting projects (manufacturing systems planning, factory planning, lean and operations management, logistics and supply chain management, production planning and control).
- 2009 - 2011: **Research Fellow** in the research project “Design of lean and agile material handling systems in make-to-order production”, Free University of Bolzano (Italy).
- 2007 – 2013: **Teaching Assistant** in several courses at the Faculty of Science and Technology, Free University of Bolzano (Italy).
- 2006 – 2007: **Business Analyst at ifp Consulting** in Munich (Germany), Institute for Production and Logistics, Prof. Dr.-Ing. Joachim Milberg – technical management consulting for Bosch and ZF Sachs.

## Experience in academic teaching

### Academic year 2008/09:

- Teaching Assistant in **Innovation and Project Management**, Free University of Bolzano, undergraduate 5 ECTS, 50 hours of exercise and laboratory, Language: German.
- Teaching Assistant in **Production Systems**, Free University of Bolzano, undergraduate 10 ECTS, 100 hours of exercise and laboratory, Language: German.

### Academic year 2009/10:

- Teaching Assistant in **Innovation and Project Management**, Free University of Bolzano, undergraduate 5 ECTS, 40 hours of exercise and laboratory, Language: German.
- Teaching Assistant in **Production Systems**, Free University of Bolzano, undergraduate 10 ECTS, 100 hours of exercise and laboratory, Language: German.
- Teaching Assistant in **Transport and Logistics**, Free University of Bolzano, undergraduate 10 ECTS, 80 hours of exercise and laboratory, Language: German.

### Academic year 2010/11:

- Teaching Assistant in **Production Systems and Industrial Logistics**, Free University of Bolzano, undergraduate 10 ECTS, 120 hours of exercise and laboratory, Language: German.
- Teaching Assistant in **Innovation oriented business management in industrial companies**, Free University of

Bolzano, undergraduate 10 ECTS, 60 hours of exercise and laboratory, Language: German.

- Teaching Assistant in **Technology Management**, Free University of Bolzano, graduate (Executive Master in Innovation Engineering) 5 ECTS, 50 hours of exercise and laboratory, Language: German.
- Teaching Assistant in **Production Systems**, Free University of Bolzano, graduate (Executive Master in Innovation Engineering) 5 ECTS, 50 hours of exercise and laboratory, Language: German.

Academic year 2011/12:

- Teaching Assistant in **Production Systems and Industrial Logistics**, Free University of Bolzano, undergraduate 10 ECTS, 120 hours of exercise and laboratory, Language: German.
- Teaching Assistant in **Innovation oriented business management in industrial companies**, Free University of Bolzano, undergraduate 10 ECTS, 60 hours of exercise and laboratory, Language: German.

Academic year 2012/13:

- Contract Professor in **Production Planning and Control**, Free University of Bolzano, undergraduate 10 ECTS, 96 hours of lecture and exercises, Language: German.
- Teaching Assistant in **Production Systems and Industrial Logistics**, Free University of Bolzano, undergraduate 10 ECTS, 90 hours of exercise and laboratory, Language: German.
- Teaching Assistant in **Innovation oriented business management in industrial companies**, Free University of Bolzano, undergraduate 10 ECTS, 60 hours of exercise and laboratory, Language: German.

Academic year 2014-today:

- Lecturer in **Production Systems and Industrial Logistics**, Free University of Bolzano, undergraduate 10 ECTS, 24 hours of exercise and laboratory, Language: German.
- Lecturer in **Production Planning and Control**, Free University of Bolzano, undergraduate 10 ECTS, 64 hours lecture, Language: German.

Academic year 2016-today:

- Lecturer in **Simulation in Production and Logistics**, Free University of Bolzano, graduate 5 ECTS, 16 hours lecture, Language: English.
- Contract professor in **International Operations Management**, International School of Management Campus Munich (Germany), Master in International Management, 2 ECTS, 18 hours lecture, Language: English.

**Supervision of students**

**Supervision and co-supervision of more than 40 Bachelor and Master students** at Free University of Bolzano and MCI Management Center Innsbruck (Logistics and Transport, Production Systems, Lean Manufacturing, Production Planning and Control).

**Supervision of PhD-candidate Luca Gualtieri** (cycle 33):  
"Development of techniques and technologies for safety and ergonomics in collaborative robotics".

**Experience in  
academic research  
projects**

The undersigned coordinated the acquisition of the following funds:

- 2018 – 2020: **Co-Investigator in the research project "E-EDU 4.0 - Engineering Education 4.0"**. Funding Body: European Regional Development Fund (ERDF) - Interreg Italy-Austria. Grant: €1.150.000 (€190.000 for unibz). Research consortium with 5 partners (Carinthia University of Applied Sciences – Austria, HTL Höhere Technische Bundeslehranstalt Wolfsberg – Austria, Friuli Innovazione Centro di ricerca e di trasferimento tecnologico – Italy, t2i- trasferimento tecnologico e innovazione – Italy, Camera di Commercio di Treviso e Belluno – Italy).
- 2017 - 2020: **Project Manager of the research project "SME 4.0 – Industry 4.0 for SMEs"**. Funding Body: European Commission H2020 MSCA RISE 2016. Grant: 734.713. €783.000 (€311.500 for unibz as project coordinator). International research consortium with 8 partners (Montanuniversität Leoben - Austria, Technical University Kosice - Slovakia, Elcom sro – Slovakia, Massachusetts Institute of Technology – USA, Worcester Polytechnic Institute – USA, Chiang Mai University - Thailand, SACS MAVMM – India).
- 2017 – 2020: **Principal Investigator in the research project "EYE TRACK - Industrial Usability of Eye Tracking for Manufacturing and Design in SMEs"**. Funding Body: Free University of Bolzano. Grant: TN2090. €63.000. Research consortium with 7 partners (University Modena Reggio Emilia – Italy, Fraunhofer Italia - Italy, Craftmanship Association Ivh South-Tyrol – Italy, Entrepreneur Association South-Tyrol – Italy, Technical Highschool Bolzano – Italy, Planit GmbH – Italy, Barbieri electronic OHG – Italy).
- 2017 – 2019: **Co-Investigator in the research project "Smart Shopfloor - Development of a software prototype for intelligent Shop Floor Management through Industry 4.0 technologies"**. Funding Body: Free University of Bolzano. Grant: TN20179. €70.000, Principal Investigator Prof. Dominik Matt. Research consortium with 2 industrial partners (Solunio GmbH – Italy, Anyt1me srl – Italy).
- 2015 – 2016: **Principal Investigator in the research project "DIMASY - Design of decentralized and distributed manufacturing systems and their coordination in manufacturing networks"**. Funding Body: Free University of Bolzano. Grant: TN2028. €34.500. Research consortium with 2 partners from research and industry (Fraunhofer Italia – Italy, Tecnomag GmbH – Italy).
- 2014 – 2017: **Principal Investigator in the research project "Future-LPD - Experts survey to assess the transfer of lean methods from production to product development (Lean Product Development)"**. Funding

Body: Free University of Bolzano. Grant: TN2032. €4.300.

Total acquisition of research funding from 2014: €2.104.800 (€673.300 for the Free University of Bolzano).

The undersigned was/is involved as Co-Investigator in the following research projects:

- 2018 – 2021: **Co-Investigator in the research project "A21 - Digital Economy and Digital Society: Challenges and Strategies for a successful digital transformation in the Tyrol Veneto Region"**. Funding Body: European Regional Development Fund (ERDF) - Interreg Italy-Austria. Grant: €300.000 (€155.000 for unibz). Research consortium with 2 partners (A21Digital – Austria, Polo Scientifico Didattico Studi sull'Impresa (PSD, Università degli Studi di Verona – Italy).
- 2017 – 2019: **Co-Investigator in the research project "COCKPiT - Collaborative Construction Process Management"**. Funding Body: European Regional Development Fund (ERDF). Grant: IN2204. €747.700 (€503.200 for unibz), Principal Investigator e scientific supervision Prof. Werner Nutt. Research consortium with 1 internal partner and 1 external partner (Faculty of Computer Science unibz – Italy, Fraunhofer Italia – Italy).
- 2015 – 2017: **Co-Investigator in the research project "REBU - Business Model Reconfiguration and Innovation"**. Funding Body: Free University of Bolzano. Grant: TN2029. €38.050, Principal Investigator Dr. Cinzia Battistella. Research consortium with research and industrial partners (Fraunhofer Italia – Italy, University of Udine – Italy, Frener & Reifer GmbH – Italy).
- 2013 – 2016: **Co-Investigator in the research project "FISSMEs - Field study to determine requirements for flexible and agile manufacturing and assembly systems for SMEs"**. Funding Body: Free University of Bolzano. Grant: TN2003. €32.000, Principal Investigator Dr. Pasquale Russo Spena.
- 2008 – 2011: **Research Fellow in the research project "Design of lean and agile material handling systems"**. Funding Body: Free University of Bolzano. Grant: TN5005. €21.000, Principal Investigator Prof. Dominik Matt.

The undersigned is involved in the following proposals waiting for results (peer review evaluation):

- 2018 – 2021: **Principal Investigator for unibz in the research proposal "GUIDE - Addressing Global ManUFACTuring by an Integrated Engineering Model to Digitally Connect SMEs"**. Funding Body: European Commission H2020 (COST Action 2017). €520.000 (€43.000 for unibz). International research consortium with other 11 partners (University of Malta - Malta, Fraunhofer IAO Stuttgart – Germany, Royal Institute of Technology KTH Stockholm – Sweden, University of Technology of Troyes UTT – France,

University of Warwick – UK, Politecnico di Milano – Italy, Technical University of Kosice – Slovakia, Politécnico do Porto – Portugal, University of Applied Sciences Upper Austria FHOÖ – Austria, University of Miskolc – Hungary, University of Luxembourg – Luxembourg).

- 2019 - 2021: **Co-Investigator in the research proposal “Social sustainability in production through age-appropriate and disability-friendly workplace design using assistance systems”**. Funding Body: Free University of Bolzano (internal call to increase capacity for acquiring third-party research funds). €98.000. Project partner: Fraunhofer Italia, GWB Center for disabled people Bolzano, industry partners.
- 2019 – 2021: **Research team member in the research proposal “Enhancing design creativity by means of real-time provision of customized stimuli”**. Funding Body: Free University of Bolzano (internal interdisciplinary call to increase capacity for acquiring third-party research funds). €156.000. Project partner: 3D Wood srl, Blum communications, Faculty of Computer Science, Faculty of Design and Arts, Faculty of Education.

#### **Areas of scientific interest**

The research interests and activities are in the field of the “Design and Operation of Smart and Sustainable Industrial Production Systems”:

##### **Industry 4.0 and Smart Manufacturing**

- Implementation of Industry 4.0
- Digitization in production and smart Shopfloor management
- Smart assistance systems in manufacturing and assembly
- Connectivity in Cyber-Physical Production Systems
- Design of collaborative human-machine/robot workspaces
- Industry 4.0 Learning Factories

##### **Sustainable Production Systems**

- Human-centered cyber physical production systems
- Social sustainability in production work of the future
- Ecological sustainability through distributed manufacturing systems and networks

##### **Agile and changeable manufacturing and assembly systems**

- Reconfigurability and changeability of manufacturing systems
- Agile and changeable Mini Factories

##### **Lean Manufacturing and Lean beyond the shop floor**

- Application of Lean Principles beyond the manufacturing shop floor: Lean Healthcare, Lean Hospitality, Lean Construction, Lean Administration, Lean Development

##### **Make-to-order (MTO) and Engineer-to-order (ETO)**

- Synchronization of manufacturing and on-site installation in ETO
- Production planning and control in MTO and ETO enterprises
- Manufacturing system design for ETO

##### **Axiomatic Design (AD) methodology**

- Complexity theory and systems design with AD
- Application of AD for the design of production systems

## Participation in exhibitions

- Participation at the "**Long night of the research 2016**" with an exhibition and demonstration in the "mini-factory"-laboratory titled "Hybrid assembly and human-robot collaboration".
- Participation and speaker at the "**Research Day 2015**" at the Free University of Bolzano (October 2015) on the topic: "Industry 4.0 - the intelligent and smart factory" - exhibition of actual research activities.
- Participation at the "**Long night of the research 2014**" with an exhibition and demonstration in the "mini-factory"-laboratory titled "Simulation and optimization of manual assembly processes in the mini-factory!".
- Participation at the "**Long night of the research 2012**" with an exhibition and demonstration in the "mini-factory"-laboratory titled "How to increase productivity in the variant-driven production".
- Participation at the "**Long night of the research 2010**" with an exhibition and demonstration titled "From a product idea to a finished product – Planning, simulation and realization of industrial production processes". Demonstration of material-flow simulation case studies with FlexSim Simulation software.

## Invited talks

- **Invited speaker at the event "Treffpunkt Wirtschaft 2012" (Italy)**, 6 July 2012 organised by the Chamber of Commerce of Bolzano. Presentation of the topic "Companies in change - growth in organisation and processes".
- **Invited speaker invited to the round table (Italy)** on the topic "Ethics in business? And exists!" Published in "forum-schule-heute", No. 2, 2013.
- **Invited speaker at the "Start-up Aperitifs" (Italy)**, May 28 2013 organised by the Chamber of Commerce of Bolzano. Presentation of the topic "Growing as an entrepreneur - Today's challenges".
- **Invited speaker at MCI Management Center Innsbruck (Austria)**, WING-Kaminabend September 25 2015. Presentation with the title "From Lean Management to Smart Factory - The role of the engineer in the era of Industry 4.0, CPS and IoT".
- **Invited speaker at the University of Malta (Malta)**, June 2 2017, seminar on Digital Factories for Innovative Product Development. Presentation with the title "Industry 4.0 and Digitalisation -a challenge for SMEs".
- **Invited speaker at the round table of CV Forum 2017 (Italy)**, July 7 2017, congress of the Triveneto Accountants. Round table discussion on the topic of "Industry 4.0 and the profession of Accountants", moderated by Il Sole24ore journalist Katy Mandurino.
- **Invited speaker to the student award ceremony at WPI (USA)**, November 13 2017, speech and Question-Answer-session on "Industry 4.0 – the new industrial revolution in Europe", organised by the SME (Society of Manufacturing Engineers) chapter in Worcester, MA.

## **Awards and nominations**

- **Nomination for best dissertation 2013** – University of Stuttgart.
- **Overall Best Paper Award** for the paper “An AD based Design and Implementation Approach for Franchise-Networks with distributed manufacturing units”, ICAD 2013 Seventh International Conference on Axiomatic Design. Worcester, USA, Juni 27-28, 2013.
- **Best Track Paper Award** (Track Construction Management) for the paper “Mobile On-site Factories – Scalable and Distributed Manufacturing Systems for the Construction Industry”, IEOM 2015 5th International Conference on Industrial Engineering and Operations Management. Dubai, United Arab Emirates, March 3-5, 2015.
- **Best Track Paper Award** (Track Sustainability in Supply Chain) for the paper “Sustainable City Logistics through Shared Resource Concepts”, IEOM 2018 8th International Conference on Industrial Engineering and Operations Management. Bandung, Indonesia, March 6-8, 2018.
- **Best Track Paper Award** (Track Engineering Education) for the paper “Safe Human-Machine Centered Design of an Assembly Station in a Learning Factory Environment”, IEOM 2018 8th International Conference on Industrial Engineering and Operations Management. Bandung, Indonesia, March 6-8, 2018.
- **Award for best teaching in German in the undergraduate course** “BSc. in Industrial and Mechanical Engineering” (awarded by the Faculty of Science and Technology, Free University of Bolzano, 6 December 2017).
- **Award for best performance in relationship with students** in the graduate course “MSc. in Industrial Mechanical Engineering” (suggested by students and awarded by the Faculty of Science and Technology, Free University of Bolzano, 6 December 2017).

## **Memberships**

- AITEM - Member of Associazione Italiana di Tecnologia Meccanica (Italian Association of Manufacturing Technology and Systems)
- VDI - Member of Verein Deutscher Ingenieure (Association of German Engineers)
- LCI - Member of Lean Construction Institute, USA
- SME - Member of Society of Manufacturing Engineers, USA
- AEM - Member of Association for Manufacturing Excellence, USA
- IEOM - Member of Industrial Engineering and Operations Management group

## **Editor/reviewer activity**

- Article Editor for SAGE Open Journal for Manufacturing, Industry 4.0 and Industrial Management
- Reviewer AITEM (Associazione Italiana di Tecnologia Meccanica)
- Reviewer CIRP Procedia Journal (Elsevier)
- Reviewer Journal of Cleaner Production (Elsevier)
- Reviewer Journal of Manufacturing Systems (Elsevier)



- Reviewer Computers in Industry (Elsevier)
- Reviewer Journal of Manufacturing Technology Management (Emerald)
- Reviewer IEEE Transactions on Engineering Management
- Reviewer International Journal of Lean Enterprise Research (Inderscience)
- Reviewer SAGE Open Journal (Sage)
- Reviewer International Journal of Sustainable Engineering (Taylor & Francis)
- Reviewer International Journal of Agile Systems and Management (Inderscience)
- Reviewer International Journal of Industrial Engineering: Theory, Applications and Practice (University of Texas)
- Reviewer International Journal of Engineering and Technology Innovation (TAETI)
- Reviewer Sustainability (MDPI)
- Reviewer Technologies (MDPI)
- Reviewer Applied Sciences (MDPI)
- Reviewer Systems (MDPI)
- Reviewer Actuators (MDPI)
- Reviewer in several reviewer International Conferences.

#### **Organization of workshops and conferences**

- Organizing committee and speaker in the **"1<sup>st</sup> Annual Meeting SME 4.0 – Industry 4.0 for SMEs"**, February 8-9 2017 at the Free University of Bolzano, Italy.
- Organizing committee and speaker in the **International Workshop "Eye tracking and biometric systems: breaking into industrial engineering"**, December 7 2017 at the Free University of Bolzano, Italy.
- Organizing committee and speaker in the **"2<sup>nd</sup> Annual Meeting SME 4.0 – Industry 4.0 for SMEs"**, May 24-25 2018 at Montanuniversität Leoben, Austria.
- Member of **European Academic Committee at "2<sup>nd</sup> European IEOM Conference Industrial Engineering and Operations Management"**, Paris, France, July 26-27 2018.

#### **Other institutional and third mission activities**

- Reference contact for maintenance and trainings for the following lab software: **FLEXSIM** for production and logistics simulation, **CANIAS ERP/MES** for production data management and production planning and control, **VISUAL SHOP FLOOR (VSF)** for shop floor management and production data visualisation.
- **Coordination of the third mission project "Uni meets School"** – a project with the Technical High Schools of the Province of Bolzano, giving the graduates the opportunity to gain credit points in an optional course at the Free University of Bolzano during their last year at school.
- **Seminar for High-School students** titled "Methods and tools for Industrial Engineers".
- **Lab visits and lab exercises for High-School students** in the Smart Mini Factory lab.
- **Presentations of the engineering study courses** at local High Schools.

- **Coordination of technology and knowledge transfer through seminars for local industry** in the Smart Mini Factory lab.

**Language  
competence**

German: mother tongue

Italian: C1 - bilingualism certificate of the Province of Bolzano, A-level  
– University level

English: C1 – Cambridge CAE



Signature

Bolzano March 3, 2018

*The use of personal data according to the legislation "D.lgs.n." 196/2007  
is authorized.*

# Publication list - ERWIN RAUCH

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## Books and book chapters

1. MATT, D.T.; RAUCH, E.; RIEDL, M.: Knowledge transfer of Industry 4.0 principles to SMEs. In: Thornton, R.-B.; Martínez, F. (Eds.). Analyzing the Impacts of Industry 4.0 in Modern Business Environments, IGI Global, chapter 14, in press (May 2018), ISBN 9781522534686.
2. RAUCH, E.; DALLASEGA, P.: Sustainability in Manufacturing and Supply Chains through Distributed Manufacturing Systems and Networks. In: Abraham, M.A. (Ed.). Encyclopedia of Sustainable Technologies. Elsevier, 2017 pp. 429–438, ISBN 9780128046777.
3. MATT, D.T; RAUCH, E.: Designing assembly lines for mass customization production systems. In: Modrák, V. (Eds.). Mass Customized Manufacturing: Theoretical Concepts and Practical Findings. CRC Press Francis & Taylor, 2017, pp. 15-35, ISBN 9781498755450.
4. RIEDL, M.; GARCIA, D.; RAUCH, E.; MATT, D.T.: Industrie 4.0 – Wissenstransfer von der Forschung in die Praxis (Industry 4.0 – Knowledge transfer from research to practice). In: Schlick, C. M. (Ed.). Megatrend Digitalisierung – Potenziale der Arbeits- und Betriebsorganisation (Megatrend Digitization - potentials of work and company organization). Gito Verlag, 2016, pp. 111-129, ISBN: 978-3-95545-185-1.
5. MATT, D.T; RAUCH, E.: Design and Implementation Approach for Distributed Manufacturing Networks using Axiomatic Design. In: Farid, A. M.; Suh, N. P. (Eds.) Axiomatic Design in Large Systems - Complex Products, Buildings and Manufacturing Systems. Springer International Publishing, 2016, pp. 225-250, ISBN: 978-3-319-32387-9, DOI: 10.1007/978-3-319-32388-6.
6. MATT, D.T; RAUCH, E.: Chancen zur Bewältigung des Fachkräftemangels in KMU durch die Urbane Produktion von morgen (Opportunities to resolve the lack of qualified staff in SMEs by the urban production of tomorrow). In: Lödding, H.; Kersten, W.; Koller, H. (Eds.). Industrie 4.0 – Wie intelligente Vernetzung und kognitive Systeme unsere Arbeit verändern (Industry 4.0 – How intelligent networks and cognitive systems are changing our work). Hamburg, Gito Verlag, 2014, pp. 155-176, ISBN: 978-3955450830.
7. MATT, D.T.; RAUCH, E.: Implementing Lean in Engineer-to-order manufacturing - experiences from a facade manufacturer. In: Modrák, V.; Semančo, P. (Eds.). Handbook of Research on Design and Management of Lean Production Systems. Hershey, IG Global, 2014, pp. 148-172, ISBN: 978-1-4666-5039-8, DOI: 10.4018/978-1-4666-5039-8. Scopus indexed.
8. MATT, D.T; RAUCH, E.: Moderne Formen für die dezentrale und geographisch verteilte Produktion von morgen (Modern forms for decentralized and geographically distributed production of tomorrow). In: Lödding, H.; Friedewald, A. (Eds.). Produzieren in Deutschland - Wettbewerbsfähigkeit im 21. Jahrhundert (Production in Germany - Competitiveness in the 21st Century), Hamburg, Gito Verlag, 2013 pp. 143-166, ISBN: 978-3-95545-046-5.
9. RAUCH, E.: Konzept eines wandlungsfähigen und modularen Produktionssystems für Franchising-Modelle (Concept of a changeable and modular production system for franchising models). Stuttgart: Fraunhofer Verlag, 2013, Univ.-Dissertation. ISBN 978-3-8396-0585-1.

## Journal articles

10. RAUCH, E.; RUSSO SPENA, P.; MATT, D.T.: Axiomatic Design Guidelines for the Design of Flexible and Agile Manufacturing and Assembly Systems for SMEs. *International Journal on Interactive Design and Manufacturing*, 2018, in press. DOI: 10.1007/s12008-018-0460-1. Scopus indexed.
11. ROJAS, R.; RAUCH, E.; MATT, D.T.: Vernetzung in Cyber-Physischen Produktionssystemen: Dreistufiges Industrial Internet Systemmodell zur Vernetzung von heterogenen Elementen in Cyber-Physischen Produktionssystemen (Connectivity in Cyber-Physical Production Systems: Three-Tier Industrial Internet System Model for Connectivity of heterogeneous Elements in Cyber-Physical Production Systems). *Zeitschrift für wirtschaftlichen Fabrikbetrieb ZWF*, Vol. 113, No. 3, in press, 2018. DOI: 10.3139/104.111886. Scopus indexed.
12. DALLASEGA, P.; RAUCH, E.; FROSOLINI, M.: A Lean Approach for Real-Time Planning and Monitoring in Engineer-to-Order Construction Projects. *Buildings*, Vol. 8, No. 3, Article ID 38. DOI: 10.3390/buildings8030038. Scopus indexed.
13. MATT, D.T.; ARCIDIACONO, G.; RAUCH, E.: Applying Lean to Healthcare Delivery Processes – a Case-based Research. *International Journal on Advanced Science, Engineering and Information Technology*, Vol. 8, No. 1, 2018, pp. 123-133. DOI: 10.18517/ijaseit.8.1.4965. Scopus indexed.
14. RAUCH, E.; DALLASEGA, P.; MATT, D.T.: Complexity reduction in engineer-to-order industry through real-time capable production planning and control. *Production Engineering Research and Development*, 2018, in press. DOI: 10.1007/s11740-018-0809-0. Scopus indexed.
15. RAUCH, E.; ROJAS, R.; DALLASEGA, P.; MATT D.T.: Smart Shopfloor Management - Anforderungen an ein digitales und intelligentes Shopfloor Management im Zeitalter von Industrie 4.0 (Smart Shopfloor Management - Requirements for a digital and smart shop floor management in the age of Industry 4.0). *Zeitschrift für wirtschaftlichen Fabrikbetrieb ZWF*, Vol. 113, No. 1/2, 2018, pp. 17-21. DOI: 10.3139/104.111854. Scopus indexed.
16. RAUCH, E.; UNTERHOFER, M.; DALLASEGA, P.: Industry Sector Analysis for the Application of Additive Manufacturing in Smart and Distributed Manufacturing Systems. *Manufacturing Letters*, 2017, in press. DOI: 10.1016/j.mfglet.2017.12.011. Scopus indexed.
17. RAUCH, E.; DALLASEGA, P.; MATT D.T.: Distributed manufacturing network models of smart and agile mini-factories. *International Journal of Agile Systems and Management*, Vol. 10, No. 3/4, 2017, pp. 185-205. DOI: 10.1504/IJASM.2017.088534. Scopus indexed.
18. RAUCH, E.; DALLASEGA, P.: Sustainable construction supply chains through synchronized production planning and control in engineer-to-order enterprises. *Sustainability*, Vol. 9, No. 10, Article ID 1888, 2017. DOI: 10.3390/su9101888. Scopus indexed.
19. ARCIDIACONO, G.; MATT, D.T.; RAUCH, E.: Axiomatic Design of a Framework for the Comprehensive Optimization of Patient Flows in Hospitals. *Journal of Healthcare Engineering*, Article ID 2309265, 2017. DOI:10.1155/2017/2309265. Scopus indexed.
20. SEIDENSTRICKER, S.; RAUCH, E.; DALLASEGA, P.: Industrie-4.0-Geschäftsmodellinnovation für KMU: Neun-Felder-Matrix und morphologische Analyse zur Ableitung und Gestaltung von informationsbasierten Industrie-4.0-Geschäftsmodellen für KMU (Industry 4.0 Business Model Innovation for SMEs – Nine-Field Matrix and Morphological Analysis for the Identification and

the Design of Information-based Industry 4.0 Business Models for SMEs). Zeitschrift für wirtschaftlichen Fabrikbetrieb ZWF, Vol. 112, No. 9, 2017, pp. 616-620. DOI: 10.3139/104.111776. Scopus indexed.

21. MATT, D.T.; RIEDL, M.; RAUCH, E.: Industrie 4.0: Wissenstransfer und Kompetenzprofile - Wissenstransfer und Kompetenzprofile für die smarte Fabrik (Industry 4.0: Knowledge transfer and competence profiles - Knowledge transfer and competence profiles for the smart factory). *Industriemanagement*, No. 3, 2017.
22. RAUCH, E.; SEIDENSTRICKER, S.; DALLASEGA, P.; HAMMERL, R.: Collaborative Cloud Manufacturing: Design of Business Model Innovations enabled by Cyber-Physical Systems in Distributed Manufacturing Systems. *Journal of Engineering*, Article ID 1308639, 2016. DOI: 10.1155/2016/1308639. Scopus indexed.
23. RAUCH, E.; DALLASEGA, P.; MATT, D.T.: Sustainable production in emerging markets through Distributed Manufacturing Systems (DMS). *Journal of Cleaner Production*, Vol. 135, 2016, pp. 127-138. DOI: 10.1016/j.jclepro.2016.06.106. Scopus indexed.
24. MATT, D.T.; RAUCH, E.; FRACCAROLI, D.: Smart Factory für den Mittelstand - Gestaltung eines ganzheitlichen Produktionssystems nach der Industrie 4.0 Vision in kleinen und mittelständischen Unternehmen (Smart Factory for SMEs - Designing a holistic production system by the industry 4.0 vision in small and medium sized enterprises). *Zeitschrift für wirtschaftlichen Fabrikbetrieb ZWF*, Vol. 111, No. 1-2, 2016, pp. 52-55. DOI: 10.3139/104.111471. Scopus indexed.
25. MATT, D.T.; RAUCH, E.: Industrie 4.0 - Arbeitsorganisation in der Urbanen Fabrik von morgen (Industry 4.0 - Organization of work in the urban factory of the future). *Industriemanagement*, Vol. 31, No. 3, 2015.
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33. ORZES, G.; RAUCH, E.; BEDNAR, S.: Industry 4.0 implementation barriers in small and medium enterprises: A focus group study. 25th International EurOMA (European Operations Management Association) Conference in Budapest, Hungary, 24-26 June 2018, submitted abstract.
34. RAUCH, E.; VICKERY, A.R.; MATT, D.T.; BROWN, C.A.: Axiomatic Design for the Design of Smart Manufacturing Systems for SMEs. ICAD International Conference on Axiomatic Design, Reykjavik, Iceland, October 8-11 2018, submitted abstract.
35. RAUCH, E.; VICKERY, A.R.; GARCIA, M.; ROJAS, R.; MATT, D.T.: Axiomatic Design based Concept Design of a Software Prototype for Smart Shopfloor Management. ICAD International Conference on Axiomatic Design, Reykjavik, Iceland, October 8-11 2018, submitted abstract.
36. GUALTIERI, L.; RAUCH, E.; ROJAS, R.; VIDONI, R.; MATT, D.T.: Application of Axiomatic Design for the Design of a Collaborative Human-Robot Assembly Workplace – a Laboratory Case Study. ICAD International Conference on Axiomatic Design, Reykjavik, Iceland, October 8-11 2018, submitted abstract.
37. ROJAS, R.; PASETTI MONIZZA, G.; RAUCH, E.; GARCIA, M.: A Case Study in Leaning Factories for Real-Time Reconfiguration of Assembly Systems through Computational Design and Cyber Physical Systems. IFIP 15th International Conference on Product Lifecycle Management, 1-4 July 2018, Torino, Italy, submitted abstract.
38. BORGIANNI, Y.; MACCIONI, L.; RAUCH, E.: How does Product Design benefit from Eye Tracking and Biometric Systems?. 8th International Conference on Design Computing and Cognition (DCC'18), 2-4 July 2018, Milano, Italy, accepted poster contribution.
39. D'AMICO, R.D.; EGGER, G.; GIUSTI, A.; RAUCH, E.; RIEDL, M.; MATT, D.T.: DeConSim - Decentralized Control Simulator for production systems. 4th International Conference on System-Integrated Intelligence Intelligent, flexible and connected systems in products and production, June 19-20 2018, Hannover, Germany, submitted paper.
40. GASPARETTO, W.; MATT, D.T.; RIEDL, M.; RAUCH, E.; EGGER, G.: Intelligent workpiece carrier for distributed data collection and control in manufacturing environments. 4th International Conference on System-Integrated Intelligence Intelligent, flexible and connected systems in products and production, June 19-20 2018, Hannover, Germany, submitted paper.
41. RAUCH, E.; MATT, D.T.; BROWN, C.A.; TOWNER, W.; VICKERY, A.R.; SANTITEERAKUL, S.: Transfer of Industry 4.0 to small and medium sized enterprises. 25th International

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44. ROJAS, R.; RAUCH, E.; DALLASEGA, P.; MATT, D.T.: Safe Human-Machine Centered Design of an Assembly Station in a Learning Factory Environment. IEOM 2018 8th International Conference on Industrial Engineering and Operations Management, Dubai, March 6-8, 2018, accepted paper. Scopus indexed. (Best track award).
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### **Papers at national conferences**

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### **National and trade magazines**

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biometrische Messungen erlauben den Blick aus der Perspektive des Nutzers. Südtiroler Wirtschaftszeitung SWZ (South Tyrolean economy newspaper), No. 2, 2018, pp. 17, Neuer Südtiroler Wirtschaftsverlag GmbH, Bolzano, Italy.

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