



Laboratory  
Decision and Information Systems  
For Production systems

Performance improvement  
for goods and services  
production systems



[www.disp-lab.fr](http://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

## KEY FIGURES

30 lecturers and researchers

27 PhD students

3 technico-administrative staff

15 invited researchers and interns every year

## 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 LIECYCLE 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

### MANUFACTURING



EDF, Thales, Fortal, Dassault, Rossignol, Saverglass, Renault, PIL/Deschamps, Valhrona, Chomarat, Arkema, Volvo (chair)

### TRANSPORTATION AND RETAIL



STEF, Casino/EASYDIS, Auchan, Sotradel, Toupargel (chair)

### HEALTHCARE



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

### IT



SAP, Software AG, Carl, Audros Technology, Courbon, KLS, α3i, Agilium, Jam, Cincom, Quasar, Processway, Users SAP France

## Board of directors

### Director



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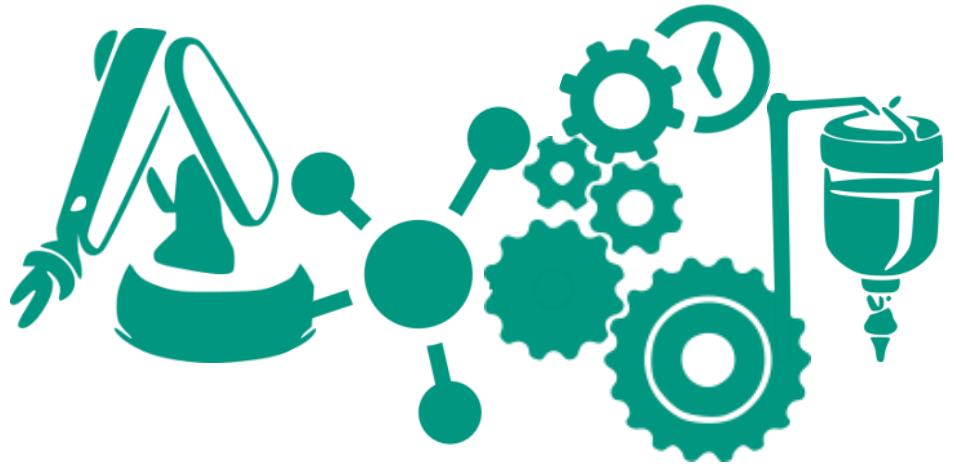
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# OPERATIONS MANAGEMENT FOR GOODS AND SERVICES PRODUCTION SYSTEMS

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



## Our expertise

### OPERATIONS MANAGEMENT AT BOTH TACTICAL AND OPERATIONAL LEVELS

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

### PRODUCTION SYSTEMS AND SUPPLY CHAIN CONFIGURATION

- Configuration of flexible manufacturing cells
- Designing multi-echelon supply chains
- Integrating reverse logistics and return flows

### PRODUCTION SYSTEMS PERFORMANCE OPTIMIZATION

- Proposing flexible, efficient and sustainable solutions
- Integrating several decision levels (strategic/tactical, production/supply...) for global performance

## 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

## Axis leaders



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## BOOK WRITING OR DIRECTING (EXTRACT)

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

*Supply Chain Performance: Collaboration, Alignment and Coordination*, Direction Botta-Genoulaz, Campagne, Llerena, Pellegrin, ISTE Ltd (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  
Odo, Windchill

### A FEW FLAGSHIP PROJECTS

**MES project:** [www.mestria.eu](http://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 Fortal:** aligning software-based information systems, risk identification centered model-driven engineering  
*With:* Fortal, INSA Strasbourg

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

### Axis leaders



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### BOOKS WRITING (EXTRACTS)

*Process alignment maturity in changing organisations.* Millet, Botta-Genoulaz (2008). In : ERP Systems and Organisational Change – A Socio-technical Insight, Direction B. Grabot, A. Mayère, I. Bazet, Springer (Londres)

### CONFERENCES CREATION

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

#### LIFECYCLE MANAGEMENT FOR SMART PRODUCTS AND SYSTEMS

- Lifecycle modeling and simulation in the Internet of Things, Cyber Physical Systems, factory of the future
- Modeling collaboration between the different lifecycle stakeholders
- Encouraging distributed decision making, accounting for human and social

#### DEVELOPMENT OF AN ECO-PLM ENVIRONMENTAL EVALUATION APPROACH FOR PRODUCTS/SYSTEMS

- Taking into account the environmental dimension in product data and process management
- Include pollution transfer in lifecycle assessment models
- Develop decision-support to improve the environmental profile

#### EVALUATION AND IMPROVEMENT OF SYSTEMS MATURITY

- Developing suitable formal models (multi-criteria approach)
- Integrating reputation analysis (semantic extraction)

### Our tools

#### Product Lifecycle Management

ARAS  
AUDROS  
Windchill

#### Lifecycle assessment

Ecoinvent, OpenLCA, GABI

### Axis leaders



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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*

**TRAÇEVERRE 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.



THE LABORATORY INSTITUTIONS ARE ACCREDITED FOR « CRÉDIT D'IMPÔT RECHERCHE ».



### 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.

### RESEARCH CONTRACT



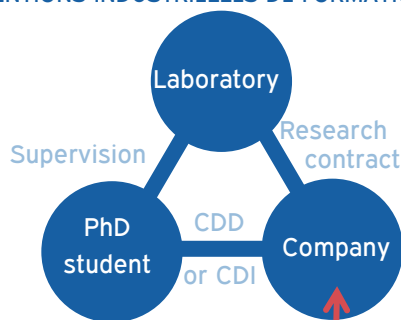
*Duration* : possibility for short-term, medium or long-term contracts

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

### CIFRE PHD (CONVENTIONS INDUSTRIELLES DE FORMATION PAR LA RECHERCHE)

*Duration* : 3 years

*Conditions* :



ANRT subsidy: 14 000€/a/year 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.

### 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.

The image is a word cloud containing various terms related to information systems, optimization, and business modeling. The words are arranged in a roughly circular pattern, with some terms being significantly larger than others. The colors used for the words include blue, orange, green, red, and purple.

**Information System**  
Architecture development  
Lifecycle  
Standardization  
Interoperability  
Information  
Simulation  
Operations management  
Coordination  
Performance  
Organization  
Development  
Flow management  
Scheduling  
Business  
Game theory  
Production  
Goods Services  
Knowledge  
Optimization  
Mathematical modelling  
Product data  
Modelling



SUPERVISING INSTITUTIONS



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