Performance improvement for goods and services production systems

www.disp-lab.fr
SCIENTIFIC GOAL

Improve the performance of goods and services production systems and comprehensive supply chains, by simultaneously addressing their structural, decision-making, information-related and human-related dimensions.

DOUBLE EXPERTISE

Industrial engineering • Information technology for business

Three scientific axes

OPERATIONS MANAGEMENT FOR GOODS AND SERVICES PRODUCTION SYSTEMS

Production systems and supply chains configuration, planning and scheduling, for a sustainable and comprehensive performance even under uncertainty.

INFORMATION SYSTEMS AGILITY

Designing, assessing and managing the agility of information systems, at both business and technical levels, in a distributed and dynamic context.

SYSTEM LIFECYCLE MODELING AND OPTIMIZATION

Managing data, interactions with stakeholders and tools, and optimizing the product/system environmental profile in a comprehensive lifecycle management approach.

Collaboration examples

INDUSTRY

APR, Catidom, EDF, EnergyPool, Fortal, PIL/Deschamps, Rossignol, Renault, Saverglass, Tardy, Valhrona, Volvo (chair)

HEALTHCARE

ARS Rhône-Alpes, CHU St Etienne, CHU Grenoble, Croix Rouge, HAD 63, HCL, Hôpital St Joseph-St Luc, LINDE, OVE, Soins et Santé

TRANSPORTATION AND RETAIL

Casino/EASYDIS, Auchan, SNCF, Toupargel (chair)

IT

Agiliun, Audros Technology, Berger Levrau, Carl, Courbon, Infologic, KLS, One Point, Processway, Quasar, SAP, Users SAP France, Sciado

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Production systems and supply chains configuration, planning and scheduling, for a sustainable and comprehensive performance even under uncertainty.

Our expertise

- Planning and scheduling
- Managing human resources
- Taking into account uncertainties and environment-based risks
- Analyzing and modeling temporal information flows

Our tools

- Mathematical optimization
  Mathematica Professional, MATLAB, IBM ILOG CPLEX
- Flow simulation
  Anylogic, SIMIO, FlexSim, Arena
- Business applications
  INCOPLAN, Ortems

A FEW FLAGSHIP PROJECTS

HRP3 project: Simulator for healthcare network configuration (sirene.disp-lab.fr) for strategic planning of emergency care.

*With*: Hospices Civils de Lyon, CHU42, CH privé de la Loire, CH St Joseph-St Luc, CH Roanne...

FUSION CO2 project: Prototype of a configuration tool for green and sustainable supply networks.

*With*: CretLog, Université de Nantes

GUNDISHAPUR project: Production and supply organisation, management and coordination methods and models in supply chains.

*With*: University of Sharif (Iran)

Ordo project: Optimization of human resources skill management and collaborative practices in the supply chain.

*With*: Ligne Roset

BOOK WRITING OR DIRECTING (EXTRACT)

- *Reengineering The Hospital Supply Chain*, Di Martiellly, Guinet, Riane, VDM Verlag (2010)

CONFERENCE LEADERSHIP

- International Conference on Information Systems, Logistics and Supply Chain (ILS)
- Gestion et ingénierie des systèmes hospitaliers (GISEH)
INFORMATION SYSTEMS AGILITY

Designing, assessing and managing the agility of information systems, at both business and technical levels, in a distributed and dynamic context.

Our expertise

SUPPORTING THE INTEGRATION OF NEW ORGANISATIONAL MODELS AND NEW TECHNOLOGIES IN INFORMATION SYSTEMS

- Characterize the evolution of organisational models
- Characterize the responsibility span of software infrastructures
- Performance analysis of information systems processes

SUPPORTING FUNCTIONAL AND ORGANISATIONAL INTEGRATION AND INTEROPERABILITY

- Offering alignment framework for changing information systems
- Considering their lifecycle, from design to integration and uses

KNOWLEDGE EXTRACTION, AGGREGATION, PRESERVATION AND SHARING

- Identifying, sharing and preserving knowledge in the long term
- Managing data scale, complexity and heterogeneity

Our tools

Process modeling
Suite Oracle BPM/SOA, Suite WSO2, Suite ARIS

Business applications
SAP ERP, SAP By Design Odoo, Windchill

A FEW FLAGSHIP PROJECTS

**MES project**: www.mestria.eu, multi-application software platform to easily deploy MES processes according to the ISA-95 norm

*With*: Thésame, Univ. Savoie, Agilium, α3i, Carl Software, Cincom, Courbon, Quasar, Jam

**Projet Portal**: aligning software-based information systems, risk identification centered model-driven engineering

*With*: Portal, INSA Strasbourg

**FITMAN European project**: development and setting up of support architectures for collaborative processes

*With*: 38 partners from 11 countries, TXT e-solution SpA

**Projet PLM Nucléaire**: designing models of interactions between a business frame of reference and proprietary applications

*With*: EDF-Nucléaire, Arts et Métiers Paris Tech, ENSGSIS

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BOOKS WRITING (EXTRACTS)


CONFERENCES LEADERSHIP

International Conference on Software, Knowledge and Information Management and Applications (IEEE SKIMA)

International Conference on Information Systems, Logistics and Supply Chain (ILS)
SYSTEM LIFECYCLE MODELING AND OPTIMIZATION

Managing data, interactions with stakeholders and tools, and optimizing the product/system environmental profile in a comprehensive lifecycle management approach.

Our expertise

<table>
<thead>
<tr>
<th>LIFECYCLE MANAGEMENT FOR SMART PRODUCTS AND SYSTEMS</th>
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<tbody>
<tr>
<td>• Lifecycle modeling and simulation in the Internet of Things, Cyber Physical Systems, factory of the future</td>
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<tr>
<td>• Modeling collaboration between the different lifecycle stakeholders</td>
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<td>• Encouraging distributed decision making, accounting for human and social</td>
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<table>
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<tr>
<th>DEVELOPMENT OF AN ECO-PLM ENVIRONMENTAL EVALUATION APPROACH FOR PRODUCTS/SYSTEMS</th>
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<tr>
<td>• Taking into account the environmental dimension in product data and process management</td>
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<td>• Include pollution transfer in lifecycle assessment models</td>
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<td>• Develop decision-support to improve the environmental profile</td>
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<th>EVALUATION AND IMPROVEMENT OF SYSTEMS MATURITY</th>
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<tr>
<td>• Developing suitable formal models (multi-criteria approach)</td>
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<td>• Integrating reputation analysis (semantic extraction)</td>
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Our tools

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<th>Product Lifecycle Management</th>
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<tr>
<td>ARAS</td>
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<td>AUDROS</td>
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<td>Windchill</td>
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<tr>
<th>Lifecycle assessment</th>
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<td>Ecoinvent, OpenLCA, GABI</td>
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A FEW FLAGSHIP PROJECTS

**Audros project:** a system to manage and analyse normative data and knowledge, linked to the technical data stored in a PLM system. *With* Audros Technology

**TRAÇAVERRE project:** analysing unit traceability to improve the production system performance.

**EASY-IMP European project:** Modeling highly communicative products; setting up a PLM-centered supporting platform for collaborative processes, and a collaborative engineering design approach. *With:* 12 partners in 9 European countries

INTERNATIONAL JOURNAL CREATION

International Journal of Product Development (IJPD)

International Journal of Product Lifecycle Management (IJPLM)

CONFERENCE LEADERSHIP

International Product Lifecycle Management Conference (IFIP PLM)

International Conference on Software, Knowledge and Information Management and Applications (IEEE SKIMA)
PARTNERSHIP OPTIONS

Do you need an expert to support you in continuous improvement or breakthrough projects? Different partnership options are available depending on your specific needs.

INTERNSHIP WITH RESEARCH

*Duration*: about 6 months

*Conditions*: full-time internship + accompanying contract

Research mission for a M2 or engineering student finishing his/her studies, supervised by a lecturer and researcher specialist in the topic.

EXPERTISE CONVENTION

*Duration*: of your choice

*Modalité*: consultancy contract

A lecturer and researcher, specialist in the topic of interest, support you in setting up a custom solution to your problem.

CIFRE PHD (CONVENTIONS INDUSTRIELLES DE FORMATION PAR LA RECHERCHE)

*Duration*: 3 years

*Conditions*:

ANRT subsidy: 14 000€/ayear over 3 years (figures from 2015)

A young researcher in doctoral training works in your company and in the laboratory to solve an applied research problem.

RESEARCH CONTRACT

*Duration*: possibility for short-term, medium or long-term contracts

*Modalité*: consultancy contract

A lecturer and researcher, specialist in the topic of interest, support you in setting up a custom solution to your problem.

Conditions: Private law contract written in accordance with your specific needs: new concept, tools, demonstrator, prototypes, patents...

FRAMEWORK AGREEMENT

Premium partnership on a specific research axis, defined in the long term with a framework agreement

COLLABORATIVE RESEARCH PROJECT

*Duration*: 1 to 5 years

*Conditions*: multiparty project that can bring together several laboratories and companies.

*Possible fundings*: ADEME, FUI, ANR, Europe… Together, we look for the appropriate funding.

Exploring a research topic on a medium/long term, involving several companies and led by a research team that can gather several research centers in several countries.

INDUSTRIAL CHAIR

Long-term collaboration, in research and/or teaching, on a highly strategic, high priority issue.