INFORMS Webinar

"Supply Chain Viability, Intertwined Supply Networks, and Digital Supply Chain"

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In May 2020 in the wake of the COVID-19 pandemic, we performed an INFORMS webinar predicting the impacts of the pandemic on global supply chains. Most of the simulation-based predictions were then observed in real life. We also predicted that the pandemic would trigger new areas in supply chain resilience research. One of these new areas is supply chain viability.

The topic of supply chain viability has evolved the concept of supply chain resilience since the COVID-19 pandemic. Viability extends resilience in two main directions. First, resilience is the ability to recover *after* a disruption (e.g., an earthquake) and return to some baseline*, initial* state. Viability is the ability to operate and continue to serve markets/customers with products and services *in the presence* of disruptions and long-term crises (i.e., the ability to survive in the long-term) through adaptation and reconfiguration *changing states dynamically*. Second, resilience considers economic performance of individual supply chains. Viability integrates resilience and sustainability through a combination of economical and societal components. Viability refers not only to individual supply chains, but also to intertwined supply networks and ecosystems. Supply chain viability extends resilience and risk management knowledge towards survivability under conditions of long-term and unpredictably scaling disruptions. Viability is considered a fundamental characteristic of supply chains that encompasses resilience and sustainability.

Our webinar aims to make an important contribution to supply chain viability. The founders of supply chain viability theory, Prof. Alexandre Dolgui from IMT Atlantique (Nantes, France) and Prof. Dmitry Ivanov (Berlin School of Economics and Law, Germany) will present the most recent insights on supply chain viability and intertwined supply networks. Their discussion will focus on five major pillars of supply chain viability theory (i.e., viable supply chain design, ripple effect, intertwined and reconfigurable supply networks, digital supply chain, and Industry 5.0). They will give practical insights on how viability and intertwined supply networks perspectives can help companies to re-think supply chain management practices and adapt to the highly uncertain and data-driven environments in the future. They will specifically look at digital twins for supply chain mapping, visibility, and AI-based decision-making support. The webinar will be useful both for researchers and practitioners alike to consolidate recent advances and practices of viability in supply chain networks and lay the solid foundation for further developments in this area.

Please join us on May 4 (12p EST, 6p CET). Please register at
https://umich.zoom.us/meeting/register/tJErcuGgqDwiHdI_Vrpujta2rzeoEQrxsMj_ .

We look forwar to meeting you all.

Bio : Alexandre Dolgui

Prof. Alexandre Dolgui is a Member of INFORMS and an IISE Fellow. He is a Distinguished Professor and the Head of Automation, Production and Computer Sciences Department, campus in Nantes, at the IMT Atlantique, France.

His research and teaching activities focuse on applications of operations research in the manufacturing line design, production planning and supply chain engineering and management. His main results are based on exact mathematical programming methods and their intelligent coupling with heuristics and metaheuristics algorithms for deterministic and stochastic problem statements.

He is the author/co-author of numerous significant contributions to discrete optimization methods and their utilization for computer-aided design, production planning and scheduling, and supply chain management. He contributed to the theory of combinatorial design of manufacturing systems and logistics. He obtained major results on the development of decomposition techniques, discrete optimization of stochastic systems, robust approaches, sensitivity (stability) analysis, and applied decisions.

He is one of coauthors of the framework for management of supply chain under ripple effect risks, analysis of ripple effect, resilience issues, advanced optimization algorithms for disruption recovery and adaptive planning and scheduling based on coupling control theory with robust approaches in combinatorial optimization.

Prof. Alexandre Dolgui is the co-author of 5 books, the co-editor of 32 books or conference proceedings, the author of around 300 refereed articles in international journals and over 400 papers presented at conferences. He is the *Editor-in-Chief* of the International Journal of Production Research, an *Area Editor* of Computers & Industrial Engineering, past Associate Editor of International Journal of Systems Science, IEEE Transactions on Industrial Informatics and Omega - the International Journal of Management Science. He is Member of the Editorial Boards for 27 other journals, including the International Journal of Production Economics.

He has been Guest editor of special issues of European Journal of Operational Research, Annals of Operations Research, Journal of Decision Systems, International Journal of Production Research, International Journal of Production Economics, Omega, Journal of Intelligent Manufacturing, Journal of Cleaner Production, Engineering Applications of Artificial Intelligence, IEEE Transactions on Industrial Informatics, and Annual Reviews in Control, etc.

He is an Active Fellow of the European Academy for Industrial Management, Member of the Board of the International Foundation for Production Research, former Chair of IFAC TC 5.2 Manufacturing Modelling for Management and Control, Member of IFIP WG 5.7 Advances in Production Management Systems, IEEE System Council Analytics and Risk Technical Committee. He has been Scientific/Genaral Chair of many leading scientific conferences as: INCOM'06, INCOM'09, INCOM'12, MIM'13, INCOM'15, MIM'16, MIM'19, MIM'22.

Prof. Alexandre Dolgui received numerous awards and distinctions as for example: twice best paper award by the Institute of Industrial and Systems Engineers for his articles in IISE Transactions. He delivered 34 Keynote plenary talks at the leading international conferences.

Bio: Dmitry Ivanov

Prof. Dmitry Ivanov is professor of Supply Chain and Operations Management at Berlin School of Economics and Law (HWR Berlin). His *research* explores structural dynamics and control in complex networks, with applications to supply chain resilience, Industry 4.0, supply chain simulation, risk analytics and digital supply chain twins. He is co-author of structural dynamics control theory. His research coined several seminal academic and practical directions such as the ripple effect in supply chains and supply chain viability. He has applied different methodologies such as optimization, simulation, control theory, and artificial intelligence to a variety of supply chain and operations management problems, e.g., supply network design, production and distribution planning, scheduling, and workload control. Most of his research stems from real practical context and focuses on the interface of supply chain management, operations research, industrial engineering, and digital technology.

Professor Ivanov's *research* makes impact. His papers belong to the most cited worldwide in the areas of supply chain resilience and digital supply chain. For example, he has been the most cited author of premier journals International Journal of Production Research and Transportation Research: Part E in 2020-2022. His research record includes over 390 publications, with over 130 papers in prestigious academic journals, three editions of the leading textbook "Global Supply Chain and Operations Management", „Introduction to Supply Chain Resilience" book, and „Digital Supply Chain" book. Professor Ivanov's research has been published in various academic journals, including Annals of Operations Research, European Journal of Operational Research, IISE Transactions, International Journal of Production Research, International Journal of Production Economics, Omega, Transportation Research: Part E, to name a few.

He is Editor of International Journal of Integrated Supply Management and an Associate Editor in International Journal of Production Research, International Transactions in Operational Research, and International Journal of Systems Science, and OMEGA. He has been guest editor in Annals of Operations Research, International Journal of Production Research, International Journal of Production Economics, IISE Transactions, Omega, Engineering Applications of Artificial Intelligence, and Annual Reviews in Control, to name a few.

He is a recipient of IISE Transactions Best Paper Award 2021, Best Paper and Most Cited Paper Awards of International Journal of Production Research (2018,2019, 2020, 2021), OMEGA Best Paper Award 2022, Reviewer Award of International Journal of Production Economics (2020), Clarivate Highly Cited Researcher Award (2021, 2022). His projects have been funded by European Commission, DFG (German Research Foundation), and IFAF Berlin.

He has given guest lectures and webinars, presented scholarly papers and has been a visiting professor at numerous universities worldwide. Author of anyLogistix educational complex for supply chain optimization and simulation that is in use at more than 300 universities worldwide. He is founder and director of M.A. Global Supply Chain and Operations Management program at HWR Berlin where he supervised over 100 master students.

He delivered numerous invited plenary, keynote and panel talks at the conferences of INFORMS, IFPR, DSI, POMS, IFAC, and IFIP. He is leading working groups on the Digital Supply Chain, Supply Chain Risk Management and Resilience in global research communities. Chairman of IFAC TC 5.2 "Manufacturing Modelling for Management and Control". He has been general chair, IPC chair, IPC member and Advisory Board member of over 80 international conferences in supply chain and operations management, industrial engineering, control and data sciences including leading conferences IFAC MIM 2019 and MIM 2022.