KNOWLEDGE AND TECHNOLOGY INTEGRATION
IN PRODUCTION AND SERVICES
Balancing Knowledge and Technology in
Product and Service Life Cycle
IFIP - The International Federation for Information Processing

IFIP was founded in 1960 under the auspices of UNESCO, following the First World Computer Congress held in Paris the previous year. An umbrella organization for societies working in information processing, IFIP's aim is two-fold: to support information processing within its member countries and to encourage technology transfer to developing nations. As its mission statement clearly states,

IFIP's mission is to be the leading, truly international, apolitical organization which encourages and assists in the development, exploitation and application of information technology for the benefit of all people.

IFIP is a non-profitmaking organization, run almost solely by 2500 volunteers. It operates through a number of technical committees, which organize events and publications. IFIP's events range from an international congress to local seminars, but the most important are:

- The IFIP World Computer Congress, held every second year;
- open conferences;
- working conferences.

The flagship event is the IFIP World Computer Congress, at which both invited and contributed papers are presented. Contributed papers are rigorously refereed and the rejection rate is high.

As with the Congress, participation in the open conferences is open to all and papers may be invited or submitted. Again, submitted papers are stringently refereed.

The working conferences are structured differently. They are usually run by a working group and attendance is small and by invitation only. Their purpose is to create an atmosphere conducive to innovation and development. Refereeing is less rigorous and papers are subjected to extensive group discussion.

Publications arising from IFIP events vary. The papers presented at the IFIP World Computer Congress and at open conferences are published as conference proceedings, while the results of the working conferences are often published as collections of selected and edited papers.

Any national society whose primary activity is in information may apply to become a full member of IFIP, although full membership is restricted to one society per country. Full members are entitled to vote at the annual General Assembly, National societies preferring a less committed involvement may apply for associate or corresponding membership. Associate members enjoy the same benefits as full members, but without voting rights. Corresponding members are not represented in IFIP bodies. Affiliated membership is open to non-national societies, and individual and honorary membership schemes are also offered.
KNOWLEDGE AND TECHNOLOGY INTEGRATION IN PRODUCTION AND SERVICES

Balancing Knowledge and Technology in Product and Service Life Cycle

IFIP TC5/WG5.3 Fifth IEEE/IFIP International Conference on Information Technology for Balanced Automation Systems in Manufacturing and Services (BASYS'02)
September 25-27, 2002, Cancun, Mexico

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>TECHNICAL CO·SPONSORS</td>
<td>xi</td>
</tr>
<tr>
<td>PROGRAM COMMITTEE</td>
<td>xii</td>
</tr>
<tr>
<td>PREFACE</td>
<td>xiii</td>
</tr>
<tr>
<td><strong>PART 1 - SYSTEMS INTEROPERABILITY AND ENTERPRISE MODELING</strong></td>
<td>1</td>
</tr>
<tr>
<td>1. METHODS AND TOOLS FOR CONSTRAINT BASED INFORMATION INTEGRATION</td>
<td>3</td>
</tr>
<tr>
<td>S. Kleiner, R. Anderl</td>
<td></td>
</tr>
<tr>
<td>2. FEATURE DRIVEN ASSOCIATIVE PART AND MACHINING PROCESS MODELS</td>
<td>11</td>
</tr>
<tr>
<td>L. Horváth, I. J. Rudas, J. F. Bitó, A. Szakal</td>
<td></td>
</tr>
<tr>
<td>3. MODELLING OF AN ALSTOM ELECTRICAL ENGINE MANUFACTURING LINE ACCORDING</td>
<td>19</td>
</tr>
<tr>
<td>TO PROCESS APPROACH ADVOCATED BY STANDARD ISO9000:2000</td>
<td></td>
</tr>
<tr>
<td>B. Iung, J. Richard, M. Dellea, G. Ragni</td>
<td></td>
</tr>
<tr>
<td>4. IMPLICIT HIERARCHICAL META-MODELING. IN SEARCH OF FLEXIBLE</td>
<td>27</td>
</tr>
<tr>
<td>INTER-OPERABILITY FOR MANUFACTURING AND BUSINESS SYSTEMS</td>
<td></td>
</tr>
<tr>
<td>R. Jardim-Goncalves, A. Steiger-Garção</td>
<td></td>
</tr>
<tr>
<td>5. AN ACTIVITY-BASED MODEL OF CONCURRENT ENGINEERING SYSTEM</td>
<td>39</td>
</tr>
<tr>
<td>G. D. Putnik, A. J. C. Pithon</td>
<td></td>
</tr>
<tr>
<td>6. SELF-GOVERNING PRODUCTION GROUPS: TOWARDS REQUIREMENTS FOR IT SUPPORT</td>
<td>49</td>
</tr>
<tr>
<td>P. H. Carstensen, K. Schmidt</td>
<td></td>
</tr>
<tr>
<td>7. DEVELOPING A WEB SCHEDULING SYSTEM BASED ON XML MODELING</td>
<td>61</td>
</tr>
<tr>
<td>L. R. Varela, J. N. Aparicio, S. C. Silva</td>
<td></td>
</tr>
<tr>
<td>8. A FLEXIBLE FLOW SHOP MODELLING AS A DISTRIBUTED PRODUCTION SYSTEM</td>
<td>71</td>
</tr>
<tr>
<td>R. M. Lima, S. C. Silva</td>
<td></td>
</tr>
<tr>
<td>9. SIMULATION SERVICES FOR TRAINING OF PLANT OPERATORS</td>
<td>79</td>
</tr>
<tr>
<td>G. Schreck</td>
<td></td>
</tr>
<tr>
<td>10. SUPPORT FOR B2B E-CONTRACTING – THE PROCESS PERSPECTIVE</td>
<td>87</td>
</tr>
<tr>
<td>S. Angelov, P. Grefen</td>
<td></td>
</tr>
<tr>
<td>11. A SERVICE INTERFACE DEFINITIONS CATALOGUE FOR VIRTUAL ENTERPRISES</td>
<td>97</td>
</tr>
<tr>
<td>IN TOURISM</td>
<td></td>
</tr>
<tr>
<td>C. Garita, E. C. Kaletas, H. Afsarmanesh, L. O. Hertzberger</td>
<td></td>
</tr>
<tr>
<td>Part 2 - Networked Enterprising</td>
<td>Page</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>12. Dynamic Virtual Organizations, Or Not So Dynamic?</td>
<td>111</td>
</tr>
<tr>
<td>L. M. Camarinha-Matos, H. Afsarmanesh</td>
<td></td>
</tr>
<tr>
<td>13. Considerations on Secure FIPA Compliant Agent Architecture</td>
<td>125</td>
</tr>
<tr>
<td>T. Vlček, J. Zach</td>
<td></td>
</tr>
<tr>
<td>14. A Review on Environments Supporting Virtual Enterprise Integration</td>
<td>133</td>
</tr>
<tr>
<td>M. M. Cunha, G. D. Putnik, J. D. Carvalho, P. Ávila</td>
<td></td>
</tr>
<tr>
<td>15. E-Services for Virtual Enterprise Brokerage</td>
<td>141</td>
</tr>
<tr>
<td>R. Mejía, J. Aca, E. García, A. Molina</td>
<td></td>
</tr>
<tr>
<td>16. Competitor Based Strategic Networks of SMEs</td>
<td>149</td>
</tr>
<tr>
<td>M. Pouly, R. Glardon, C. Huber</td>
<td></td>
</tr>
<tr>
<td>17. Relationship Management in Enterprise Networks</td>
<td>157</td>
</tr>
<tr>
<td>A. Zweegers, H. Wubben, I. Hartel</td>
<td></td>
</tr>
<tr>
<td>18. Evaluation of Organizational Structure in Emergency from the Viewpoint of Communication</td>
<td>165</td>
</tr>
<tr>
<td>S. Nishida, M. Nakatani, Y. Hijioka, T. Koiso</td>
<td></td>
</tr>
<tr>
<td>19. Workflow History Management in Virtual Healthcare Enterprise</td>
<td>173</td>
</tr>
<tr>
<td>T. Amin, P. H. Keng</td>
<td></td>
</tr>
<tr>
<td>20. Configuring of Supply Chain Networks Based on Constraint Satisfaction, Genetic and Fuzzy Game Theoretic Approaches</td>
<td>183</td>
</tr>
<tr>
<td>A. V. Smirnov, L. B. Sheremetov, N. Chilov, J. R. Cortes</td>
<td></td>
</tr>
<tr>
<td>21. Quantitative Integration of the Analytical Hierarchical Process and Virtual Enterprise Model to Support Manager Decisions</td>
<td>193</td>
</tr>
<tr>
<td>G. Confessore, L. Cricelli, P. Mancuso</td>
<td></td>
</tr>
<tr>
<td>22. Performance Measurement in Virtual Organizations</td>
<td>203</td>
</tr>
<tr>
<td>R. Hieber, I. Hartel, Y. Kamio</td>
<td></td>
</tr>
<tr>
<td>23. An Analysis on Game Theoretic Negotiation Dynamism Based on Multi-Agent Paradigm in Virtual Enterprise</td>
<td>211</td>
</tr>
<tr>
<td>T. Kaihara, S. Fujii</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part 3 - Multi-Agent and Holonic Manufacturing Systems</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>24. IEC 61499 Architecture, Engineering Methodologies and Software Tools</td>
<td>221</td>
</tr>
<tr>
<td>J. H. Christensen</td>
<td></td>
</tr>
<tr>
<td>25. A Low-Cost Experimental System and Engineering Methodology for IEC 61499 Applications</td>
<td>229</td>
</tr>
<tr>
<td>H. Tsunematsu, H. Sasajima, T. Hojo</td>
<td></td>
</tr>
</tbody>
</table>
26. PLATFORMS FOR SCALABLE FLEXIBLE AUTOMATION CONSIDERING THE CONCEPTS OF IEC 61499
   W. E. Rumpf, F. Auinger, C. Dutzler, A. Zoitl .............................................. 237

27. MANAGING FAULT MONITORING AND RECOVERY IN DISTRIBUTED REAL-TIME CONTROL SYSTEMS
   R. W. Brennan, D. H. Norrie ............................................................................. 247

28. AN AGENT-BASED APPROACH TOWARDS THE DESIGN OF INDUSTRIAL HOLONIC CONTROL SYSTEMS
   B. Suessmann, A. W. Colombo, R. Neubert ..................................................... 255

29. A HOaronIC CONTROL Approach FOR DISTRIBUTED MANUFACTURING
   P. Leitão, F. Restivo ............................................................................................ 263

30. DESIGN ISSUES IN HOaronIC INVENTORY MANAGEMENT AND MATERIAL HANDLING SYSTEMS
   M. Fletcher, V. Mařík, P. Vrba ........................................................................... 271

31. AGENT-BASED, DISTRIBUTED DIAGNOSIS FOR SHIPBOARD SYSTEMS
   G. Provan, Y. L. Chen ......................................................................................... 281

32. SERVICE-ORIENTED CONCEPT OF A HOaronIC ENTERPRISE - ENABLING ADAPTIVE NETWORKS ALONG THE VALUE CHAIN
   G. Weichhart, A. Hämmerle, K. Fessl .................................................................... 289

33. HOaronIC MANUFACTURING WITH INTELLIGENT OBJECTS
   E. Bajic, F. Chaxel ............................................................................................... 297

34. DISTRIBUTED SELF-SIMULATION OF HOaronIC MANUFACTURING SYSTEMS
   N. Imasaki, A. Tharumarajah, S. Tamura ............................................................... 305

35. COMPONENT DESIGN AND FORMAL VALIDATION OF SFA SYSTEMS: A CASE STUDY
   V. Vyatkin, H. M. Hanisch ................................................................................. 313

36. A PRACTICAL REPRESENTATION OF HOaronIC MANUFACTURING SYSTEMS
   S. Rahimifar ............................................ ............................................................. 323

37. HOaronIC MANAGEMENT SYSTEM FOR HIERARCHICAL ROBOT GROUPS
   Y. Aiyama ............................................................................................................ 331

38. PROCESS PLANNING AND SCHEDULING WITH MULTIAGENT SYSTEMS
   B. Denkova, H. K. Tönshoff, M. Zwick, P. O. Woelk ........................................ 339

39. FROM INTRA-ENTERPRISE TOWARDS EXTRA-ENTERPRISE PRODUCTION PLANNING
   A. Říha, M. Pechouček, J. Vokřínek, V. Mařík ................................................. 349
PART 4 - INTEGRATION OF PRODUCT AND SERVICE LIFE CYCLES

40. DESIGN OF PRODUCT ORIENTED MANUFACTURING SYSTEMS
   S. C. Silva, A. Alves

41. INTEGRATED DEVELOPMENT OF PRODUCTS AND SERVICES
   K. Auernhammer, M. Stabe

42. AGILE E-BUSINESS PROCESS ASSEMBLY AND DEVELOPMENT
   T. Schmidt, K. Fürst, G. Wippel

43. A CONCEPTUAL FRAMEWORK FOR EFFICIENT NEW PRODUCT INTRODUCTIONS
   E. Sandin, M. Onori

44. PRODUCT LIFE CYCLE DESIGN USING THE DFE WORKBENCH
   E. Man, J. E. Díez, C. Chira, T. Roché

45. KNOWLEDGE MAINTENANCE IN KNOWLEDGE-BASED PRODUCT DEVELOPMENT SYSTEMS
   D. Guerra, R. Young

46. INTERNET-BASED ELECTRONIC PROCUREMENT SOLUTIONS – OPPORTUNITIES FOR SUPPORT AND RE-ENGINEERING OF DIRECT MATERIALS PROCUREMENT
   R. Alard, M. Gustafsson

47. USING REJECTION METHODS IN A DSS FOR PRODUCTION STRATEGIES
   M. Caramia, P. Carotenuto, S. Giordani, A. Iovanello

48. INTRODUCTION TO THE PROTOTYPING OF AN INTELLIGENT SUPERVISION SYSTEM
   S. Bassetto, A. Siadat, P. Martin

49. BUSINESS INTELLIGENCE SUPPORT FOR SUPPLY CHAIN MANAGEMENT
   R. J. Rabelo, A. A. Pereira-Klen

50. A COORDINATION LEVEL IN SUPPLY CHAIN SIMULATOR
   M. F. H. Carvalho, C. Machado

51. REFERENCE CONFIGURATIONS TO SUPPORT THE IMPLEMENTATION OF THE PRODUCT RECOVERY SUPPLY CHAIN
   A. Rahimifard, S. T. Newman, S. Rahimifard

52. ON THE VALUE OF INDUSTRIAL SERVICE
   P. Johansson

53. ON-LINE ANALYSIS OF UTILITY NETWORKS
   Z. Koubá, K. Matoušek, P. Mikšovský

54. DATA MINING AND RESOURCE ALLOCATION: A CASE STUDY
   O. Štěpánková, J. Kléma, Š. Lauryn, P. Mikšovský, L. Nováková

55. A METHOD TO OPTIMIZE SCHEDULING IN SMALL BATCH MANUFACTURING
   A. G. Lucero, A. A. de Queiroz

56. LAYOUT PROBLEM OPTIMIZATION USING GENETIC ALGORITHMS
   J. Kubalík, J. Lažanský, P. Zíkl
57. FORMAL METHODS IN PLC CONTROL DEMONSTRATED AT A FLEXIBLE MANUFACTURING LINE
G. Frey ........................................................................................................... 501
58. TOWARDS ENVIRONMENT MODELING BY AUTONOMOUS MOBILE SYSTEMS
L. Přeučil, P. Štěpán, M. Kulich, R. Mázl ................................................................ 509
59. NOVEL ADAPTIVE CONTROL OF MECHANICAL SYSTEMS DRIVEN BY ELECTROMECHANICAL HYDRAULIC DRIVES
J. F. Bitó, J. K. Tar, I. J. Rudas ........................................................................... 517
60. LOW COST EDUCATIONAL TECHNOLOGY BASED ON OPEN SYSTEM REFERENCE ARCHITECTURE FOR ENGINEERING COURSES
M. J. R. Cadena .................................................................................................. 525

ACKNOWLEDGMENT ................................................................................... 533
AUTHORS INDEX .............................................................................................. 535
BASYS 2002 – 5th IEEE/IFIP International Conference on
Information Technology for Balanced Automation Systems in
Manufacturing and Services
Cancun, Mexico, September 25-27, 2002

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PREFACE

The BASYS'02 conference, co-organized by IFIP WG 5.3 and WG 5.5, under the technical co-sponsorship of IEEE Robotics and Automation Society, is the fifth BASYS conference in line. The first conference, BASYS'96, was held in Vitoria, Brazil, BASYS'97 in Lisbon, Portugal, BASYS'98 in Prague, Czech Republic, and BASYS'00 in Berlin, Germany.

This series of conferences, having the title "Balanced Automation Systems", was originally intended to discuss the balance between the technical aspects of automation and the human and social points of view. But each new event has – as a rule - highlighted several new topics that required a certain degree of balancing in automation, manufacturing and services. The BASYS'02 conference is aimed mainly at balancing knowledge and technology in manufacturing, services and the product life-cycle. Namely, a balance between local knowledge-intensive solutions and global performance in highly distributed systems, based on diverse technologies (such as virtual organizations, holonic manufacturing systems or multi-agent systems for design and diagnostics) is considered. The proceedings content is focused much more than before on the interoperability and standardization issues, open architectures as well as the knowledge-based integration paradigms with special attention being paid to product-service integration, customer-production integration, and product life-cycle stages integration. The organizers tried to challenge the professional community to present novel application scenarios for balanced distributed and integrated systems.

One of the main goals of the BASYS'02 conference is to promote discussions and interactions among researchers and specialists from industrial practice within four tracks:

Track 1 is aimed at systems interoperability and enterprise modeling. Considering the wide spectrum that this track covers, and the many emerging approaches in these two areas, papers included in this track cover a number of different challenging aspects, as described here. Some research effort address advanced product and process modeling approaches and constraint based information integration. Flexible interoperability for manufacturing and self-governing working groups is addressed by some papers. Two papers describe Distributed web-based scheduling and distributed production modeling and systems. The use of simulation services for training and education is suggested. An e-contracting approach and the use of a "recommender" for the e-commerce personalization are introduced. Finally two papers provide example applications of enterprise modeling and service information integration in Tourism and Health Care sector.
Track 2 focuses at all aspects of networked enterprises, including different virtual organization models, infrastructures for virtual organizations as well as at distributed business processes connected with the virtual enterprising, collaboration support services, organizational structure and behavior, and performance metrics.

Track 3 was organized in a tight cooperation with the HMS (Holonic Manufacturing Systems) consortium working within the frame of the international IMS (Intelligent Manufacturing Systems) program. This track gives a floor to presentations of the results of the HMS results and thus creates a natural “overture” to the HMS-20 consortium meeting, taking place in Cancun in the days after the BASYS’02 conference. Several papers summarize the current results in the holonic real-time control and in the corresponding standardization efforts. Many papers document the shift of attention in the holonic area from low-level real-time control towards agent-based, higher-level distributed decision-making. Papers aimed at production agent-based planning and scheduling document not only the viability, but also a huge potential of applications of the multi-agent systems in manufacturing.

Track 4 is strongly oriented to system integration aspects. As a rule, the multi-agent paradigm is widely used for integration purposes and represents the philosophical or theoretical background for many aspects of many types of integration-oriented solutions. The papers included in this track tackle different approaches to the product-services integration, design-manufacturing integration, market-search and manufacturing integration, etc. A wide spectrum of up-to-date optimization and optimal resource allocation techniques can be found, some of them connected with quite diverse application areas like medical care or robotics.

The BASYS conferences provide a great opportunity for discussion of concepts, models, methodologies, technological developments, case studies, new research ideas, and other results among specialists - researchers, industrial managers, practitioners, developers, users or technology transfer experts - working in quite different fields like in automatic control, systems planning and integration, enterprise architecture, planning and scheduling, flexible manufacturing, knowledge engineering, business processes management or in the field of social impact studies. The openness, broadness and multi-disciplinarity of the conference topics together with its clear intent to concentrate the attention on the novel, inspiring approaches based on knowledge and up-to-date technology gives the event a really unique flavor.
Such an open and multi-disciplinary forum is highly needed also for summarizing and consolidating existing trends and for creating roadmaps and designing future scenarios as an objective background for encompassing the future research and its foundation. The BASYS conference is at present considered as one of the information sources for the THINKcreative and VOMap European projects, aimed at designing the virtual enterprises research roadmap towards the 6th Framework Program.

Prague, Lisbon, Amsterdam
June 12, 2002

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