

**G. D. Putnik, Guest Editor; Special Issue: Semiotics-based Manufacturing Systems Integration (MSI).** Intern. Journal of CIM, Vol. 23, Nr. 8-9, pp 687-851

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*Semiotics: study of signs and symbols, esp. the relations between written or spoken signs and their references in the physical world or the world of ideas (Collins dictionary 1987)*

G. D. Putnik, *Editorial* identifies semiotics as a candidate framework for a new MSI paradigm to extend the solution space of the MSI discipline with focus on use, interpretation and communication of and about technical solutions for MSI.

Semiotics comprises syntax, semantic and pragmatics. Contrary to the first two the latter is totally unknown in the MSI discipline, but all three are used in information systems and to some extent even in enterprise integration. For MSI semiotics can be both an instrument and a meta-model of its science.

The 11 papers of this special issue (see below for more details) address: i) instrumental and meta-theoretical relations to MSI, ii) semiotics at large with individual, community and society pragmatics and iii) linguistic, and non-linguistic types of signs.

Both, the first and last paper provide a very good introduction to semiotics and its history.

IJCIM, pp 687-690. For more information: [putnikgd@dpsuminho.pt](mailto:putnikgd@dpsuminho.pt)

G. D. Putnik & Z. Putnik, *A semiotic framework for manufacturing systems integration – Part i: Generative integration model* present findings on exploratory research about the potential of semiotics for MSI. It identifies needs for a new MSI paradigm, introduces basic notations, discusses use in MSI and presents a framework together with a model of semiotics-based MSI. A prototype demonstrator for future research is presented as well. The authors claim a need for changing from transaction- to communication-based integration and from information flow to information fields/fields of information with fuzzy process definitions and continuous improvements. Two examples from ERP and CAD systems integration illustrate the problems identified.

IJCIM, pp 691-709. For more information: [putnikgd@dpsuminho.pt](mailto:putnikgd@dpsuminho.pt)

F. M. van Eijnatten & G. D. Putnik, *An exploration of the integrative function of dialogue in manufacturing* advocate the integrative power of dialogues in design and operation of manufacturing systems and distinguishes between discussion and dialogue. The former is seen as a means to solve a problem by selecting the best alternative, whereas the latter aims on exchange of views and joint investigations. The work is based on an analysis of five studies on Dutch companies.

IJCIM, pp 710-719. For more information: [putnikgd@dpsuminho.pt](mailto:putnikgd@dpsuminho.pt)

N. Jing and S. C.-Y. Lu, *Structure arguments for collaborative negotiations of group decisions in manufacturing systems integration* address organisational semiotics by providing a framework and methods to establish a value-forced objective hierarchy to enable the generation of structured arguments based on stakeholders proposals, objectives, criteria and preferences and to evaluate those on the level of objective achievements. A web-based prototype has been implemented.

IJCIM, pp 720-738. For more information: [jingnan@gmail.com](mailto:jingnan@gmail.com)

A. Zelitchenko, *The semantic-pragmatic descriptions of manufacturing processes and social networks for the integration of manufacturing systems of new generation (virtual enterprises)* proposes a semi-formal language to describe all the semiotic levels from syntax to social-determined system of meaning. Both a formal syntax and an informal unlimited vocabulary for the pragmatic description of social networks are presented.

IJCIM, pp 739-746. For more information: [zelitchenk@yahoo.com](mailto:zelitchenk@yahoo.com)

M. Janssen & R. Feenstra, *Service portfolios for supply chain composition: Creating business network interoperability and agility* introduce a service portfolio concept that would enable supply chain stakeholders for easier communication and synchronisation of meaning. The concept is a collection of tools and instruments that support the business network governance. A case study illustrated the concept and showed the potential of speeding up the supply chain formation through rapid composition of its processes.

IJCIM, pp 747-757. For more information: [m.f.w.ah.a.janssen@tudelft.nl](mailto:m.f.w.ah.a.janssen@tudelft.nl)

L. A. Ripamonti & C. A. Peranboni, *Managing the design-manufacturing interface in virtual enterprises through multi-user virtual environments: a perspective approach* explore the use of virtual worlds - like multi-user virtual environments – in virtual environments to create digital habitats able to support the higher levels of the semiotic ladder\* and lowering the integration barriers\*\* between design and manufacturing.

\* Semiotic ladder: Physical World, Empiric, Syntactic, Semantic, Pragmatic, Social World.

\*\* Integration barriers: personal, cultural, language, organisation, physical.

IJCIM, pp 758-776. For more information: [ripamonti@dico.unimi.it](mailto:ripamonti@dico.unimi.it)

B. Providencia & C. Ciurana, *Interface tool for human communication to integrate psychophysical inputs with rapid manufacturing technologies* analyse the special communication needs of people with limited motoric skills (e.g. post-surgical) and aim to create a supporting integration system that enables those persons to contribute to product design via CAD.

IJCIM, pp 777-790. For more information: [quim.ciurana@udg.edu](mailto:quim.ciurana@udg.edu)

J. Anderson Schaeffer et al, *Spatial design for continuous improvement: The case study of three manufacturing companies* present a different perspective of an architectural and semiotic analysis of the spatial design that implies aspects of cognition, information, communication and treats how and what elements communicate in the area of continuous improvement.

IJCIM, pp 791- 805. For more information: [jennie.anderson@mdh.se](mailto:jennie.anderson@mdh.se)

F. Romero, *The social dimension of the integration of manufacturing systems: the role of institutions* states that nature and dynamics of implementation, operation, application and integration of technical manufacturing systems are depending on both technical and social aspects. The latter origin from institutions of governance or social technologies like division of labour and knowledge, task coordination or management. The above hypothesis is elaborated through analysis of literature and case studies showing evidence of the influence of social factors on implementation and integration of such systems.

IJCIM, pp 806- 818. For more information: [fromero@uminho.pt](mailto:fromero@uminho.pt)

P. Garrido, *Open design and knowledge integration in semiotic manufacturing integration* proposes a framework for analysis of Free Software and Open Source Software to distinguish between syntactical knowledge from semantic and pragmatic knowledge and present a brief survey of Open Design in the Web. Results indicate that Open Design will become relevant in the ecologies of manufacturing markets.

IJCIM, pp 819- 831. For more information: [pgarrido@uminho.pt](mailto:pgarrido@uminho.pt)

R. Jardim-Goncalves et al, *Semiotics-based manufacturing systems integration in the advent of a single electronic market* evaluate the semiotic perspectives of the ATHENA framework for systems interoperability, complemented by non technological interoperability metrics. Based on the results it analyses the vision of stakeholders and discusses the correlation between framework and measurement indicators with semiotic levels and theories for MIS.

IJCIM, pp 832- 851. For more information: [rg@uninova.pt](mailto:rg@uninova.pt)