

LOUVAIN SCHOOL OF MANAGEMENT

RESEARCH REPORT

2003 - 2004

UNIVERSITÉ CATHOLIQUE DE LOUVAIN

INTRODUCTION

This research report presents the activities of the Louvain School of Management (IAG) during the academic year 2003-2004. This was a year of intensive reflection to prepare for two major changes:

- The introduction in September 2004 of the new European bachelor-masters-doctorate system. This meant a complete overhaul of the undergraduate programs of the school in order to comply with the new structure of studies and to give the student more flexibility with studies based around majors and minors on a university wide scope.
- The setup of three centres of excellence. The school decided to restructure its research activities around a few centres of excellence in order to increase the visibility of our research activities, and also to gain in research productivity by attaining a critical mass in each area. We hope to continue this process by the creation of one or two additional centres of excellence in the near future. The present centres of excellence are : E-Management, Supply Chain Management and Strategy and Dynamics of Organizations.

We are convinced that these initiatives will increase the school's presence at the European level.

The following sections present successively the members of the school, a brief description of the centres of excellence, their activities and publications, the activities and publication that do not belong to any centre of excellence, the abstracts of all

working paper published during this academic year and finally some information about the doctoral program.

I hereby want to thank all the members of the school for their contributions to another captivating and fruitful year.

Philippe Chevalier
Research Director

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2. MEMBERS OF THE SCHOOL

Faculty

Per AGRELL	Christian JAUMAIN
Nihat AKTAS	Fernand JUCKLER
Pierre ARS	Manuel KOLP
Paul BELLEFLAMME	Marie Paule KESTEMONT
Alain BONAVENTURE	Guy KEYMOLEN
Thierry BRECHET	Claudine LAPERCHE
Isabelle CALLENS	Evelyne LEONARD
Philippe CHEVALIER	Michel LEVASSEUR
Ruben CHUMPITAZ	Etienne LOUTE
Marie-Thérèse CLAES	Philippe MALHERBE
Robert COBBAUT	Pierre MEURENS
Régis COEURDEROY	Thierry MUSCHANG
Eric CORNUEL	André NSABIMANA
Jean-Paul COUVREUR	Robert PEETERS
Olivier COUNE	Robert PEIRCE
André de BETHUNE	Paul PELLEMANS
Eric de BODT	Thomas PERILLEUX
Alain DECROP	Ricardo PETRELLA
Pierre DEFRAIGNE	Alain PIROTTE
Nathalie DELOBBE	Yves POCHE
Christian DELPORTE	Aimable QUINTART
Chantal de MOERLOOSE	Bernard REMICHE
Matthieu de NANTEUIL-MIRIBEL	Marco SAERENS
Catherine DENDA UW	Roland SAINTROND
Yves DE RONGE	Isabelle SCHUILING
Michel DE WOLF	Pierre SCHUMESCH
Pierre DEVOLDER	Pierre SEMAL
Louis DUBOIS	Armand SPINEUX
Bernard FORTZ	Jean-Marie STREYDIO
Marc FOURNY	Daniel TYTECA
Jacques FRANCOIS	Thierry VAN DEN BERGHE

Benoît GAILLY
Marcel GERARD
Patrice GOBERT
Philippe GREGOIRE
Claudine HENAUX
Luc HENRARD
Michel HERMAN
Frank JANSSEN

Jean VANDERDONCKT
Paul VAN ZEVEREN
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Jean-François WALHIN
Gérard WARNOTTE
Philippe WILMES
Robert WITTERWULGHE
Patrick ZURSTRASSEN

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Maurice BURKHARD
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Dominique DIEUDONNE
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Marie DOTREMONT

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Chantal GRANDMAIRE
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Amélie LAUVE
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Marie-Claire WADIN

Research and teaching assistants

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John CULTIAUX
Tanguy de LAUNOIS
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Valérie DEVOS
Aurore DI GIUSTO
Delphine DION
Eléonore de le COURT
Arlène DERBAIX
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Tanguy DULAC
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El Taoufik FATHI
Séphane FAULKNER
Murielle FLORINS
François FOUSS
Frédéric GENNART
Thi Thuy Hang HOANG
Anne-Cécile JEANDRAIN
Bénédicte LAVERNE
Quentin LIMBOURG
Céline MARIAGE
Tarek MILOUD
Mohamed NACHI
Stéphane NASSAUT
Arnaud PETRE
Christine RAULS
Christophe SEMPELS
Nathalie SOUCHON
Valérie SWAEN
Laurent TASKIN
Hervé VAN OPPENS

3. CENTRES OF EXCELLENCE

E-Management

The centre of excellence in E-Management has the ambition to cover the development and valorisation of competences related to the criticism and instalment of strategies, methodologies, processes and systems in E-Management. It falls under the prospect of integrating transversally these competences to cover the stages, ethical and critical aspects of analyzing and realizing the disciplines considered under the term E-Management.

Supply Chain Management

The Centre of Excellence in Supply Chain Management (CESCM) gathers a critical mass of faculty, researchers and experts in the field "supply chain management" (SCM). The definition of SCM is interpreted broadly to cover all aspects of production, logistics and the supplier relations. It combines operations management, management science and industrial organization in a systematic attempt to understand, model and support the multi-level organizational behaviour. The research is in particular oriented toward (1) empirical analysis, the economic and systemic modelling of inter-organizational relations, (2) the study and development of methodologies and techniques for the decision support systems at all hierarchical levels of the chain (3) the study, modelling and optimization of systems of decentralized or distributed coordination.

Strategy and Organizational Dynamics

The intensification of competition, the opening of markets and the accelerated rhythm of innovation have radically changed the environment of European companies, whatever their size or activity. Their strategic decisions and the way they are put to work within the company must be constantly revised; if not, they will become rapidly obsolete.

This is the context in which the Strategy and Dynamics of Organizations centre of excellence is developing IAG's expertise. This tackles the capacity of European company strategy to generate innovation and manage change. This can then be translated into long lasting competitive advantages.

4. CENTRE OF EXCELLENCE IN E-MANAGEMENT

Description : The centre of excellence in E-Management has the ambition to cover the development and valorisation of competences related to the criticism and instalment of strategies, methodologies, processes and systems in E-Management. It falls under the prospect of integrating transversally these competences to cover the stages, ethical and critical aspects of analyzing and realizing the disciplines considered under the term E-Management.

Participants :

- Olivier de Broqueville
- Chantal de Moerloose
- Manuel Kolp
- Claudine Laperche
- Alain Pirotte
- Marco Saerens
- Jean Vanderdonckt
- Thierry Vandenberghe

Researchers :

- Anne-Cécile Jeandrain
- Stéphane Faulkner
- Thi Thuy Hang Hoang
- Thanh Tung Do
- Céline Mariage
- Murielle Florins
- Laurent Bouillon
- Quentin Limbourg
- Yves Wautelet
- Luh Yen
- François Fouss
- Duy Tai Nguyen

Publications

BOUILLON L., VANDERDONCKT, J., CHIEU CHOW, K., Flexible Re-engineering of Web Sites, in proceedings of the international conference on Intelligent User Interfaces, (IUI'04), January 13-16, Madeira (Portugal), ACM Press, New York, USA, 2004, pp. 132-139.

DIESBAG, B. and JEANDRAIN, A.-C., How to generate affective reactions through social and spatial immersion on a merchant website : a proposal of an integrative model", Proceedings of the ACR 2004 Asian-Pacific Conference, May 2004.

DO, T.T., KOLP, M., HANG HOANG, T.T. and PIROTTE, A., "A Framework for Design Patterns for Tropos", in *Proceedings of the 17th Brazilian Symposium on Software Engineering (SBES 2003)*, Maunas, Brazil, October 2003.

DO, T.T., KOLP, M., HANG HOANG, T.T. and PIROTTE, A., "Social Patterns for Designing Multi-Agent Systems", in *Proceedings of the 15th International Conference on Software Engineering and Knowledge Engineering (SEKE 2003)*, San Francisco, USA, July 2003.

DO, T.T., KOLP, M. and FAULKNER, S., "Agent Oriented Design Patterns : The SKwyRL Perspective", in Proceedings of the *6th International Conference on Enterprise Information Systems (ICEIS 2004)*, Porto, Portugal, April 2004.

FAULKNER, S., KOLP, M., NGUYEN, T., COYETTE, A. and DO, T.T., Information Integration Architecture Development : A Multi-Agent Approach", in Proceedings of the *16th International Conference on Software Engineering and Knowledge Engineering (SEKE 2004)*, Banff, Canada, June 2004.

FAULKNER, S., KOLP, M., COYETTE, A. and DO, T.T., "Agent Oriented Design of E-Commerce System Architecture", in

Proceedings of the 6th *International Conference on Enterprise Information Systems (ICEIS 2004)*, Porto, Portugal, April 2004.

FAULKNER, S., KOLP, M., NGUYEN, T. and COYETTE, A., "A Multi Agent Perspective on Data Integration Architectural Design", in Proceedings of the 18th *International Conference on Knowledge-Based Intelligent Information & Engineering Systems (KES 2004)*, Wellington, New Zealand, 2004.

FLORINS, M. and VANDERDONCKT, J., *Graceful Degradation of User Interfaces as a Design Method for Multiplatform Systems*, in Proceedings of the 2004 International Conference on Intelligent User Interfaces IUI 2004, Funchal, Madeira Island, Port., January 13-16, 2004.

FLORINS, M., TREVISAN, D., VANDERDONCKT, J., *The Continuity Property in Mixed Reality and Multiplatform Systems : a Comparative Study*, in Proceedings of the 4th International Workshop on Computer Aided-Design of User Interfaces CADUI'04, Funchal, Madeira Island, Port., January 13-16, 2004.

FOUSS, F., RENDERS, J.-M. and SAERENS, M. (2003), "Links between Kleinberg's hubs and authorities, correspondence analysis and Markov chains". Proceedings of the 3th IEEE International Conference on Data Mining (ICDM), pp 521-524.

FOUSS, F., RENDERS, J.-M. and SAERENS, M. (2004), "Some relationships between Kleinberg's hubs and authorities, correspondence analysis, and the Salsa algorithm". Proceedings of the 7th International Conference on the Statistical Analysis of Textual Data (JADT 2004), pp 445-455.

FOUSS, F. and SAERENS, M. (2004), "Yet another method for combining classifiers outputs: A maximum entropy approach". Proceedings of the 5th International Workshop on Multiple Classifier Systems (MCS 2004), pp 82-91.

GIORGINI, P., KOLP, M. and MYLOPOULOS, J., "Multi-Agents Architectures as Organizational Structures", in *International Journal of Autonomous Agents and Multi-Agent Systems* (JAAMAS), Kluwer, 2004.

GIORGINI, P., KOLP, M., MYLOPOULOS, J. and CASTRO, J., Tropos : A Requirements-Driven Methodology for Agent-Oriented Software, in B. Hendersen-Sellers and P. Giorgini (Eds.), *Agent-Oriented Methodologies*, Idea Group, 2004.

GIORGINI, P., KOLP, M., MYLOPOULOS, J. and PISTORE, M., The Tropos Methodology : an overview, in F. Bergenti, M.-P. Gleizes and F. Zambonelli (Eds.), *Methodologies And Software Engineering For Agent Systems*, Kluwer Academic Publishing (New York), December 2003.

JEANDRAIN, A.-C., and LAURIA, R., "While Facilitating Presence for Marketing Purposes, Are you Persuading or Seducing your Consumers ?", Proceedings of the 6th Annual International Workshop on Presence, Alborg University, Denmark, October 2003.

JEANDRAIN, A.-C. and BIOCCA, F., "Should product involvement facilitate the experience of telepresence ? – The case of a quasi 3-D virtual store", Proceedings of the 6th Annual International Workshop on Presence, Alborg University, Denmark, October 2003.

KOLP, M., TUNG DO, T., FAULKNER, S. and HANG HOANG, T.T., Social-Centric Design of Multi-Agents Architectures, in *International Journal of Organizational Computing and Electronic Commerce*, Erlbaum, 2004.

KOLP, M., TUNG DO, T., FAULKNER, S. and HANG HOANG, T.T., Architectural Styles and Patterns for Multi-Agent Systems, in L. Jain (Ed.), *Design of Intelligent Multi-Agent Systems : Human-Centredness, Architectures, Learning and Adaptation*, Spring 2004.

KOLP, M., DO, T.T. and FAULKNER, S., "A Social-Driven Design of E-Business System", in A. Garcia, R. Choren, C. Lucena, A. Romanovsky, *Software Engineering for Multi-Agent Systems*, volume III, Spring 2004.

LIMBOURG, Q. and JEANDRAIN, A.-C., "On application of virtual environments to marketing", Proceedings of Virtual Reality Concept 2003 Symposium, Biarritz, France, November 2003.

LIMBOURG, Q., VANDERDONCKT, J., MICHOTTE, B., BOUILLON, L., LOPEZ-JAQUERO, V., *UsiXML: a Language Supporting Multi-Path Development of User Interfaces*, Proc. of 9th IFIP Working Conference on Engineering for Human-Computer Interaction jointly with 11th Int. Workshop on Design, Specification, and Verification of Interactive Systems EHCI-DSVIS'2004 (Hamburg, July 11-13, 2004).

LIMBOURG, Q., VANDERDONCKT, J., MICHOTTE, B., BOUILLON, L., FLORINS, M., *USIXML: A User Interface Description Language Supporting Multiple Levels of Independence*, in Proceedings of Workshop on Device Independent Web_Engineering DIWE'04 (Munich, 26-27 July 2004), M. Lauff (Ed.), Munich, 2004.

LIMBOURG, Q., VANDERDONCKT, J., MICHOTTE, B., BOUILLON, L., FLORINS, M., TREVISAN, D., *UsiXML: A User Interface Description Language for Context-Sensitive User Interfaces*, in Proceedings of the ACM AVI'2004 Workshop "Developing User Interfaces with XML: Advances on User Interface Description Languages" (Gallipoli, May 25, 2004), K. Luyten, M. Abrams, Q. Limbourg, J. Vanderdonck (Eds.), Gallipoli, 2004, pp. 55-62.

PENSERINI, L., KOLP, M., SPALAZZI, L., PANTI, M. And MLOPOULOS, J., "Socially-Based Design of Distributed Agent System", *Proceedings of the 2004 IEEE/WIC/ACM International Conference on Intelligent Agent Technology (IAT 2004)*, 2004.

VANDERDONCKT, J., BOUILLON, L., CHIEU, K.C., TREVISAN, D., Model-based Design, Generation, and Evaluation of Virtual User Interfaces, Proc. of 9th ACM Int. Conf. on 3D Web Technology Web3D 2004 (Monterey, April 5-8, 2004), ACM Press, New York, 2004.

Presentations made in conferences

KOLP, M., University of Trento, Department of Information and Communication Technology, *SKwyRL : Social arChitectures for Agent Software Systems EngineeRing*, May 2004.

KOLP, M., University of Sheffield, Department Computer Science, *Social-Centric Design of Multi-Agents Architectures*, March 2004.

KOLP, M., Free University of Brussels, Institute of Work Studies, *Organizational Patterns for Business Analysis*, February 2004.

On-Going Research Projects

COYETTE Adrien

Towards an Agent-Driven Requirements Approach for
Designing User Interfaces
Supervisor : Manuel KOLP

DO Tung

Design Patterns for Multi-Agent Systems
Supervisor : Manuel Kolp

FOUSS François

Some novel similarity measures on a graph, with application
to collaborative filtering
Supervisor : Marco SAERENS

HOANG Thi Thuy Hang

Definition of a Conceptual Framework for E-Commerce
Systems Non-Functional Requirements

Supervisor : Manuel KOLP

LIMBOURG Quentin

Multi-Path Development of User Interfaces

Supervisor : Jean VANDERDONCKT

NGUYEN Tai

A Multi-Agent Platform for Enterprise Web Services

Supervisor : Manuel KOLP

WAUTELET Yves

Multi-Agent Iterative Development for Managing Enterprise
Information Systems

Supervisor : Manuel KOLP

Conferences and workshops

Organized or co-organized by the centre of excellence

KOLP, M., VLDB 2004, 30th International Conference on Very Large
Data Bases, Toronto, Canada, 2004.

Collaborations with other research centres

During this academic year the center of excellence had active links with the following entities through visits and/or hosting of researchers from these institutions.

University of Sheffield, Department of Computer Science, United Kingdom,
Universidade Portucalense, Porto, Portugal, April 2004
Department of Information and Communication Technology,
University of Trento, Italy,
IRST-ITC Research Center, Trento, Italy, May 2004.
Free University of Brussels, Institute of Work Studies
Department of Computer Science, University of Ancona, Italy,
Institut d'Informatique, Facultés Universitaires Notre Dame de la Paix,
Namur,
Service d'Informatique, Ecole Polytechnique, Université libre de Bruxelles.
INGI
UCL Machine Learning Group

Research Contracts

Projet Caméléon

Financial Support : Information Society Technologies (IST)
Programme, Fifth Framework Programme, European Commission.
IAG Principal Investigator : Jean Vanderdonckt
Research Assistant : Laurent Bouillon

SALAMANDRE

Financial Support : Initiatives III Research Program, DGTRE,
Ministry of Walloon Region
IAG Principal Investigator : Prof. Jean Vanderdonckt
Research Assistant : Murielle Florins (IAG/ISYS) – Monica Gemo
(FSA/TELE)

SALAMANDRE is interested to produce multiple User Interfaces (UIs) for different platforms. Our methodology, the *Graceful Degradation Approach*, is based on a set of rules that modify the UI specifications at different abstraction levels. Guidelines related to different computing platforms will be gathered in guidelines bases maintained in MetroWeb. In collaboration with the Telecommunications Unit (TELE), mobile and multi-platforms UIs are considered in two case studies: telemedicine and multimedia narration

SKwyRL: Socio-Intentional ArChitecture for Knowledge Systems and Requirements ELicitation

Financial Support : FSR-UCL

IAG Principal Investigator : Manuel Kolp

Research Assistant : Tai Nguyen

The project aims at identifying and developing a collection of specific social and intentional architecture patterns for designing agent-based systems. It proposes to use human organizations as a metaphor to suggest a set of generic patterns for agent systems, with a preference for organizational design theories over social emergence theories. Patterns from organization theory describe the internal structure of organizations while theories for strategic alliances model the external collaboration of independent organizations that pursue agreed goals. Design parameters such as task assignment, standardization, supervision, management control, and strategy definition will be used to handle situational and contingency factors. The research will formalize these social and intentional patterns, and characterize precisely how a particular model can be seen as an instance of a pattern. The patterns will be compared with software architecture patterns such as pipes-and-filters, event-based, layered, control loop, and related to lower-level (software) components, ports, connectors, interfaces, libraries and configurations. The project will also propose desirable qualities of social structures such as adaptivity, ease of

coordination, predictability, and fault tolerance, and define methods for evaluating a given social structure with respect to a set of qualities.

Object-oriented modeling and development of production databases for steel manufacturing

Financial Support: Carsid SA

IAG Principal Investigators : Manuel Kolp, Alain Pirotte

Research Assistant : Yves Wautelet

The project models part of the production databases of the « Coke-Fonte-Energie » Operation Center of CARSID and their applications in order to progressively re-engineer them. Such databases are particular in the sense they manage synchronous data: thousands of variables are received every minute from numerous sensors all around the manufactories. The project also proposes the development of a master database that could be parameterized for the different CARSID manufactories.

Development of an extensible framework for Business-to-Consumer Applications Deployment. Partners: Walloon Region, CITOBI

Financial Support : FIRST Entreprise contract (Région Wallonne) in partnership with CITOBI S.A.

IAG Principal Investigators : Manuel Kolp, Alain Pirotte

Ce projet a pour but la conception d'une plate-forme de gestion d'applications d'interactions spécifiquement adaptée aux entreprises et organisations en relation avec une très grande base de clients/consommateurs (entreprises commercialisant des produits et services de grande consommation, administration). Elle offrira un outil intégré permettant de répondre aux besoins de gestion de flux d'information émanant de clients/consommateurs dans le cadre d'organisations de cette dimension.

Parmi les services offerts par cet outil on trouvera la gestion de bases de connaissances en plusieurs langues (adaptation immédiate au marché européen), la gestion du routage des flux; la gestion de workflows, la gestion de campagnes de marketing direct, la gestion du reporting, élaboration de statistiques

Plateforme de travail collaboratif pilotée par des assistants artificiels: Région Wallonne, Denali S. A.

Financial Support: FIRST Entreprise contract (Région Wallonne), Denali S.A.

Principal Investigators : Manuel Kolp, Marco Saerens

Ce projet consiste en l'analyse et la conception d'une plateforme multi-agent de travail collaboratif basée sur la création d'un espace virtuel partagé sur Internet et sur l'utilisation d'assistants artificiels (agent) de coordination.

Development of an information retrieval and data integration tool for e-business applications

Financial Support: CGRI - Communauté Française de Belgique, Agence Universitaire de la Francophonie

IAG Principal Investigators : Manuel Kolp, Alain Pirotte

Research Assistant : Tai Nguyen

The project consists in analyzing and developing a multi-agent platform based on social design patterns (broker, mediator, wrapper, monitor, matchmaker, ...) to propose information retrieval and data integration services for e-business applications. The platform follows an organizational architecture to integrate the patterns. The implementation is realized in a generic way allowing software components reuse, specifically within the JACK agent programming environment. The proposed approach follows BDI (Belief-Desire-Intention) cognitive specifications and FIPA (Foundation for Intelligent Physical Agents) recommendations.

Requirements Analysis for Developing a Datawarehouse for the Federal Retirement Administration

Financial Support : SSTC- Federal Office for Scientific, Technical and Cultural Affairs, Federal Retirement Administration

IAG Principal Investigators : Manuel Kolp, Alain Pirotte, Michel Denuit (STAT)

Création d'un « datawarehouse » socioéconomiques relative aux pensions du secteur public dont l'Administration des pensions établit le droit, calcule le montant et assure la gestion. La conversion des données en information s'appuie sur un 'analysis and decision making tool' à développer. L'exploitation du datawarehouse a pour but le support professionnel des 'decision makers', notamment: le management de l'Administration, les responsables politiques (= le Ministre et son cabinet), le futur Conseil Stratégique et la future Cellule Stratégique. Par l'intermédiaire de différents médias (intranet, internet, publications, ...) l'Administration souhaite mettre ses informations à disposition tant des chercheurs scientifiques (universités, syndicats, bureaux d'études ...) , que d'un public plus large.

MetroWeb (Région Wallonne) : MetroWeb, outil d'aide à l'évaluation ergonomique de sites web

Financial Support : Région Wallonne (First Université)

IAG Principal Investigator : Jean Vanderdonck

Research Assistant : Céline Mariage

MetroWeb : outil de support à l'inspection heuristique de sites Web.

PEI'2002 « Valves facultaires accessibles par borne interactive »

Financial Support : UCL

IAG Principal Investigator : J. Vanderdonck

Conception de pages web dynamiques accessible par borne tactile interactive.

Projet européen « Caméléon » (FP5-IST-2000-30104): Context Aware Modelling for Enabling and Leveraging Effective interactiON

Financial Support : Information Society Technologies (IST) Programme, Fifth Framework Programme, European Commission

IAG Principal Investigator : J. Vanderdonckt

Research Assistant : Laurent Bouillon

The goal of the CAMELEON Project is to build methods and environments supporting the design and development of highly usable context-sensitive interactive software systems

Projet Initiatives 2 « Salamandre » (convention 001/4511) : Interfaces homme-machine pour des applications informatiques mobiles, multi-plate-formes

Financial Support : Région Wallonne, DGTRE

IAG Principal Investigator : J. Vanderdonckt

FSR « E-guide » : Usability of electronic commerce web sites: language and methods for automatic testing

Financial Support : Fonds Spéciaux de Recherche

IAG Principal Investigator : J. Vanderdonckt

Action de Recherche Concertée « MerLIn » (Methodes pour l'Ergonomie des Logiciels Interactifs) dirigée par l'INRIA Rocquencourt

Financial support : INRIA

IAG Principal Investigator : J. Vanderdonckt



5. CENTRE OF EXCELLENCE IN SUPPLY CHAIN MANAGEMENT

Description : The Centre of Excellence in Supply Chain Management (CESCM) gathers a critical mass of faculty, researchers and experts in the field "supply chain management" (SCM). The definition of SCM is interpreted broadly to cover all aspects of production, logistics and the supplier relations. It combines operations management, management science and industrial organization in a systematic attempt to understand, model and support the multi-level organizational behaviour. The research is in particular oriented toward (1) empirical analysis, the economic and systemic modelling of inter-organizational relations, (2) the study and development of methodologies and techniques for the decision support systems at all hierarchical levels of the chain (3) the study, modelling and optimization of systems of decentralized or distributed coordination.

Participants :

- Per Agrell
- Paul Belleflamme
- Quentin Botton
- Xavier Brusset
- Philippe Chevalier
- Eléonore de le Court
- Moïra de Viron
- Bernard Fortz
- Roman Kasperzec
- Manuel Kolp
- Bénédicte Laverne
- Mathias Lorenz
- Yves Pochet
- Marco Saerens
- Pierre Semal

Publications

ABRAHAMSSON, H., BALON, S., BESSLER, S., d'ARIENZO, M., DELCOURT, O., DOMINGO-PASCUAL, J., ERBAS, S.C., GOJMERAC, I., LEDUC, G., ROMANO, S.P., SALVADORI, E., SKIVEE, F., TRAN, H.T., UHLIG, S., UMIT, H., "An Open Source Traffic Engineering Toolbox", under review.

AGRELL, P.J. and BOGETOFT, P., *Evolutionary Regulation : From CPI-X towards Contestability*, Position Paper, ENCORE, University of Amsterdam, 2003.

AGRELL, P., LINDROTH, R. and NORRMAN, A., Risk, Information and Incentives in Telecom Supply Chains, *International Journal of Production Economics* 90(1), pp. 1-16, 2004.

AGRELL, P.J. and NORRMAN, A., Understanding Supply Chain Risk Sharing : A Three-tier Principal-Agent Approach, Proceedings of the 16th Annual Conference for Nordic Researchers in Logistics, H. Aronsson (Ed.), pp. 12-35, Linköping, Sweden, June 7-8, 2004.

AGRELL, P.J. and KARANTININIS, K., Cooperative Supply Chains in Peace and at War, *Preprints 12th Working Seminar on Production Economics*, Igls, Austria, Feb 17-20, 2004, pp. 1-18.

BELLEFLAMME, P. and TOULEMONDE, E., "Product Differentiation in Successive Vertical Oligopolies", *Canadian Journal of Economics*, 36: 523-545, 2003.

BELLEFLAMME, P., "Le piratage des biens d'information", *Regards Economiques* 17, 2003.

BELLEFLAMME, P. and BLOCH, F., "Market Sharing Agreements and Collusive Networks", *International Economic Review*, 45(3): 387-411, 2004.

BELLEFLAMME, P., Pricing Information Goods in the Presence of Copying, in *The Economics of Copyright. Developments in Research and Analysis*, edited by W.J. Gordon and R. Watt, Edward Elgar, Uk, 2003.

CRETEUR M., Modélisation, Simulation et Diagnostic de performance de différents modes organisationnels en vue de planifier les séjours des patients, conference GISEH 2003, Lyon.

CRETEUR M., Les mécanismes de coordination : des outils de remplacement aux ressources tampons des institutions hospitalières, conférence GISEH 2004, Mons.

CRETEUR M., Les mécanismes de coordination : des outils de remplacement aux ressources tampons des institutions hospitalières, conférence ICSSHC 2004, Genève.

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Presentations made in conferences

AGRELL, P.J. and BOGETOFT, P., North American Productivity Workshop, University of Toronto, Canada, June 22-25, 2004, *Bias Correction in DEA*. Chairmanship.

AGRELL, P.J. and NORMAN, 16th Annual Conference for Nordic Researchers in Logistics (NOFOMA 2004), *Understanding Supply Chain Risk Sharing: A Three-tier Principal-Agent Approach* Linköping University, June 7-8, 2004.

AGRELL, P.J., European Regulatory TSO Benchmarking Workshop. *Challenges in TSO Regulation: Rewarding Sustainable Efficiency* Den Haag, May 29, 2004. Invited talk.

AGRELL, P.J. and KASPERZEC, LIS Belgian-Dutch Research Seminar on Logistics Management. *Coordination, Information and Incentives in Supply Chain Investment Sharing Plans* Erasmus University, Rotterdam, May 25., 2004.

AGRELL, P.J., BENINTENDI and BOGETOFT, P., First EU-DEEP Workshop on distributed generation, *Network Regulation*, Bruxelles, March 26, 2004.

AGRELL, P.J., Sveriges Energiting, *District heating prices, regulation and industry structure: lessons from Denmark* Eskilstuna, Sweden, March 10-11, 2004. Invited talk and panel discussant.

AGRELL, P.J. and BOGETOFT, P., Norges Energidagar 2003, , *Regulatory Dynamics*, Oslo, Oct. 17, 2003. Invited session.

AGRELL, P.J. and BOGETOFT, P., Eight European Workshop on Efficiency and Productivity Analysis (EWEPAS), *Collusion, Agent Heterogeneity and Frontier Yardstick Stability*. Oviedo, Spain, Sep 25-27, 2003.

AGRELL, P.J. and KASPERZEC, CREGI / POMS Workshop, *Dynamic Joint Investments in Supply Chains under Asymmetric Information*. FUCAM, Mons, February 3, 2004.

BELLEFLAMME, P., EEA-ESEM Conference in Stockholm (Thierry Brechet attended too), August 24-28, 2003.

BELLEFLAMME, P., The Economics of Two-Sided Markets, IDEI Toulouse, France (Jean Gabszewicz attended too), January 23-24, 2004.

BELLEFLAMME, P., Brevet – Innovation – Intérêt Général, Chaire Arcelor, UCL, Louvain-la-Neuve, March 11-13, 2004.

CHEVALIER, P., Optimizing Staffing for a Multi-Skill Call Center", avec R. Shumsky et N. Tabordon, présenté à la conférence EURO/INFORMS Joint International Meeting à Istanbul (Turquie), July 6-10, 2003.

CHEVALIER, P., Optimal Data Pre-fetching for Smooth Navigation of Large Scale Images, avec B. Macq et J. Ou, présenté à la conférence de la 12th INFORMS/Applied Probability Society Conference à Pékin (Chine), June 23-25, 2004.

FORTZ, B. Combinatorial optimisation and survivable network design, ALGOTEL'04, Batz-sur-Mer, France, May 2004.

On-Going Research Projects

BRUSSET Xavier

Modélisation des relations entre prestataires de services logistiques et leurs clients

Supervisor : P.J. AGRELL

COYETTE Adrien

Towards an Agent-Driven Requirements Approach for Designing User Interfaces

Supervisor : Manuel KOLP

DO Tung

Design Patterns for Multi-Agent Systems

Supervisor : Manuel Kolp

FOUSS François

Some novel similarity measures on a graph, with application
to collaborative filtering

Supervisor : Marco SAERENS

HOANG Thi Thuy Hang

Definition of a Conceptual Framework for E-Commerce
Systems Non-Functional Requirements

Supervisor : Manuel KOLP

KASPERZEC Roman

Dynamics of Coordination, Information and Investment in
Supply Chains

Supervisor : P.J. AGRELL

LAVERNE Bénédicte

Comparison of different phylogenetic methods.

Supervisor: P. CHEVALIER

LORENZ Mathias

Regulation Regimes of Decentralized Generation

Supervisor : P.J. AGRELL

NGUYEN Tai

A Multi-Agent Platform for Enterprise Web Services

Supervisor : Manuel KOLP

WAUTELET Yves

Multi-Agent Iterative Development for Managing Enterprise
Information Systems

Supervisor : Manuel KOLP

Conferences and workshops

Organized or co-organized by the centre of excellence

AGRELL, P.J., GAPEM Workshop, *The Micro-productivity Paradox Revisited*, UCL/IAG, Louvain-la-Neuve, February 2, 2004.

AGRELL, P.J. and KASPERZEC, R., Seventh European Working Group on Distributed Decision Making (EURO DDM VII), *Dynamic Joint Investments in Supply Chains under Asymmetric Information* UCL/IAG, Louvain-la-Neuve, April 16-17, 2004.

KOLP, M., VLDB 2004, 30th International Conference on Very Large Data Bases, Toronto, Canada, 2004.

Collaborations with other research centres

During this academic year the centre of excellence had active links with the following entities through visits and/or hosting of researchers from these institutions.

Norwegian School of Economics and Business Administration, Bergen,

Royal Agricultural University, Copenhagen, Denmark

Ecole Centrale de Paris, February 2004

Vrije Universiteit Amsterdam, June 2004.

Department of Finance and Management Science, Norwegian School of Economics and Business Administration, Norway,

Department of Industrial Management and Logistics, Lund University, Sweden,

Research Contracts

EU-DEEP

Financial Support : European Commission, DG Research

IAG Principal Investigator : Per Agrell
Research Assistant : Mathias Lorenz

The EU-DEEP project aims at developing business models for the deployment of DER (Distributed Energy Resources) in the European Market. The project under the 6th framework, involving 39 partners, among energy operators, industrial manufacturers, research centers, academics, professionals and national agencies, provides an interdisciplinary approach mixing engineering and economics both in theoretical and applied contexts. UCL (CORE/IAG) is involved in the subproject on sustainable and dynamic regulation models for DER, including analyses of technical and economic organization of the activity, related to coordination, information and market efficiency concerns. The work contributes to the development of a sustainable European regulation model for the integration of DER in unbundled energy markets, aiming at both theoretical and institutional models. The partners in the subproject cooperate closely with the research institute Fondazione Eni Enrico Mattei (FEEM) in Milano.

Risk Sharing in Collaborative Supply Chains

Financial Support : Vinnova, Ericsson in collaboration with Lund University

IAG Principal Investigator : Per Agrell

Research Assistant : Roman Kasperzec

The HAREM Information, Investments and Gliding Coordination Roles subproject in collaboration with the Lund University and Royal Agricultural University of Denmark is based on theoretical modeling work in close interaction with industrial partners (among them Ericsson). In particular, the focus is directed towards the dynamic allocation of coordination roles (such as inventory, quality and process control) in supply chains with asymmetric information and high potential conflicts

with respect to residual claims and risk management. HAREM has both provided positive results to enhance the understanding of coordination problems as well as normative models to inform decision makers on viable and incentive compatible models for long-term collaboration. The project has also a more ambitious vision to contribute to the formation of knowledge on trust and reputation mechanisms in supply chains, using analogies from models related to upstream traceability in commodity chains.

TOTEM (Toolbox for Traffic Engineering Methods)

Financial Support : Région Wallonne

IAG Principal Investigator : Bernard Fortz

Research Assistants : Hakan Umit and Selin Cerav-Erbas

The objective of the TOTEM project (TOolbox for Traffic Engineering Methods) is to develop a toolbox of algorithms for traffic engineering purposes. Therefore, we will unify the algorithms which we already proposed these last years and we will develop new techniques of traffic engineering applicable in a single network as well as between distinct networks. These techniques will take into account the distribution of the traffic, the fault-tolerance requirement and the support of the quality of service. We will develop generic algorithms for the optimization of networks of big size which will apply, on one hand, to IP networks, and on the other hand, to networks operated with (G)MPLS. Some of these algorithms will require extensions to the routing (OSPF-TE, ISIS-TE, BGP) or signalling (RSVP-TE) protocols which we will submit to IETF. Our toolbox will be available in open source and will be designed such that its elements can easily be integrated in various platforms such as Linux PCs, routers, and open source network simulators like NS and/or J-Sim.

The TOTEM project is funded by the Direction Générale des Technologies, de la Recherche et de l'Energie of the Walloon government. It started in November 2003 and will last for three years.

SKwyRL: Socio-Intentional ArChitecture for Knowledge Systems and Requirements ELicitation

Financial Support : FSR-UCL

IAG Principal Investigator : Manuel Kolp

Research Assistant : Tai Nguyen

The project aims at identifying and developing a collection of specific social and intentional architecture patterns for designing agent-based systems. It proposes to use human organizations as a metaphor to suggest a set of generic patterns for agent systems, with a preference for organizational design theories over social emergence theories. Patterns from organization theory describe the internal structure of organizations while theories for strategic alliances model the external collaboration of independent organizations that pursue agreed goals. Design parameters such as task assignment, standardization, supervision, management control, and strategy definition will be used to handle situational and contingency factors. The research will formalize these social and intentional patterns, and characterize precisely how a particular model can be seen as an instance of a pattern. The patterns will be compared with software architecture patterns such as pipes-and-filters, event-based, layered, control loop, and related to lower-level (software) components, ports, connectors, interfaces, libraries and configurations. The project will also propose desirable qualities of social structures such as adaptivity, ease of coordination, predictability, and fault tolerance, and define methods for evaluating a given social structure with respect to a set of qualities.

Object-oriented modeling and development of production databases for steel manufacturing

Financial Support: Carsid SA

IAG Principal Investigators : Manuel Kolp, Alain Pirotte

Research Assistant : Yves Wautelet

The project models part of the production databases of the « Coke-Fonte-Energie » Operation Center of CARSID and their applications in order to progressively re-engineer them. Such databases are

particular in the sense they manage synchronous data: thousands of variables are received every minute from numerous sensors all around the manufactories. The project also proposes the development of a master database that could be parameterized for the different CARSID manufactories.

Development of an extensible framework for Business-to-Consumer Applications Deployment. Partners: Walloon Region, CITOBI

Financial Support : FIRST Entreprise contract (Région Wallonne) in partnership with CITOBI S.A.

IAG Principal Investigators : Manuel Kolp, Alain Pirotte

Ce projet a pour but la conception d'une plate-forme de gestion d'applications d'interactions spécifiquement adaptée aux entreprises et organisations en relation avec une très grande base de clients/consommateurs (entreprises commercialisant des produits et services de grande consommation, administration). Elle offrira un outil intégré permettant de répondre aux besoins de gestion de flux d'information émanant de clients/consommateurs dans le cadre d'organisations de cette dimension.

Parmi les services offerts par cet outil on trouvera la gestion de bases de connaissances en plusieurs langues (adaptation immédiate au marché européen), la gestion du routage des flux; la gestion de workflows, la gestion de campagnes de marketing direct, la gestion du reporting, élaboration de statistiques

Plateforme de travail collaboratif pilotée par des assistants artificiels: Région Wallonne, Denali S. A.

Financial Support: FIRST Entreprise contract (Région Wallonne), Denali S.A.

Principal Investigators : Manuel Kolp, Marco Saerens

Ce projet consiste en l'analyse et la conception d'une plateforme multi-agent de travail collaboratif basée sur la création d'un espace virtuel partagé sur Internet et sur l'utilisation d'assistants artificiels (agent) de coordination.

Development of an information retrieval and data integration tool for e-business applications

Financial Support: CGRI - Communauté Française de Belgique, Agence Universitaire de la Francophonie

IAG Principal Investigators : Manuel Kolp, Alain Pirotte

Research Assistant : Tai Nguyen

The project consists in analyzing and developing a multi-agent platform based on social design patterns (broker, mediator, wrapper, monitor, matchmaker, ...) to propose information retrieval and data integration services for e-business applications. The platform follows an organizational architecture to integrate the patterns. The implementation is realized in a generic way allowing software components reuse, specifically within the JACK agent programming environment. The proposed approach follows BDI (Belief-Desire-Intention) cognitive specifications and FIPA (Foundation for Intelligent Physical Agents) recommendations.

Requirements Analysis for Developing a Datawarehouse for the Federal Retirement Administration

Financial Support : SSTC- Federal Office for Scientific, Technical and Cultural Affairs, Federal Retirement Administration

IAG Principal Investigators : Manuel Kolp, Alain Pirotte, Michel Denuit (STAT)

Création d'un « datawarehouse » socioéconomiques relative aux pensions du secteur public dont l'Administration des pensions établit le droit, calcule le montant et assure la gestion. La conversion des

données en information s'appuie sur un 'analysis and decision making tool' à développer. L'exploitation du datawarehouse a pour but le support professionnel des 'decision makers', notamment: le management de l'Administration, les responsables politiques (= le Ministre et son cabinet), le futur Conseil Stratégique et la future Cellule Stratégique. Par l'intermédiaire de différents médias (intranet, internet, publications, ...) l'Administration souhaite mettre ses informations à disposition tant des chercheurs scientifiques (universités, syndicats, bureaux d'études ...) , que d'un public plus large.

Détermination des poids optimaux pour le routage OSPF dans les réseaux Internet

Financial Support : Université Catholique de Louvain (FSR)

IAG Principal Investigators : Bernard Fortz

Dans les réseaux de type internet, le routage le plus utilisé envoie les messages le long des plus courts chemins jusqu'à la destination. Dans un travail précédent, nous avons montré qu'une détermination « intelligente » des poids utilisés pour le calcul des chemins permet d'augmenter la capacité utilisable du réseau. Ce projet a pour but d'étudier la structure du problème d'optimisation sous-jacent afin de développer une méthode de résolution plus efficace.

6. CENTRE OF EXCELLENCE IN STRATEGY AND DYNAMICS OF ORGANIZATIONS

Description : The intensification of competition, the opening of markets and the accelerated rhythm of innovation have radically changed the environment of European companies, whatever their size or activity. Their strategic decisions and the way they are put to work within the company must be constantly revised; if not, they will become rapidly obsolete.

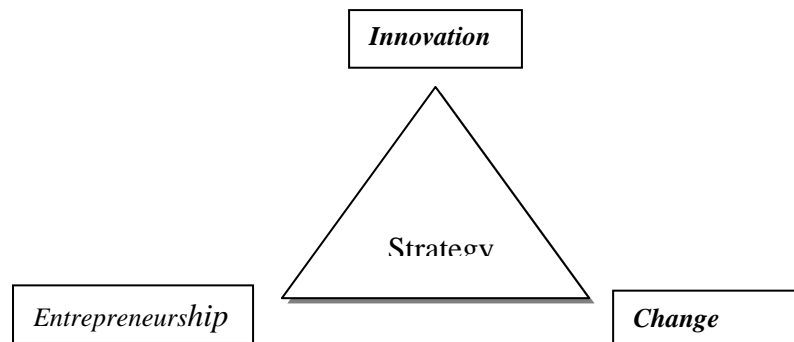
This is the context in which the Strategy and Dynamics of Organizations centre of excellence is developing IAG's expertise. This tackles the capacity of European company strategy to generate innovation and manage change. This can then be translated into long lasting competitive advantages.

Three themes characterise this approach to company strategy:

Innovation

Entrepreneurship

Change



Strategy

Within this framework, the centre of excellence will draw upon expertise from several areas of management where strategy and

the organization as such have an important role to play. Innovation management, entrepreneurship, management control, strategy, social psychology of organizations, organizational theory and strategic marketing are the most obvious ones.

Participants :

- Paul Belleflamme
- Flore Bridoux
- Régis Coeurderoy
- Ali Coulibaly
- André de Béthune
- Nathalie Delobbe
- Chantal de Moerloose
- Yves De Ronge
- Valérie Devos
- Delphine Dion
- Valérie Duplat
- Fathi Et Taoufik
- Benoît Gailly
- Frank Janssen
- Christophe Lejeune
- Evelyne Léonard
- Biga Mahamadou
- Anne-Joelle Philippart
- Isabelle Schuiling
- Laurent Taskin
- Alain Vas
- Robert Wtterwulghe

Publications

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BELLEFLAMME, P., "Le piratage des biens d'information", *Regards Economiques* 17, 2003.

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JANSSEN, F. and GAILLY, B., (2004). Esprit d'entreprise, es-tu là? *La Libre Belgique*. Bruxelles: 6.

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FAYOLLE, A. and GAILLY, B. (2004). "Using the theory of planned behaviour to assess entrepreneurship teaching programs: A first experimentation". Internationalizing Entrepreneurship Education and Training Conference, Naples, Edizioni Scientifiche Italiane.

JANSSEN, F. and STREYDIO, J.-M., « Entrepreneurship programs, purposes and pedagogy : the experience of the Catholic University of Louvain», dans Université de Malaga, Jornadas para la transferencia de la experiencia emprendedora en las universidades de Andalucia , Malaga, November 2003.

JANSSEN, F., « Determinants of SMEs' employment growth relating to the characteristics of the manager », 23d Annual International Conference of the Strategic Management Society (SMS), Baltimore, November 2003.

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JANSSEN, F. and STREYDIO, J.-M. (2003), « Objectives and methods of a multidisciplinary entrepreneurship education program : the experience of the Catholic University of Louvain», dans European Commission, Ecole des Mines d'Alès, University of Cambridge et Université Polytechnique de Catalogne, *Entrepreneurship education and innovation for cluster development in enlarged Europe* , Nîmes, October 2003.

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NANTEUIL-MIRIBEL de, M., LEONARD, E., SCHOTS, M. and TASKIN, L., *Les flexibilités en Europe : Pratiques, décisions, négociations*, Louvain-la-Neuve/IST/Dossier 22, 2004.

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VAS, A. and BYOSIERE, P., Understanding diffusion of Innovation through the Interaction of Social Networks and Organizational Knowledge, *Hawaai International Conference on International Business*, Honolulu, Hawaai, 2004.

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VAS, A. and INGHAM, M., *Ion Beam Application : croissance d'une PME belge à vocation globale*. Etude de cas et Note pédagogique en Management Stratégique, avec le soutien du CIM, 2003.

Presentations made in conferences

BELLEFLAMME, P., EEA-ESEM Conference in Stockholm (Thierry Brechet attended too), August 24-28, 2003.

BELLEFLAMME, P., The Economics of Two-Sided Markets, IDEI Toulouse, France (Jean Gabszewicz attended too), January 23-24, 2004.

BELLEFLAMME, P., Brevet – Innovation – Intérêt Général, Chaire Arcelor, UCL, Louvain-la-Neuve, March 11-13, 2004.

BRIDOUX; F., *13ème Conférence de l'Association Internationale de Management Stratégique (AIMS)* Le Have, June 2004.

FATHI, E.T. and GAILLY, B., Contraintes de liquidité, investissement et propriété : cas des PME belges de haute technologie, 9th Belgian Financial Research Forum, Solvay School, Bruxelles, May 6, 2004.

FATHI, T. and GAILLY, B. (2004). "Contraintes de liquidité, investissement et propriété (cas des PME belges de haute technologie)". *9th Belgian Financial Research Forum*, Brussels.

GAILLY, B., "Peut-on enseigner l'entrepreneuriat à l'université, Une expérience en Belgique francophone ?". *Journées de l'OPPE*, Grenoble, 2003.

JANSSEN, F., Chairman Forum "Responsabilité sociale des entreprises et développement durable dans les PME", Heraclite ASBI, UCL, Université catholique de Lille, "Ethique, culture et management du changement : de l'éthique par le changement au changement par l'éthique", Louvain-la-Neuve, May 25, 2003.

On-Going Research Projects

BIGA D. Mahamadou

Analyse de trajectoire des entreprises à forte croissance
Supervisor : Benoît GAILLY

BRIDOUX Flore

A Resource-Based Approach to Competition : A Study of the
Interactions among Resources, Competitive Environment and
Competitive Behaviors
Supervisor : Paul BELLEFLAMME

DULAC Tanguy

The development of the psychological contract during the
newcomer's organizational socialization
Supervisor : Nathalie DELOBBE

FATHI Et-taoufik

Le comportement financier des jeunes entreprises innovantes
et en forte croissance (cas de la Belgique)
Supervisors : Aimable QUINTART and Benoît GAILLY

LEJEUNE Christophe

Gestion adaptative des ressources et modifications
structurelles des Business Schools dans un environnement
mouvant caractérisé par une concurrence accrue.
Supervisor : Alain VAS

PHILIPPART Anne-Joëlle

L'impact de l'Internet sur la fourniture de services financiers
aux PME et ses conséquences sur la relation
Supervisor : Benoît GAILLY

TASKIN Laurent

Les modes de contrôle chez les télétravailleurs

Supervisors : Armand SPINEUX and Gérard WARNOTTE

Conferences and workshops

Organized or co-organized by the centre of excellence

GAILLY, B., Workshop du Groupe permanent Recherche-Développement à l'IAG, December 10, 2003.

GAILLY, B., Colloque IAG-ICHEC, Croire en croître : l'innovation comme outil de développement des PME, March 22, 2004.

TASKIN, L. (IAG) and VENDRAMIN, P. (FTU), « Le télétravail dans la société de la connaissance », organisation d'ateliers-débats dans le cadre des activités de recherche du E-Management Competence Center et de la FTU-Namur, 11 mars et 1er avril 2004, Louvain-la-Neuve, IAG.

TASKIN, L. (IAG), Télétravail: des mythes aux enjeux, Séminaire de facteurs contextuels du travail, Université Libre de Bruxelles, 31 octobre 2003.

VAS, A., La propagation d'un changement stratégique au sein des grandes organisations, Workshop du GREMCO (Groupe de Recherche en Management et Coordination des Organisations) appartenant au laboratoire CLAREE (Centre Lillois d'Analyse et de Recherche sur l'Evolution des Entreprises), IAE Lille, 2004.

VAS, A., Les facteurs de propagation du changement au sein des grandes organisations, Workshop "Health Systems Research" de l'unité de Sciences Hospitalières de l'UCL, Louvain en Woluwe, Belgique, 2004.

VAS, A., Des méthodes qualitatives pour comprendre les changements organisationnels majeurs, Séminaire doctoral, Université du Québec à Montréal (UQAM), Montréal, Canada, 2003.

VAS, A., Etude des changements organisationnels majeurs : une approche longitudinale par étude de cas, Workshop sur « le changement organisationnel : du cadre théorique à la méthode » organisé par le RODIGE (Recherches sur l'Organisation, la Dynamique et l'Information de la Gestion des Entreprises), CNRS-LEM, Université de Nice Sophia-Antipolis, Nice, France, 2003.

Collaborations with other research centres

During this academic year the center of excellence had active links with the following entities through visits and/or hosting of researchers from these institutions.

Fondation universitaire luxembourgeoise
EDHEC.
Université du Québec à Trois-Rivières, Canada,
Appalachian State University, USA,
Clemson University, USA,
Université de Lausanne
HEC Paris,
Ulg,
Trinity College, Dublin,
INPG, Valence,
Université Laval, Québec, Canada,
European University Institute, Florence, Italy,
Ecole des Mines d'Alès, France,
University of Alicante, Spain,
ESADE, Barcelona, Spain,

Research Contracts

Understanding the growth trajectories of start-up firms

Financial Support : Banque Nationale de Belgique
IAG Principal Investigator : B. Gailly
Research Assistant : Biga Mahamadou

In line with the work of Delmar and Davidsson, (1998) which examines the types of distinct growth patterns that high-growth firms exhibit and how these growth patterns and corresponding firms differ from each other in terms of their demographic affiliation, the aim of this research project is to develop and use advanced multivariate data analysis methods to analyze the growth trajectories of the firms that have contributed significantly to the economic development of their region.

Entrepreneuriat en Belgique

Financial Support : Collège Interuniversitaire pour les Sciences du Management (CIM), Fortis Banque, Région Wallonne
IAG Principal Investigator : Frank Janssen

Réalisation d'un manuel d'études de cas sur l'entrepreneuriat en Belgique en collaboration avec l'Ulg et la Vlerick Leuven-Gent Management School.

The development of the psychological contract during the newcomer's organizational socialization

Financial Support : Collège Interuniversitaire pour les Sciences du Management (CIM)
IAG Principal Investigator : Nathalie Delobbe
Research Assistant : Tanguy Dulac

Recent waves of mergers and reorganizations as well as the increasing use of temporary employment contracts led to job insecurity and career transitions for many categories of workers, and deeply modified the relationship between employees and employers. Many researchers argue that psychological contracts are playing an increasingly important role in helping to define and understand the contemporary

employment relationship (e.g. Rousseau, 1995). Psychological contracts consist of individuals' beliefs regarding the terms and conditions of the exchange agreement between themselves and their organizations (Rousseau, 1989). They refer to the way the employment contract is interpreted, understood and enacted by employees at the interface between themselves and their employing organization (e.g. Millward & Brewerton, 2000).

Based on the literature review regarding the psychological contract, we have identified two relevant guidelines in the study of the psychological contract.

First, many research have studied the impact of the psychological contract – the breach or the fulfillment of the psychological contract – on work attitudes and behaviors. However, there is a lack of knowledge about the antecedents that affect the development of the newcomer's psychological contract. At the theoretical level, some scholars have proposed models of psychological contract development (e.g. Morrison & Robinson, 1997; Shore & Tetrick, 1994; Turnley & Feldman, 1999), but few empirical studies explicitly address the proposed relationships. As to date, only one recent empirical study (De Vos, 2002) has studied the impact of some individual antecedents on newcomers' psychological contracts. Moreover no research has studied the impact of human resource management practices on the emergence and development of newcomers' psychological contracts. Therefore, *our first research objective is to study organizational and individual antecedents that affect the emergence and development of newcomers' psychological contracts.*

Next, as in the case with many topics in organizational behavior (Goodman, Ancona, Lawrence & Tushman, 2001), the literature on the employment relationship has been relatively silent concerning the developmental aspects of the employment relationship and the underlying psychological contract that people may hold. However, it has been acknowledged that psychological contract may be formed during the recruitment and selection process and develops during the socialization period (Tetrick *et al.*, 2002). Therefore, *our second*

research objective is to explore how psychological contracts develop and change over time during organizational socialization.

In conclusion, this study aims at contributing to the psychological contract and organizational socialization literature by examining how the development of the psychological contract is a central component of the adjustment process following entry into a new organizational context. The purpose of this doctoral research project is to *study the emergence and development of the psychological contract during the newcomer's organizational socialization.*

7. OTHER RESEARCH ACTIVITIES

An intense research activity is also going on in areas beyond those of the existing centers of excellence. We hope that this activity will at some point permit the creation of more centers of excellence. But part of the school's policy is to encourage researchers to explore new avenues outside the existing established themes, as research needs to stay in touch with new ideas.

Publications

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AKTAS, N., de BODT, E. and ROLL, R., "European M&A regulation is protectionist" (joint with E. de Bodt and R. Roll), working-paper n° 6-04, University of California at Los Angeles.

ANDREU, L., BECKMANN, S., BIGNE, E., CHUMPITAZ, R. and SWAEN, V., "Corporate Social Responsibility in the eye of the beholder : The case of European business students", *33rd European Marketing Academy Conference*, CD-rom, Murcia, Spain, May 18-21, 2004.

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BAKENGELA SHAMBA, P., Les pratiques de gestion des ressources humaines dans les entreprises publiques africaines :un regard croisé entre le Cameroun et la république démocratique du Congo, March 2004.

BAKENGELA SHAMBA, P., Enquêtes dans deux entreprises publiques à Kinshasa et à Kananga (R.E. Congo), March-July 2004.

BEN OMRANE, W., "The foreign exchange quoting activity as an informative signal", (en coll. avec A. Heinen), *AFFI – Association française de finance*, Paris-France, June 2004.

BEN OMRANE, W. and VAN OPPENS, H., "The predictive success and profitability of chart patterns in the Euro-Dollar foreign exchange market", CORE discussion paper n° 2004/35, 2004.

BIELEN, F. and SEMPELS, C., "*How intangibility affects perceived risk regarding the degree of service knowledge and service use*", Marketing Science Conference, Rotterdam, the Netherlands, June 23-26, 2004.

BIELEN, F. and SEMPELS, C., "Proposition d'une nouvelle échelle de mesure du degré d'intangibilité d'une offre de service", Document de travail n° 2003-08, Labores, IESEG.

BRECHET, T. A pollution globale, solution globale, *Le Soir*, Carte Blanche, April 15th, 2004.

BRECHET T., Kyoto, Pandore et l'industrie, *L'Echo*, July 8th, 2004.

BRECHET, T. and LAMBRECHT, S., "Altruism and sustainability: a framework for analysis", CLIMNEG Working Paper n°60.

BRECHET, T., GRANDJEAN, G., LUSSIS, B., « Le Mécanisme pour un Développement Propre dans le contexte belge : une évaluation macroéconomique », mimeo CORE-IDD.

BRECHET, T., GERMAIN, M. and van STEENBERGHE, V., "Developing countries, the Clean Development Mechanism and the low-hanging fruits issue", mimeo, CORE, Université catholique de Louvain.

BRECHET, T. and MICHEL Ph., "Environmental performance and equilibrium", mimeo CORE-EUREQua (U. Paris I).

BRECHET, T., GERMAIN, M. and MONTFORT, P., "Spécialisation internationale et partage de la charge en matière de réduction de la pollution", Environmental Economics & management Memorandum #3, CORE-UCL et IRES Discussion Paper n°2003-19.

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de BODT, E., RYNKIEWICZ, J. and COTTRELL, M., "Some known facts about financial data", *forthcoming European Journal of Economic and Social Systems*.

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Munich, Pet 03 – Public Economic Theory, Duke University, Durham
– et IIPF 2003 – International Institute of Public Finance, Prague.

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GERARD, M., « Do we need a European Tax System? If yes, on what, why and how? », *CESifo Munich-Delphi Conference "Designing a new EU"*, Munich.

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ZURSTRASSEN, P., "Examining new findings on capital adequacy for investment funds", Funds Forum, Centre de Conférence de Nice, France, July 1-3, 2003.

ZURSTRASSEN, P., "Absentee landlords : the governance of and for pooled investment : the case of investment funds", International Corporate Governance Network, Assemblée Générale, Amsterdam, July 9-11, 2003.

ZURSTRASSEN, P., "Are there any universal best practices for fund directors ? Is an independent board sufficient ? Other approaches to confront conflicts of interest ? As ultimate solution : should banks sell their management companies ? What is with professionalism ? How to handle delegation ?", FEFSI, Fédération Européenne des Fonds et Sociétés d'Investissement, Assemblée Générale, Bruxelles, Présidence et conclusion du panel traitant du gouvernement d'entreprise des sociétés de gestion, September 18-19, 2003.

ZURSTRASSEN, P., participation à un panel avec D. Thienpont de la Commission Européenne sur le thème de "l'évolution des responsabilités des administrateurs de fonds, Institut des Réviseurs d'Entreprises, Assemblée Générale, Luxembourg, October 2, 2003.

ZURSTRASSEN, P., Association pour le Transfert de Technologies Financières, Séminaire sur la supervision de la gestion collective dans l'UE destiné aux pays candidats à l'accession (plus Russie et Ukraine), conception du programme et prise en charge directe de la journée consacrée au gouvernement d'entreprises de gestion collective, Luxembourg, November 24-28, 2003.

ZURSTRASSEN, P., MGI Conference : "The 3rd Funds Compliance Summit", "The acceleration of change in funds governance", Luxembourg, February 5-6, 2004.

ZURSTRASSEN, P., Conférence sur le gouvernement des fonds d'investissement à la lueur de la nouvelle directive européenne

OPCVM III, ALFI (Association Luxembourgeoise des Fonds d'Investissement), May 13, 2004.

ZURSTRASSEN, P., Présidence de panel avec la Commission de Surveillance du Secteur Financier et les principaux avocats de l'interprétation de la nouvelle directive européenne OPCVM III, ALFI (Association Luxembourgeoise des Fonds d'Investissement), June 9, 2004.

ZURSTRASSEN, P., Conception et réalisation de la gouvernement d'entreprise d'un nouveau séminaire interactif sur le gouvernement des fonds d'investissement à la lueur de la nouvelle directive européenne OPCVM III, Création dd "Chapman", un nouveau jeu de simulation de mise en place de structure de gouvernement d'entreprise de gestion, Institut de Formation Bancaire à Luxembourg en partenariat avec l'ALFI (Association Luxembourgeoise des Fonds d'Investissement), June 18-21, 2004.

On-Going Research Projects

BEN OMRANE Walid

Microstructure Factors Effect on the Foreign Exchange Volatility : an Empirical Framework in the Euro/Dollar Currency Market
Supervisor : Luc BAUWENS

BROUHNS N;

A unified approach to various non-life ratemaking problems
Supervisor : M. DENUIT

COURTOIS C.

Risk theory under partial information and dependence
Supervisor :M. DENUIT

CULTIAUX John

L'épreuve de la déqualification : une sociologie de la marge

Supervisors : Thomas PERILLEUX and L. VAN
CAMPENHOUDT

DELWARDE A.

Modern statistical methods for insurance pricing

Supervisor : M. DENUIT

ESPINOSA B

Le contrôle et la construction des accords au sein des
organisations

Supervisors : Thomas PERILLEUX and Robert COBBAUT

PURCARU O.

"Modelling time series of claims counts, with emphasis to
credibility problems"

Supervisor : M. DENUIT

SEMPELS Christophe

L'intangibilité d'une offre globale de services :
conceptualisation, opérationnalisation, variables d'influence et
impact sur le niveau de risqué perçu

Supervisor : Robert PEETERS

SWAEN Valérie

Etude des perceptions et réactions des consommateurs face
aux activités citoyennes des entreprises : application dans
deux catégories de produits

Supervisor : Marie-Paule KESTEMONT

VAN OPPENS Hervé

Economics and detection of informed trading on financial markets

Supervisors : Eric DE BODT and Nihat AKTAS

Conferences and workshops

Organized or co-organized by the school

BRECHET, T. (CORE, Chair Lhoist Berghmans) and TULKENS, Ph. (Bureau fédéral du Plan), « Equity, efficiency and burden sharing in pollution abatement", 13 November 2003

BRECHET, T., « Why Environmental Kuznets Curves overlap: Growth, Pollution, and General Purpose Technologies », Sjak Smulders (Tilburg University), (joint with the Séminaire Economique de Louvain, IRES), November 20, 2003.

BRECHET, T. (CORE, Chair Lhoist Berghmans), «An analysis of the contribution of the Clean Development Mechanism to the Belgian climate policy", March 18, 2004.

BRECHET, T., « Emissions Trading in the U.S.: Experience and Lessons », Denny Ellerman (Center for Energy and Environmental Policy Research, Massachusetts Institute of Technology), 1st April 2004

BRECHET, T., « First simulations of the European directive on emissions trading with the GEMINI-E3 model », Alain Bernard (Ecole des Ponts et Chaussées), Laurent Viguié (HEC, Genève et Ecole Polytechnique, Lausanne) and Alain Haurie (HEC, Genève), April 29, 2004.

BRECHET, T., « Economic valuation of the impacts of air pollution », Olivier Chanel (CNRS-GREQAM-IDEF, Marseille), May 13, 2004.

BRECHET, T., « Is inequality harmful for the environment? », Hubert Kempf (EUREQua, U. Paris I), (joint with the Economic Theory Seminar, CORE), June 7, 2004.

PERILLEUX, T., "L'idéologie gestionnaire", conference de V. de Gaulejac (prof., Paris VII, directeur du Laboratoire de Changement social), May 2004.

Collaborations with other research centres

During this academic year the school had active links with the following entities through visits and/or hosting of researchers from these institutions.

Faculty of Business Administration, Simon Fraser University, Canada,
Centre d'études sociologiques (CES).

Institut de psychologie, (ARBRH)

Laboratoire de changement social (LCS), UFR de Sciences sociales,
Université Denis-Diderot (Paris VII), France

Laboratoire d'Analyse des Systèmes de communication
d'Organisations (LASCO), département de communication

EUREQua, Université Paris I Panthéon-Sorbonne

Université FLACSO, Quito, Ecuador, December 2003

CREQAM, Centre de la Vieille Charité, Université de la
Méditerranée, Marseille, France,

HEC-DEEP Université de Lausanne, Switzerland,

GREMARS, Université Lille 3

University of California at Los Angeles, Anderson School, Finance
Department

IESEG School of Management, Lille, France

Research Contracts

Etude des perceptions et réactions des consommateurs face aux activités citoyennes des entreprises : Application dans deux catégories de produits.

Financial Support : Belgian National Fund for Scientific Research

IAG-Principal Investigator : Marie-Paule Kestemont

Research Assistant : Valérie Swaen

The Clean Development Mechanism, design and implementation

Financial Support : SPP Politique Scientifique, Gouvernement belge

IAG Principal Investigator : Thierry Bréchet

Research Assistant : Gilles Grandjean

The objective of this project is to provide Belgium with the tools allowing it to have recourse to the Clean Development Mechanism, both as an instrument of flexibility under the aegis of the Kyoto protocol, but also as an instrument contributing to sustainable development and to the reduction of the North / South inequalities: it allows industrialized countries to meet part of their commitment by undertaking abatement projects in developing countries. This dual objective necessitates not only an excellent understanding of the institutional framework but also of the scientific tools necessary to the implementation of CDM projects and the potentials for technological transfers. Research at CORE has concentrated on the economic analysis of this instrument and on the debated question whether developing countries have interest to host greenhouse-gas abatement projects in the framework of the Clean Development Mechanism.

GREENMOD, a multi-regional multi-sectoral computable general equilibrium model for the environment

Financial Support : SPP Politique Scientifique, Gouvernement belge

IAG Principal Investigator : Thierry Bréchet

Research Assistant : Marc Germain

The objective of this project is to develop a dynamic, multi-regional and multi-sectoral general equilibrium model of the Belgian economy integrated in a global model to analyse problems related to environment and energy. The so-called GreenMod model is intended to act as an analytical and quantitative support for decision-making in the energy and environment field, in particular for the policies to reduce greenhouse gas emissions. The contribution of CORE to the GreenMod project is focused on the modeling of tradable permits markets. On the one hand, different alternatives to the walrasian market were studied and summarized in a unified theoretical framework. On the other hand, a critical survey was carried out around the modeling of tradable permits markets in several reference economico-ecological models.

CLIMNEG II

Financial Support : SPP Politique Scientifique, Gouvernement belge

IAG Principal Investigator : Thierry Bréchet

Research Assistant : Stéphane Lambrecht, Marc Germain, Vincent Vansteenbergh

The CLIMNEG-II project consists of a research network in interdisciplinary researches on decision making for climate policies, with special attention paid on climate negotiations, integrated assessment and equity issues. This network is

coordinated by CES – Katholieke Universiteit Leuven (Stef PROOST) and also gathers ASTR – Université catholique de Louvain (Jean-Pascal van Ypersele) and CORE - Université catholique de Louvain (Claude d'ASPREMONT and Thierry Bréchet). The specific objectives of the CORE team are, on the one hand, to develop the overlapping generations tool in the analysis of international cooperation and intergenerational equity and, on the other hand, to analyze the issues raised by banking and borrowing strategies over the second Kyoto commitment period. The agenda of the whole project and working papers can be consulted at the website <http://www.climneg.be>.

Les travailleurs peu qualifiés face à la modernisation des entreprises publiques. Penser l'agir personnel et l'action collective.

Financial Support : CSC

IAG Principal Investigator : J. CULTIAUX

La modernisation des services publics s'impose jour après jour comme une réalité indiscutable et essentielle. Mais, si elle bouleverse les entreprises et mobilise experts comme gestionnaires, elle interpelle aussi quotidiennement le travailleur qui vit ces transformations, les organisations syndicales qui en négocient les aspects concrets mais également la chercheur qui y voit une des manifestations caractéristiques d'un changement social de grande ampleur. Ce premier rapport, s'appuyant sur la rencontre de ces trois intérêts, vise à mettre en lumière la réalité concrète, du point de vue de ceux qui les vivent, des transformations concrètes induites par la modernisation. Il rend compte d'un travail approfondi d'interrogation des registres de l'action singulière et collective et des problématiques spécifiques qui émergent dans ce champ en mutation. Il constitue, enfin, la phase exploratoire d'un projet de plus grande ampleur qui est poursuivi avec les mêmes partenaires.

Key-words : Changement institutionnel, changement organisationnel, changement personnel, entreprises publiques, modernisation, action sociale.

Mortalité des pensionnés du secteur public : analyse actuarielle et démographique

Financial support : Mission AGORA des SSTC pour l'Administration des Pensions du Ministère des Finances

Research Assistant : Antoine Delwarde

L'étude vise à fournir un support démographique et actuariel du programme "Exsyspen" de l'Administration des pensions par lequel des estimations à long terme concernant l'évolution du volume et du coût des pensions du secteur public 2002-2050 peuvent être établies.

Datawarehouse des pensions du secteur public : analyse des besoins externes

Financial support : Mission AGORA des SSTC pour l'Administration des Pensions du Ministère des Finances

Research Assistant : Natacha Brouhns

L'étude a pour but d'étudier la création d'un "datawarehouse" socioéconomique relative aux pensions du secteur public dont l'Administration des pensions établit le droit, calcule le montant et assure la gestion.

Longevidad y estado de salud : medicion de la esperanza de vida segun grados de discapacidad

Financial support : Banque BVVA (Spain)

Ce projet veut analyser l'évolution de la mortalité et du degré de dépendance (i.e. besoin d'une aide externe pour les personnes

handicapées) chez les personnes âgées dans différents pays de l'Union européenne.

Analyse de la mortalité des affiliés de la Régie des Rentes du Québec – RRQ

Financial support : RRQ, Québec

Research Assistants : Antoine Delwarde (UCL) et Frederick Guillot (Laval)

Le but de ce travail est de comparer la mortalité des rentiers de la RRQ à celle des populations canadienne et québécoise. Ensuite, une analyse plus fouillée de l'influence de certains facteurs exogènes, comme le sexe, le niveau de la rente ou la durée de service sur la survie des rentiers sera étudiée sur base des données fournies par la RRQ relatives à la période 1966-2000.

Nouvelles méthodes de gestion des risques assurantiels et financiers

Financial support : Fonds spéciaux de recherche, UCL

Research Assistant : Cindy Courtois

Notre projet s'articule autour de deux grands thèmes : l'amélioration de la gestion des risques assurantiels souscrits par les entreprises d'assurance et l'intégration des techniques actuarielles et financières. L'intérêt majeur de notre démarche est de proposer de nouvelles stratégies de gestion des risques, fournissant des alternatives pertinentes aux approches classiques des actuaires.

Développement de solutions informatiques dans le domaine de la gestion des risques

Financial support : Programme FIRST SPIN-OFF de la Direction générale des Technologies, de la Recherche et de l'Energie du Ministère de la Région wallonne – DGTRE Division de la Recherche et de la Coopération scientifique.

Research Assistant : Xavier Maréchal

Ce projet de recherche vise tout d'abord à développer de nouveaux outils de gestion des risques assurantiels. Il s'agit ici de répondre aux besoins technologiques du monde de l'assurance (sélection des risques, mécanisme de personnalisation a posteriori du montant des primes, analyse financière dynamique, détection de la fraude, réassurance, évaluation des provisions, etc.), des fonds de pension (évaluation précise du passif du fonds, projections de cash flows, problématique liée à la longévité des rentiers, etc.) et des grandes entreprises (degré d'auto-assurance, contrôle des primes réclamées par les assureurs, gestion des captives d'assurances, etc.). Rentre également dans le champ du projet de développement d'outils de prospective permettant d'évaluer les conséquences futures de certaines décisions politiques (la mise sur pied d'un régime d'assurance dépendance, par exemple) et d'outils permettant la capitalisation des dommages corporels en vue de réparer un préjudice.

Outre les développements scientifiques nécessaires à une meilleure gestion des risques, le projet vise aussi à développer des outils informatiques permettant le transfert des technologies mises au point au sein du laboratoire universitaire vers la société : le monde industriel au sens large et les acteurs du secteur de l'assurance (sociétés d'assurance, sociétés de réassurance, fonds de pension, etc.).

Méthodes statistiques modernes d'évaluation du risque

Financial support : Fonds pour la Formation à la Recherche dans l'Industrie et l'Agriculture (FRIA)

Research assistant : Antoine Delwarde

Le projet vise le développement de modèles réalistes d'évaluation du risque s'affranchissant de la vision actuarielle classique, qui privilégie des solutions explicites dans des modèles parfois simplistes. Il est prévu de recourir aux techniques numériques (simulations, méthodes MCMC) pour en démontrer la valeur ajoutée par rapport aux techniques standard d'analyse. Les applications toucheront

notamment aux projections de la mortalité, aux effets non linéaires en tarification IARD, et aux lois prédictives en théorie de la crédibilité.

Polypléidisations, hybridations et introgressions dans le genre *Dactylorhiza* (Orchidaceae)

Financial Support : FSR (Fonds spécial de recherche de l'UCL), FRFC (Fonds de la recherche fondamentale collective, FNRS, Bruxelles), FRIA (Fonds pour la recherche dans industrie et l'agriculture), depuis septembre 2000

Partenaire: Unité d'Ecologie et de Biogéographie de l'UCL (promoteur: Prof. A.-L. Jacquemart; collaboratrice: Prof. R. Wesselingh; chercheur: N. Devos)

IAG Principal Investigator : Daniel Tyteca

This research deals with speciation and evolution of species within the genus *Dactylorhiza* (Orchidaceae). This genus presents a large number of species, despite the massive extinctions that occurred during the pleistocene glaciations. That suggests a high rate of speciation during the past 10000-15000 years. Moreover, *Dactylorhiza* species are very variable morphologically and their taxonomic status is not very well defined. Indeed, most of the species seem to have hybrid, auto- or allo-ploid origin. Our aim is to use allozyme and chloroplast DNA markers to better understand the impact of hybridization, introgression and polyploidization on the evolution of the genus *Dactylorhiza* in north-west Europe.

Projet PIRENE - Programme Intégré de Recherche Environnement - Eau

Financial Support : Ministère wallon de l'aménagement du territoire, de l'urbanisme et de l'environnement, depuis novembre 2000

Partenaires: Coordination Dr. J. SMITZ, Centre Environnement, Université de Liège; dix-huit partenaires à travers la Communauté française (centres de recherche universitaires et organismes publics)

IAG Principal Investigator : Daniel Tyteca, responsable de la partie "Analyse économique des utilisations de l'eau"

Research Assistants : A. Bettendorffer, F. Dehoux

Le programme PIRENE a pour objet de fournir aux autorités wallonnes un outil d'aide à la décision en matière de gestion des ressources en eau. Sont prises en considération les eaux de surface, les eaux souterraines, les apports en eaux de précipitations et d'écoulement, ainsi que les divers interfaces de ces systèmes entre eux et avec les écosystèmes directement liés, comme les zones humides. Le programme vise à l'élaboration de modèles décrivant le comportement qualitatif aussi bien que quantitatif des ressources en eau. Une référence particulière est faite à la directive cadre de l'Union européenne en matière de gestion des ressources en eau, en particulier, pour les aspects économiques, en ce qui concerne le principe du pollueur - payeur, la récupération des coûts des services liés à l'utilisation de l'eau, et la gestion de l'eau par bassins hydrographiques.

Systematique et diversité génétique dans le genre *Ophrys* (*Orchidaceae*)

Financial Support : FRFC (Fonds de la recherche fondamentale collective, FNRS, Bruxelles), depuis septembre 2002

Partenaire: Unité d'Ecologie et de Biogéographie de l'UCL (promoteur: Prof. M. Baguette)

IAG Principal Investigator : Daniel Tyteca

Le projet vise à (1) rechercher les marqueurs moléculaires les plus adaptés à l'étude de la variabilité, de l'évolution et de la spéciation au sein du genre *Ophrys*, (2) établir les relations entre les différents groupes d'espèces, de manière à proposer un schéma évolutif cohérent. Le projet est basé sur un échantillonnage extensif des espèces d'*Ophrys* en Europe et dans le Bassin méditerranéen.

Étude de faisabilité des réseaux écologiques: aspects écologiques, économiques, sociaux et juridiques

Financial Support : SSTC ("Actions mixtes"), depuis décembre 2002.
Partenaires: Facultés Universitaires des Sciences Agronomiques de Gembloux (Laboratoire d'Ecologie), la Katholieke Universiteit Leuven (Dept Land Management, Faculty of Agricultural and applied biological sciences) et Resource Analysis BV, Antwerpen.
IAG Principal Investigator : Daniel Tyteca
Research Assistant : A. Di Giusto

Un réseau écologique (RE) peut être défini comme un ensemble de zones interreliées représentant une partition du territoire: des “zones centrales” correspondant à des habitats viables à long terme pour des populations d'espèces animales et végétales, des “zones de restauration ou de développement” où l'exploitation humaine du sol est compatible avec le maintien d'un certain niveau de biodiversité, et des “couloirs” fournissant les connections physiques (migration d'individus entre les zones centrales; p.ex. les haies). La faisabilité de la restauration d'un RE dépendra fortement de la participation d'acteurs locaux (propriétaires, autorités locales, associations de conservation de la nature, agriculteurs). Jusqu'ici, les REs, les aspects juridiques de l'aménagement du territoire et l'évaluation socio-économique de la biodiversité ont toujours été abordés de façon autonome. Ce projet de recherche vise à proposer des réponses à ces questions, tant d'un point de vue théorique, comparatif, que dans une perspective appliquée.

8. IAG WORKING PAPER SERIES

You will find here the list of the abstracts of the working papers published by the school in the academic year 2003-2004. The complete list of working papers can be found on our web site www.iag.ucl.ac.be

Paper copies are available upon request to :

IAG working papers
Place des Doyens, 1
1348 Louvain-la-Neuve
BELGIUM

AKTAS N., de BODT E., DERBAIX A., **Horizontal, downstream and upstream effects of merger & acquisition operations in the car industry** (94/03)

Since several years, an important stream of mergers and acquisitions has been observed in the automobile sector. This sector remodelling is due to the fact that constructors have to produce vehicles that are better equipped, less expensive (due to economies of scale and synergistic effects) and respecting numerous norms. These mergers lead to a higher concentration of the market. Eckbo (1983), Stillman (1983), and Eckbo and Wier (1985) have treated the problem of the competitors reaction within the framework of the Antitrust Policy in the U.S. But we would like to go a step further and, based on Mulin *et al.* (1995) who studied the customers' reaction, we are going to assess the effects of horizontal mergers (i.e. between constructors) firstly on the horizontal rivals, and then on the suppliers and customers, taking thus also into account upstream and downstream effects. As the results of the previous empirical studies lead to the rejection of the Market Power Hypothesis (no evidence of value reduction for the competitors of the merging firm, Eckbo (1983)), it seems that there is no reason to limit this kind of operations unless other partners would suffer from these actions. Therefore we plan to study downstream and upstream effects, which would be highlighted by the potential existence of

abnormal returns for these actors during the period following the operation.

BEN OMRANE W., VAN OPPENS H., Pouvoir prédictif et profitabilité des figures chartistes : application au marché des changes Euro/Dollar (95/03)

Ce papier étudie la sensibilité de la prévisibilité et de la profitabilité des figures chartistes aux fréquences d'observations, types de cours et à la nature des méthodes de détection sur le marché des changes euro/dollar. Les différentes figures étudiées présentent un pouvoir prédictif supérieur à 50% et l'adoption des règles de trading sous-jacentes aux figures génère des profits significatifs. Nous concluons également à l'intérêt de l'adoption d'une méthode de détection des figures chartistes tenant compte des cours les plus hauts et les plus bas. L'utilisation du cours MID semble aussi le plus approprié pour générer des profits significatifs. Par contre, le choix de la fréquence d'observations dépend principalement de l'horizon d'intervention des traders.

KAPFERER J.-N., SCHUILING I., How unique are local brands ? An empirical comparison of local and international brands in the food industry (96/03)

In the current context of strong globalization, firms have concentrated their efforts in developing international and global brands. As a result, many local brands have been eliminated from companies' brand portfolios. However, local brands often represent franchises that are very successful in local markets. The objective of this article is to better understand what the strengths of local brands are in comparison to international brands. To achieve this, the authors have analyzed a database of 9,739 people and examined more than 500 brands across the four largest countries in Europe, that is UK, Germany, France and Italy. The results show that local brands present a number of strong equity advantages, and also that they are different structurally from

their international variety. The authors offer an interpretation and discuss the implications and limitations of their findings. They also make recommendations concerning the appropriate responses for both international and local companies.

GERARD M., MARTENS WEINER J., Cross-border loss offset and formulary apportionment : How do they affect multijurisdictional firm investment spending and interjurisdictional tax competition? (97/03)

Motivated by the EU Commission's suggested company tax reforms, this paper investigates how cross-border loss offset and formulary apportionment of a consolidated tax base affect the investment and transfer pricing behaviour of a multijurisdictional firm, and how they affect the behaviour of governments potentially engaged in tax competition. The paper shows that cross-border loss offset mitigates both the reactions of a multijurisdictional firm to tax changes and the amount of tax competition engaged in by governments. However, formulary apportionment (with a consolidated tax base) boosts the sensitivity of firms to tax changes and increases the scope for interjurisdictional tax competition as well. For governments, formulary apportionment operates like a risk-sharing or partial equalisation mechanism.

FORTZ B., MAHJOUB A.R., McCORMICK S.T., PESNEAU P., Two-edge connected subgraphs with bounded rings : Polyhedral results and Brand-and-Cut (98/03)

We consider the network design problem which consists in determining at minimum cost a 2-edge connected network such that the shortest cycle (a "ring") to which each edge belongs, does not exceed a given length K . We identify a class of valid inequalities, called cycle inequalities, valid for the problem and show that this inequalities together with the so-called cut

inequalities yield an integer programming formulation of the problem in the space of the natural design variables. We then study the polytope associated with that problem and describe further classes of valid inequalities. We give necessary and sufficient conditions for these inequalities to be facet defining. We study the separation problem associated with these inequalities. In particular, we show that the cycle inequalities can be separated in polynomial time when $K \geq 4$. We develop a Branch-and-Cut algorithm based on these results and present extensive computational results.

BOUILLON L., VANDERDONCKT J., CHOW K.C., Flexible Re-engineering of Web Sites (99/03)

Re-engineering transforms a final user interface into a logical representation that is manipulable enough to allow forward engineering to port a UI from one computing platform to another with maximum flexibility and minimal effort. Re-engineering is used to adapt a UI to another context. This adaptation is governed by two main tasks: the adaptation of the code itself to the new computing platform and the redesign of the UI to better suit the new constraints of the target platform (interaction capabilities, screen size, ..). To support this process, we have developed a reverse engineering tool that allows a flexible recovery of the presentation model from Web sites, adapting the reverse engineering to the target platforms, and a forward engineering tool that converts this presentation model into any final executable UI, in particular expressed in VRML, WML, ..

BIELLEN F., SEMPELS C., The dimensionality of the concept of intangibility : a critical analysis (100/03)

The main objective of this article is to develop a scale for measuring the degree of intangibility of a service offering after having first clarified the

concept and analysed the various publications that have already appeared on this subject. A survey and a structural equation modelling analysis were conducted to examine the hypothesis of the bidimensionality (both physical and mental) of this concept. Recognising this double dimension of intangibility should be of interest to both managers of service activities and academics working on this area.

SCHUILING I., MOSS G., **How different are branding strategies in the pharmaceutical industry versus fast moving consumer goods ?** (101/03)

The objective of this paper is to analyse the branding strategies used currently in the pharmaceutical industry and compare it to the best practices in Fast Moving Consumer goods. First the authors review the differences in the way branding is defined and organised in pharmaceuticals versus FMCG and identify why branding could be leveraged in the pharmaceutical industry to help it return to strong growth in the future. Second, the authors analyse in detail what branding strategies are currently used within pharmaceuticals and FMCG. The choice of brand names strategies, the level of brand globalisation, the use of brand extension and co-branding as well the situation of brand portfolio management are compared. Based on this benchmarking, the authors offer recommendations to guide future branding development successfully in the pharmaceutical industry.

FOUSS F., RENDERS J.-M., SAERENS M., **Links between Kleinberg's hubs and authorities, correspondence analysis, and Markov chains** (102/04)

In this work, we show that Kleinberg's hubs and authorities model is closely related to both correspondence analysis, a well-known multivariate statistical technique, and a particular Markov chain model of navigation through the web. The only difference between correspondence analysis and Kleinberg's

method is the use of the average value of the hubs (authorities) scores for computing the authorities (hubs) scores, instead of the sum for Kleinberg's method. We also show that correspondence analysis and our Markov model are related to SALSA, a variant of Kleinberg's model. We finally suggest that the Markov model could easily be extended to the analysis of more general structures, such as relational databases.

FATHI E-T., GAILLY B., La structure financière des PME de la haute technologie (103/04)

Cette recherche étudie les déterminants de la structure financière de 351 PME innovantes belges sur la période 1997-2000. Nous avons utilisé, dans cette étude, un modèle d'équations structurelles afin de déterminer les facteurs explicatifs de la structure financière de ces PME innovantes. Notre recherche supporte les résultats de plusieurs autres études et montre que l'explication de la structure financière relève de différentes théories et non d'une seule. Néanmoins, les résultats de notre étude révèlent une « capacité explicative » plus importante de la POT et de la théorie des contraintes financières.

FAULKNER S., KOLP M., NGUYEN T., COYETTE A., DO T., Information Integration Architecture Development : A Multi-Agent Approach (104/04)

Multi-Agent Systems (MAS) architectures are gaining popularity for building open, distributed, and evolving software required by systems such as information integration applications. Unfortunately, despite considerable work in software architecture during the last decade, few research efforts have aimed at truly defining patterns and languages for designing such multiagent architectures. We propose a modern approach based on organizational structures and architectural description languages to define and specify multi-agent architectures notably in the case of information integration system design as illustrated in this paper.

BIELLEN F., SEMPELS C., **Impact of the two dimensions of intangibility on the global perceived risk : a segmented approach** (106/04)

The goal of this paper is double. First of all, we want to test the relationship between the two dimensions of intangibility and the global perceived risk. Moreover, we want to evaluate how service knowledge and the frequency of service utilization affect the perceived level of both physical and mental intangibility, and the relation between those two dimensions and the perceived risk.

Results show that intangibility influences the global perceived risk. But, contrary to the suggestion of Laroche and al (2003), the dimensions of intangibility do not seem to have a simultaneous influence on perceived risk. According to the individuals ' profile, the additional perceived risk will be due either to the mental dimension of intangibility, or to the physical one. The authors largely comment those results, and propose implications both for practitioners and for future researches.

FOUSS F., SAERENS M., **A maximum entropy approach to multiple classifiers combination** (107/04)

In this paper, we present a maximum entropy (maxent) approach to the fusion of experts opinions, or classifiers outputs, problem. The maxent approach is quite versatile and allows us to express in a clear, rigorous, way the a priori knowledge that is available on the problem. For instance, our knowledge about the reliability of the experts and the correlations between these experts can be easily integrated: Each piece of knowledge is expressed in the form of a linear constraint. An iterative scaling algorithm is used in order to compute the maxent solution of the problem. The maximum entropy method seeks the joint probability density of a set of random variables that has

maximum entropy while satisfying the constraints. It is therefore the “most honest” characterization of our knowledge given the available facts (constraints). In the case of conflicting constraints, we propose to minimise the “lack of constraints satisfaction” or to relax some constraints and recompute the maximum entropy solution. The maxent fusion rule is illustrated by some simulations.

SEMPELS C., ZANIN O., Vers une meilleure compréhension de l'image de marque des entreprises de service : application au secteur bancaire belge (108/04)

Cet article poursuit un triple objectif : premièrement, celui d'analyser en profondeur l'image de marque de trois grands groupes bancaires. Deuxièmement, nous discutons du peu de différences perçues entre les marques bancaires analysées. Finalement, sur base d'une analyse approfondie de ce que serait une banque idéale aux yeux des clients, nous proposons une stratégie de renforcement de l'image de marque bancaire.

WAUTHELET Y., LOUVIGNY L., KOLP M., Le "Unified Process" comme méthodologie de gestion de projet informatique. Eléments d'application en milieu sidérurgique (109/04)

Ce document présente une mise en perspective de la modélisation informatique orienté-objet de la cokerie de l'entreprise sidérurgique Carsid au cours de laquelle différents travaux d'analyse. Pour ce faire, la méthodologie informatique UP ou *Unified Process* (en français *processus unifié*) combinée au langage de modélisation UML ont été utilisés. Le UP définit un ensemble d'activités et de phases de développement (ces dernières sont composées d'itérations) pour le traitement efficace d'un projet informatique. Ce processus formalise un ensemble de concepts pertinents pour la gestion de projet comme les membres, les activités, les artefacts et

l'enchaînement d'activités. Les différentes phases d'un développement UML peuvent être représentées au moyen d'une série de diagrammes permettant de comprendre de manière visuelle les concepts définis. Tous les modèles s'enchaînent en passant de l'analyse à la conception, gagnant en complexité, dans un langage commun et unique, s'affinant au fur et à mesure pour arriver à l'élaboration finale du modèle. Les diagrammes permettront de comprendre sous différents angles la globalité du cas étudié en présentant une vue statique et dynamique de celui-ci. Chaque diagramme exprimera une partie de la structure totale, tout en étant un aspect particulier du modèle. Un modèle UML est toutefois toujours axé sur un ensemble d'hypothèses faites par l'équipe de travail et ne constitue donc qu'une vue particulière parmi d'autres possibles. L'équipe de travail doit, dès lors, être consciente que la vue adoptée est réductrice et qu'elle ne correspond pas toujours aux réalités et aux besoins du futur système informatique. Le UP fournit, à ce niveau, une méthodologie qui permet de prendre en compte plusieurs aspects différents et pertinents pour la construction de modèles au cours d'itérations successives.

BRIDOUX F., A Resource-Based Approach to Performance and Competition : An Overview of the Connections between Resources and Competition (110/04)

This paper extends the resource-based view of the firm to give an overview of the connections between resources and competition. Specifically, it develops a conceptual framework explaining competitive advantage and performance that incorporate the resource-based view of the firm and Porter's approach to competitive environment. On the basis of this framework, it shows how firms compete for resources and may use their resources to compete.

9. THE DOCTORAL PROGRAM

The number of PhD students enrolled at IAG is steadily increasing over the last years. We have now more than 60 students enrolled, about 75% of them receiving financial aid from the department (research or teaching assistantships). The remaining students are either self financed (most often working part-time outside the university) or have scholarships that are independent from the university.

The following students defended their thesis during the academic year 2003-2004.

REMILLARD (Denyse September 2003)

La convention de la valeur actionnariale comme vecteur de régulation des actions stratégiques : une analyse des logiques d'action

Supervisor : Robert COBBAUT

COULIBALY Aly Diadjiry (January 2004)

La défaillance des PME belges : analyse des déterminants et modélisation statistique

Supervisor : Robert WITTERWULGHE

CRETEUR Muriel (May 2004)

L'impact du design organisationnel sur la performance opérationnelle des institutions hospitalières.

Supervisor : Yves POCHE

FAULKNER Stéphane (May 2004)

An Architectural Framework for Describing BDI Multi-Agent Information Systems

Supervisors : Manuel KOLP et Alain PIROTTE

10. IAG RESEARCH SEMINARS

The IAG research seminar is an interdisciplinary meeting place for researchers that have an interest in topics related management.

Stéphane FAULKNER, Manuel KOLP, T. Do, COYETTE, Adrien, NGUYEN, Tai, HOANG, Hang and WAUTELET, Yves (IAG-ISYS)
– October 2003
A Multi-Agent Perspective on eBusiness System Architecture

Paul BELLEFLAMME – November 2003
"Competition over Piratable Goods"

David MASSART – November 2003
Federated Search of Learning Object Repositories :the CeLeBraTe Approach

Nihat AKTAS (IAG) – December 2003
"Event study under noisy estimation period"

Marco DORIGO – February 2004
The Ant Colony Optimization metaheuristic

Tanguy DULAC – February 2004
Le développement du contrat psychologique Durant la socialization organization-nelle des nouvelles recrues

Christophe SEMPELS – March 2003
L'intangibilité d'une offre globale de services : conceptualisation, opérationnalisation, variables d'influence et impact sur le niveau de risque perçu

Alain VAS – March 2003
La propagation de changements majeurs au sein d'une grande organisation : une approche diachronique

Charlotte LONCHAY and Arnaud PETRE – April 2003
L'enfant et la publicité en ligne : le problème de la discrimination
contenu publicitaire – contenu du site

Thierry BRECHET (IAG) – May 3th, 2004
"Polluer ici, polluer ailleurs : les mécanismes de flexibilité du
Protocole de Kyoto"

Thierry BRECHET (IAG-POGE) – May 13th, 2004
"Altruism and sustainability : a framework for analysis"