SPECIAL ISSUE EDITORIAL ON ADVANCES IN COLLABORATIVE SYSTEMS ENGINEERING FOR PRODUCT DESIGN, PRODUCTION AND SERVICE NETWORK

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From the perspectives of concurrent engineering (CE), computer supported cooperative work (CSCW), product lifecycle management (PLM), to collaborative supply chain and service network, collaborative systems engineering (CSE) has been extended and enriched in many research efforts. CSE is not just a technique or method but also a fundamental business philosophy and strategy. It provides a consistent set of solutions to support the collaborative co-creation, management, dissemination, and use of information and knowledge through the entire lifecycle of product design, production, and services, which engage and integrate processes, systems, organizations, people, and information effectively and intelligently. During the process of reviewing the submitted papers for this special issue, we have carefully selected six papers providing novel methodologies to enable CSE covering two main

categories of collaborative systems, i.e., for product design collaborations and for production and service network collaborations. The first category has two papers focusing on improving collaborative design efficiency using annotated computer aided design (CAD) modelling and bill-of-material (BOM)-based design knowledge representation. The second category includes four papers. They focus on solving challenging issues for enabling the production and service collaborations and their systems, e.g., multi-node tracking for wireless sensor network, agent-based neural network system for failure prediction, one-stop logistic services for collaborative supply chain, and system maintainability analysis for complex collaboration. The scopes and insights of these research papers shall provide valuable references for future research and development of collaborative systems engineering.

For Product Design Collaboration:

1. Synchronous communication in PLM environments using annotated CAD models (by Jorge D. Camba, Manuel Contero, Gustavo Salvador-Herranz, Raquel Plumed).
2. BOM-based design knowledge representation and reasoning for collaborative product development (by Gong-Zhuang Peng, Hua-Chao Mao, Hong-Wei Wang, He-Ming Zhang).

For Production and Service Network Collaboration:

3. Comparing two clustering-based techniques to track mobile nodes in industrial wireless sensor networks (by Mohammad Gholami and Robert W. Brennan).
4. A quantum multi-agent based neural network model for failure prediction (by Wei Wu, Min Liu, Qing Liu, Weiming Shen).
5. A one-stop logistic services framework supporting global supply chain collaboration (by A.J.C. Trappey, C.V. Trappey, S.W.C. Chang, W.T. Lee, T. N. Hsu).
6. Complexity of system maintainability analysis based on the interpretive structural modelling methodology: Transdisciplinary approach (by A. Ertas, M. W. Smith, D. Tate, W. D. Lawson, T. B. Baturalp).

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(since 2003). He received his B.S. from Tsinghua University, M.S. from Tianjin University and Ph.D. from SUNY/Buffalo of USA. He worked in industry for more than 10 years. He published over 400 academic papers

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