Complexity

Special Issue on
Complexity in Manufacturing Processes and Systems 2019

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CALL FOR PAPERS

Nowadays, manufacturing and systems processes are the field where various factors and variables interact, such as human resources, machines, tools, methodologies, and production techniques, all aim to generate a product or service that can be delivered to customers with high quality and on time; the alteration of one of these systems' components results in changes in another. That is, these components or subsystems are always related to each other in a complex way; to be able to make decisions efficiently, the understanding of these relationships and dependencies between the systems' components should be sought as far as possible. Often, under the globalized production system, part of the production system is located in another country and context, which increases the number of variables and the complexity of the system.

However, to understand the relationships among the components of the manufacturing system, a process of obtaining reliable information for its analysis must be carried out and, fortunately, with the implementation of information and communication technologies, this work has been facilitated, since modern production processes currently have a high level of monitoring sensors. Nevertheless, such information must be integrated into methods and techniques that allow the decision-making process in a quick and efficient way, since a late decision may represent high costs due to products that do not meet the required quality specifications.

These complex manufacturing processes can be found from raw material supplying or procurement, the production process, and storage and distribution systems for finished products, among others, and it is now possible to find reports in the literature that are focused on understanding the relationships between these components of the manufacturing process. The techniques employed for the analysis of the information of these systems have been diverse, from simulation techniques and metaheuristics to causal techniques that associate variables, where the uncertainty has been integrated as vital new variable.

Therefore, the main objective of this special issue is to collect and consolidate innovative and high-quality research contributions aimed at solving the complexity problem in production process and systems and the techniques and tools applied for a fast analysis and decision-making process. This special issue aims to provide insights into the recent advances in these topics by soliciting original scientific contributions in the form of theoretical foundations, models, experimental research, clinical studies for manufacturing process, and systems.

Potential topics include but are not limited to the following:

- Industrial solutions through complexity theory
- Modeling complexity of manufacturing systems
- Performance of manufacturing complex systems: measurements and results
- Mass customization as a complex system
- Interactions between sustainability and complexity
- Effects of new machine tools on complexity of processes
- How the technology reduces the complexity
- Techniques and tool used in complexity research
- Algorithms for complex manufacturing systems

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/complexity/cmpsy19/.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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