



TEMSCON

2020

Managing the Development of Connected Systems

2020 Virtual International Conference
of the
IEEE Technology and Engineering
Management Society

June 3-5, 2020

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Welcome from the Conference Co-chairs

TEMSCON 2020 is the flagship conference of the IEEE Technology and Engineering Management Society (TEMS). This Annual Conference provides studies on concepts, theories, and best practices in the field of technology and engineering management and addresses the methodologies required to move technical ideas to market and where people enable project success.

We welcome presenters and participants to TEMSCON 2020 via the virtual experience. World pandemic has driven the conference planning team to reassess, rethink, revise, and rescope the conference to ensure you can participate and be fully engaged. We wish all of you could have met up in the Detroit area to fully experience the interplay and cross pollination of ideas while passionately debating & discussing topics. We as leaders need to be flexible while changing course based on the current events to ensure a successful outcome.

We have garnered excellent papers across the globe regarding **"Managing the Development of Connective Systems."** TEMSCON 2020 is a center of collaboration and synergy of ideas. A serendipity or technical Karma fostering awareness from academia and industry. We want you to join in fostering Connectivity philosophies & enterprises.

TEMS focuses on developing leadership skills in the technical industries and associated research and offering you opportunities to develop skills and competencies by collaborating with leading practitioners and scholars where:

- Your on-the-job results drive both personal growth and professional advancement
- Your expertise enables the implementation of successful products and services

TEMS offers conferences, publications, along with many other opportunities to engage. TEMS will continue building programs that allow leaders and researchers to understand and improve the space of technical management.

Join our Technical Activity Committees (TACs) or start one based on your management preferences by contacting any of the TEMS leadership. TACs are open to members and non-members. TAC members help design, run, and build our conferences and publications. TACs also provide the leadership pipeline for the Society, or join any of our Chapters in the local Regions and Sections, or start one yourself.

TEMS offers three publications: LEADER informs you of TEMS activities; The Engineering Management Review (EMR), a "journal of practice;" and the Transactions on Engineering Management, providing forward thinking papers and the latest engineering and technology management research.

For this event I wish to particularly acknowledge the exceptional work of the program chair, Prof. Tugrul Daim, the treasurer Dr. Bill Marshall, the publications chair, Ed Perkins, the webmaster Vishwas Jois as well as the technical program committee members, and the support of the IEEE Southeastern Michigan Section.

TEMSCON 2020 Conference General Co-Chairs
Ray Sasinowski
David Mindham



Welcome from Program Chair

Welcome the first ever virtual TEMSCON conference. We are living historical days, weeks and months. It is important to note that without the technologies we have today, our lives would have been much worse. Thanks to information technology (IT) as well as products and services enabled by IT we are able to continue business and order essential items and groceries online. Managing technology and engineering is one of the critical skill sets which has helped us with this crisis and will keep helping us with future challenges. The theme of our conference could not be more timelier: "Managing the Development of Connected Systems". Technology is enabling us to hold this conference as well. We have sessions ranging from managing engineering and technology to managing innovation and emerging technologies. Papers are coming from all around the world. We hope that you will enjoy this virtual conference.

In keeping with the virtual nature of the conference, the paper sessions have been scheduled in the Americas, Asia, and Europe time zones.

We thank all the authors and reviewers who made this conference possible.

TEMSCON 2020 Program Chair

Tugrul U. Daim, Ph.D. and PICMET Fellow
Professor and Director, Technology Management Doctoral Program
Dept of Engineering and Technology Management
Maseeh College of Engineering and Computer Science
Portland State University
Editor in Chief, IEEE Transactions on Engineering Management



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- Ravikiran Annaswamy (Technology and Management Consultant, India)
- Sudeendra Koushik, India
- Tugrul Daim, Portland State University, USA

SCHEDULE

| Time (EDT) | Wednesday, June 3 | Thursday, June 4 | Friday, June 5 |
|--------------------|------------------------------------------|-----------------------------------------|---------------------------------------------|
| 0:00 - 1:30am | | A1: <i>Emerging Technologies - Asia</i> | |
| 1:30 - 3:00am | | A2: <i>Innovation Management - Asia</i> | |
| 3:00 - 3:30am | | | E1: <i>Technology Management 1 - Europe</i> |
| 3:30 - 4:20am | | | |
| 4:20 - 5:00am | | | |
| 5:00 - 7:00am | | | E2: <i>Innovation Management - Europe</i> |
| 7:00 - 8:00am | | | BE1: <i>Break</i> |
| 8:00 - 9:00am | K1: <i>Welcome & Opening Keynote</i> | | E3: <i>Technology Management 2 - Europe</i> |
| 9:00 - 9:15am | | | CL: <i>Closing Remarks</i> |
| 9:15 - 10:00 am | | AM3: <i>Editorial Panel</i> | |
| 10:00 - 11:00am | BA1: <i>Break</i> | | |
| 11:00 am - 12:00pm | AM1: <i>Technology Management</i> | BA3: <i>Break</i> | |
| 12:00 - 1:00 pm | | AM4: <i>Emerging Technologies 2</i> | |
| 1:00 - 1:20 pm | BA2: <i>Break</i> | | |
| 1:20 - 2:00 pm | | | |
| 2:00 - 4:00 pm | AM2: <i>Emerging Technologies 1</i> | AM5: <i>Entrepreneurship</i> | |
| 4:00 - 11:30 pm | | | |
| 11:30 - 11:59 pm | A1: <i>Emerging Technologies - Asia</i> | | |

KEYNOTE SPEAKER**Managing Macro Level Supply Chain Disruptions: Lessons from COVID-19**

Sri Talluri, Ph.D, Michigan State University

Abstract:

This talk discusses supply chain strategies and practices that have contributed to the disruptions we are currently facing amid COVID-19. We present both short-term and long-term strategies that companies can utilize to mitigate the impact of such a disruption in future. We also highlight the importance of strengthening the nexus between academic research and practice in designing and operating robust and resilient supply chains.

Speaker:

Sri Talluri earned the B. S. degree in mechanical engineering in India in 1989, the M. S. degree in industrial and manufacturing systems engineering and the Ph. D. degree in production and operations management from the University of Texas at Arlington in 1992 and 1996, respectively. He is the Hoagland-Metzler Endowed Professor and Professor of Operations and Supply Chain Management at Michigan State University. His research interests are in the areas of supply risk, buyer-supplier relationships and supply contracts, sustainability in supply chains, technology management, and performance evaluation. Sri's methodological expertise lies in the areas of optimization methods (deterministic and stochastic models), game theory, empirical methods (statistical models), and data envelopment analysis. He has more than 95 journal publications in a variety of top-tier academic journals including the IIE Transactions, Decision Sciences, Production and Operations Management Journal, Journal of Operations Management, International Journal of Production Research, European Journal of Operational Research, IEEE Transactions on Engineering Management, and has presented papers in various national and international conferences.

Dr. Talluri was designated as a Fellow of the Decision Sciences Institute (DSI) in 2019. He is one of the 116 fellows of DSI over the 50-year rich history of the organization. Sri was also a Fulbright Distinguished Chair in Business and Economics for the year 2016-2017, and currently holds the position of Honorary Professorial Fellow at the University of Melbourne, Australia. He was the recipient of the Dean's Research Excellence Award in 2019, and John D. and Dortha J. Withrow Endowed Emerging Scholar Award for outstanding scholarly contributions in 2004. He currently serves as the Department Editor for Decision Sciences Journal and the IEEE Transactions on Engineering Management, and Editorial Review Board Member for Production and Operations Management Journal and the International Journal of Production Research. He was also the past Senior Editor for Decision Sciences Journal and Guest Senior Editor for Production and Operations Management Journal. Sri served as the Conference Chair for the 47th Annual Decision Sciences Institute Conference, Track Chair for Supply Chain Management at the 14th and 16th Annual Production and Operations Management Conferences, and the Track Chair for Sourcing Management for the 18th Annual POMS Conference. In addition, he was the Associate Executive Director for POMS from 2006-2009. He is a member of honor societies, such as Alpha Pi Mu & Phi Kappa Phi, and professional organizations, which include the DSI, the Institute for Operations Research and Management Sciences (INFORMS), and the Production and Operations Management Society (POMS).

Wednesday, June 3

Wednesday, June 3 8:00 - 10:00 (America/Detroit)

Room: americas

K1: Welcome & Opening Keynote

Opening Remarks - Andy Chen, TEMS

Ray Sasinowski, TEMSCON 2020 Chair

Tugrul Daim, Program Chair

Keynote, Sri Talluri

Managing Macro Level Supply Chain Disruptions: Lessons from COVID-19

Sri Talluri, Ph.D, Hoagland-Metzler Endowed Professor, Michigan State University

This talk discusses supply chain strategies and practices that have contributed to the disruptions we are currently facing amid COVID-19. We present both short-term and long-term strategies that companies can utilize to mitigate the impact of such a disruption in future. We also highlight the importance of strengthening the nexus between academic research and practice in designing and operating robust and resilient supply chains.

Wednesday, June 3 11:00 - 13:00 (America/Detroit)

Room: americas

AM1: Technology Management

Chair: Raymond Sasinowski (8945 Margo dr. & GM LLC, USA)

11:00 [Evolution of Korean Smart City Programs: Challenges and Opportunities](#)

[Young Hoon Kwak](#) (George Washington University, USA); [Jaehyun Lee](#) (George Washington University & Seoul National University, USA)

11:20 [The Effect on Productivity of the 3P Methodology Applied to Production Processes for the Ventilation and Air Extraction Industry](#)

[Mauricio Hidalgo-Loaeza](#), [Reyna Virginia Barragán-Quintero](#), [Oscar Omar Ovalle-Osuna](#) and [Eduardo Ahumada-Tello](#) (Universidad Autónoma de Baja California, Mexico)

11:40 [Decision Making with Hierarchical Decision Model to Expedite the Manufacturing Process at Streimer Sheet Metal Works, Inc](#)

[Mustafa Almuzel](#) and [Ramin Neshati](#) (Portland State University, USA)

12:00 [M2M technology for bus fleet management. Case study: A college transportation system](#)

[Vladimir Sanchez Padilla](#), [Adriana Collaguazo](#), [Jose Cabrera](#) and [Joffre Pesantez](#) (Escuela Superior Politecnica del Litoral, Ecuador)

Wednesday, June 3 14:00 - 16:00 (America/Detroit)

Room: americas

AM2: Emerging Technologies 1

Chair: David E Mindham (USA)

2:00 [Crime Analysis Mapping, Intrusion Detection - Using Data Mining](#)

[Biswajit Panja](#) (Eastern Michigan University, USA)

2:20 [Scalable and Secure Architecture for Distributed IoT Systems](#)

[Najmeddine Dhib](#) (Higher School of Communications of Tunis, Tunisia); [Hakim Ghazzai](#) (Stevens Institute of Technology & Stevens, USA); [Hichem Besbes](#) (Ecole Supérieure de Communications de Tunis, Sup'Com, University of Carthage, TUNISIA, Tunisia); [Yehia Massoud](#) (Stevens Institute of Technology, USA)

2:40 [Virtual and Augmented Reality Applied in Power Electric Utilities for Human Interface Improvement - A Study Case for Best Practices](#)

[Diogo Vinicius Joao](#) (CERTI Headquarters, Brazil); [Paula Zenni Lodetti](#) and [Marcos Aurelio Izumida Martins](#) (CERTI Foundation, Brazil); [João Almeida](#) (Enel Distribuição São Paulo, Brazil)

3:00 [Word Embedding-based Text Processing for Comprehensive Summarization and Distinct Information Extraction](#)

[Xiangpeng Wan](#) (Stevens Institute of Technology, USA); [Hakim Ghazzai](#) (Stevens Institute of Technology & Stevens, USA); [Yehia Massoud](#) (Stevens Institute of Technology, USA)

Wednesday, June 3 23:30 – Thursday, June 4 1:30 (America/Detroit)

Room: asia

A1: Emerging Technologies - Asia

Chair: Ravikiran Annaswamy (Technology and Management Consultant, India)

11:30 [Research on Blockchain for Sustainable E-Agriculture](#)

[Luona Song](#) and [Xiaojuan Wang](#) (Beijing University of Posts and Telecommunications, China); [Nicolas Merveille](#) (Université du Québec à Montréal, Canada)

11:50 [Product Development Strategy Definition using Qualitative Patent Analysis](#)

[Suchitra Damodharan](#) (Continental Automotive Components India Pvt. Ltd. & Business Area: Autonomous Mobility and Safety, India)

12:10 [Technology Concept Development and Refinement using 6E Incubator Method](#)

[Vishal Muralidharan](#) (Continental Automotive, India); [Suchitra Damodharan](#) (Continental Automotive Components India Pvt. Ltd. & Business Area: Autonomous Mobility and Safety, India)

Thursday, June 4

Thursday, June 4 1:30 - 3:30 (America/Detroit)

Room: asia

A2: Innovation Management - Asia

Chair: Sudeendra Koushik (IEEE Chair, India)

1:30 [How to bring positive societal change through Corporate Social Responsibility \(CSR\)? Modeling the social responsible enablers using ISM-MICMAC](#)

[Kuldeep Singh](#) and [Madhvendra Misra](#) (Indian Institute of Information Technology Allahabad, India)

1:50 [Feature Driven Agile Product Innovation Management Framework](#)

[Suchitra Damodharan](#) (Continental Automotive Components India Pvt. Ltd. & Business Area: Autonomous Mobility and Safety, India); [Vishal Muralidharan](#) (Continental Automotive, India); [Vivek Muralidharan](#) (Continental Automotive Components India Pvt. Ltd., India)

2:10 [Obstacles to Innovation - Is There a Need for Consensus?](#)

[Saltanat Akhmedi](#) and [Mariza Tsakalerou](#) (Nazarbayev University, Kazakhstan)

2:30 [An Approach for Developing Integrated Decision Support System Model for Optimizing Contracting Process of Public Procurement in Pakistan](#)

[Muhammad Shahzeb Khan](#), [Muhammad Ayyaz](#) and [Afshan Naseem](#) (CEME National University of Science & Technology, Islamabad, Pakistan)

Thursday, June 4 9:00 - 11:00 (America/Detroit)

Room: americas

AM3: Editorial Panel

Chair: Tugrul Daim (Portland State University, USA)

Thursday, June 4 12:00 - 13:20 (America/Detroit)

Room: americas

AM4: Emerging Technologies 2

Chair: Andy T Chen (Catronic Enterprise & REDDS Capital, Canada)

12:00 [A Trustworthy Recruitment Process for Spatial Mobile Crowdsourcing in Large-scale Social IoT](#)

[Abdullah Khanfor](#) (Stevens Institute of Technology, USA); [Aymen Hamrouni](#) (Stevens Institute of Technology, USA & Higher School of Communication of Tunis, Tunisia); [Hakim Ghazzai](#) (Stevens Institute of Technology & Stevens, USA); [Ye Yang](#) and [Yehia Massoud](#) (Stevens Institute of Technology, USA)

12:20 [Optimal Team Recruitment Strategies for Collaborative Mobile Crowdsourcing Systems](#)

[Aymen Hamrouni](#) (Stevens Institute of Technology, USA & Higher School of Communication of Tunis, Tunisia); [Hakim Ghazzai](#) (Stevens Institute of Technology & Stevens, USA); [Turki Alelyani](#) and [Yehia Massoud](#) (Stevens Institute of Technology, USA)

12:40 [Leveraging Personal Navigation Assistant Systems Using Automated Social Media Traffic Reporting](#)

[Xiangpeng Wan](#) (Stevens Institute of Technology, USA); [Hakim Ghazzai](#) (Stevens Institute of Technology & Stevens, USA); [Yehia Massoud](#) (Stevens Institute of Technology, USA)

1:00 [Selection of a machine learning algorithm for OSHA fatalities](#)

[Jaby Mohammed](#) and [Md Jubaer Mahmud](#) (Illinois State University, USA)

Thursday, June 4 14:00 - 16:00 (America/Detroit)

Room: americas

AM5: Entrepreneurship

Chair: Tugrul Daim (Portland State University, USA)

2:00 [An Assessment of Entrepreneurial Ecosystem: The case of Saudi Arabia](#)

[Mustafa Almuzel](#) and [Timothy R Anderson](#) (Portland State University, USA)

2:20 [The Key Attributes that Drive University Entrepreneurship](#)

[Jessica Sarceda](#) (Paradox.ai, USA); [Steve T Cho](#) (Arizona State University, USA)

2:40 [A Team Competency Framework for Engineering Entrepreneurship Education](#)

[Xaver Neumeyer](#) (University of North Carolina at Wilmington, USA); [Susana Santos](#) (Rowan University, USA)

3:00 [The Role of Compassion in IT-Based Social Entrepreneurship](#)

[Suisin Priscila Lam-Lam](#) and [Eduardo Ahumada-Tello](#) (Universidad Autónoma de Baja California, Mexico); [Richard David Evans](#) (Brunel University London, United Kingdom (Great Britain))

3:20 [Does Money Makes Entrepreneurs Happy In The Age Of Industries 4.0?](#)

[Rafael Ravina-Ripoll](#) and [M^a Jose Foncubierta-Rodriguez](#) (Universidad de Cadiz, Spain); [Eduardo Ahumada-Tello](#) (Universidad Autónoma de Baja California, Mexico); [Richard David Evans](#) (Brunel University London, United Kingdom (Great Britain))

3:40 [Simulation of a Generalized Equation for Innovation in Complex Adaptive Systems](#)

[Pravir Malik](#) (Deep Order Technologies & Zappos, USA); [Leon Pretorius](#) (University of Pretoria, South Africa)

Friday, June 5

Friday, June 5 3:00 - 4:30 (America/Detroit)

Room: europe

E1: Technology Management 1 - Europe

Chair: Joe Amadi-Echendu (University of Pretoria, South Africa)

Europe - Opening Remarks

Robert Bierwolf. IEEE TEMS VP Conferences

3:10 [Assessing the Technology Readiness Level of Current Blockchain Use Cases](#)

[Kristoffer Holm](#) (Aarhus University, BSS, Denmark); [Rene Chester Goduscheit](#) (Aarhus University, Denmark)

3:30 [Influence of organizational culture in the adoption of agile](#)

[Krishna Jivan](#), [Annлизэ Marnewick](#) and [Nazeer Joseph](#) (University of Johannesburg, South Africa)

3:50 [A Multidisciplinary Case Study on Managing the Resilience of Connected systems](#)

[Joe Amadi-Echendu](#), [Liesel Ebersöhn](#), [Chrisna du Plessis](#), [Alta van der Merwe](#) and [Gerrit Stols](#) (University of Pretoria, South Africa)

4:10 [Paradiqm Shift of Social Enterprise in India](#)

[Ashok Chopra](#) (Amity University & Dubai International Academic City, United Arab Emirates)

Friday, June 5 5:00 - 7:00 (America/Detroit)

Room: europe

E2: Innovation Management - Europe

Chair: Leon Pretorius (University of Pretoria, South Africa)

5:00 [Methodology Concept for the Determination of the Idea-specific Requirement Space for the Execution of Radical Innovations](#)

[Guenther Schuh](#) (RWTH Aachen University, Germany); [Paul Zeller](#) (Fraunhofer Institute for Production Technology IPT, Germany)

5:20 [Time-To-Market and Product Performance Trade-off Revisited](#)

[Ali Yassine](#) and [Sally Souweid](#) (American University of Beirut, Lebanon)

5:40 [Methodology for the determination of the logic of innovation ideas for technical systems](#)

[Günther Schuh](#) (RWTH Aachen University, Germany); [Thomas Schwarberg](#) and [Patrick Scholz](#) (Fraunhofer Institute for Production Technology IPT, Germany)

Friday, June 5 8:00 - 9:00 (America/Detroit)

Room: europe

E3: Technology Management 2 - Europe

Chair: Patrick Scholz (Fraunhofer Institute for Production Technology IPT, Germany)

8:00 [Assessing the application based utility potential of new technologies](#)

[Guenther Schuh](#), [Patrick Scholz](#) and [Yuka Marie-Sophie Ando](#) (Fraunhofer Institute for Production Technology IPT, Germany)

8:20 [Identification of multidimensional key performance indicators for manufacturing companies](#)

[Svenja Marek](#) and [Guenther Schuh](#) (FIR e.V. at RWTH Aachen, Germany); [Volker Stich](#) (FIR e. V. at RWTH Aachen, Germany)

8:40 [Software Tool for the Selection of 3D Print Service Providers in the context of Spare Parts Logistics](#)

[Svenja Marek](#) and [Daniel Pause](#) (FIR e.V. at RWTH Aachen, Germany); [Volker Stich](#) (FIR e. V. at RWTH Aachen, Germany)

Friday, June 5 9:00 - 9:15 (America/Detroit)

Room: europe

CL: Closing Remarks

Robert Bierwolf. IEEE TEMS VP Conferences