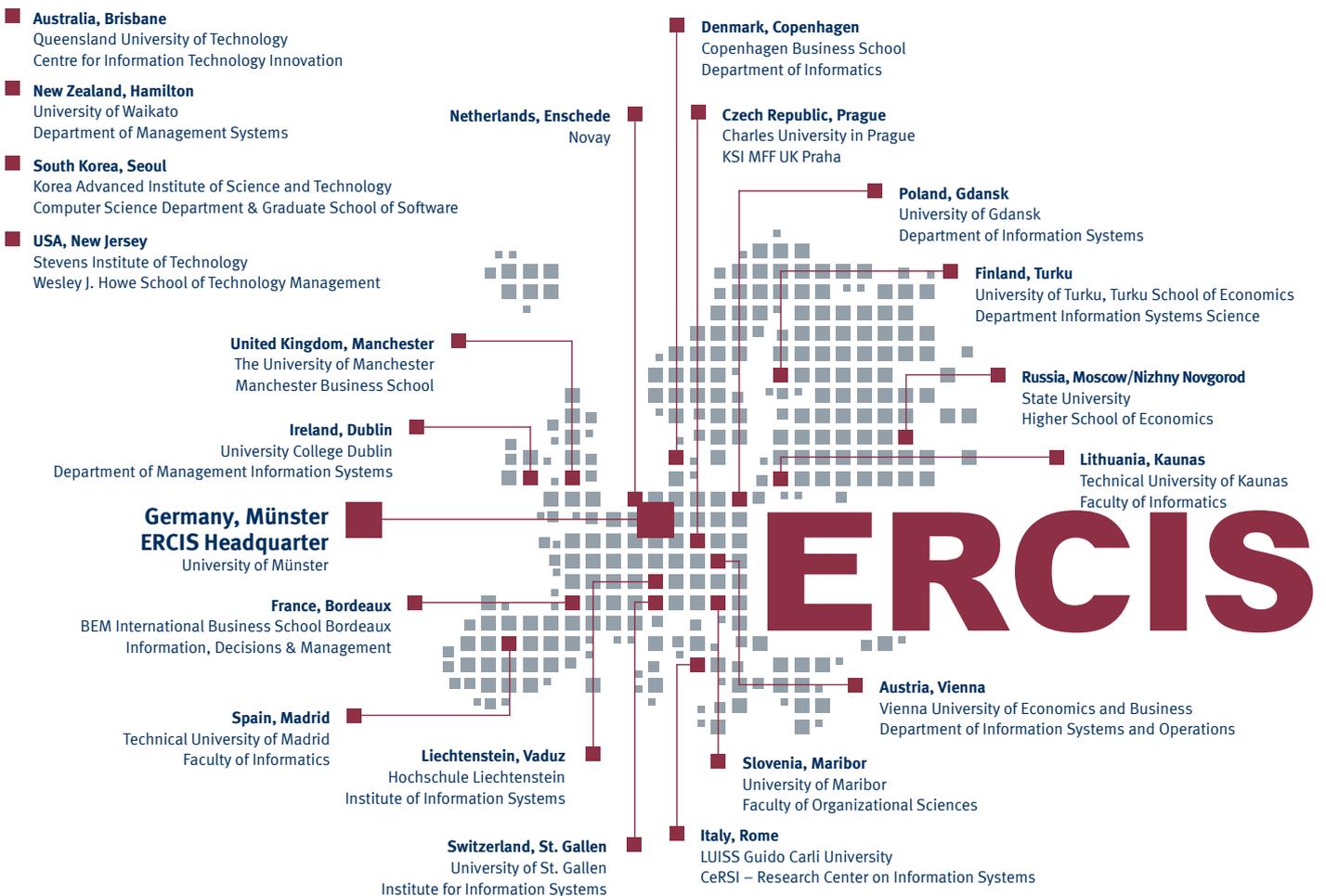


ERCIS



European Research Center for Information Systems



Annual Report 2010

- **Australia:** Queensland University of Technology
Centre for Information Technology Innovation
- **Austria:** Wirtschaftsuniversität Wien
Department für Informationssysteme und
Prozessmanagement
- **Czech Republic:** Univerzita Karlova v Praze
Charles University in Prague
KSI MFF UK Praha
- **Denmark:** Copenhagen Business School
Institute for Informatics
- **Finland:** Turun Yliopisto
Turku School of Economics
Department of Information Systems Science
- **France:** Bordeaux école de management
Bordeaux Management School
Information, Decisions & Management
- **Ireland:** University College Dublin
School Of Business
Department of Management Information Systems
- **Italy:** LUISS Guido Carli Università
CeRSI – Research Center on Information Systems
- **Liechtenstein:** Hochschule Liechtenstein
Liechtenstein University
Institute of Information Systems
- **Lithuania:** Kaunas University of Technology
Faculty of Informatics
- **Netherlands:** Novay – Networked Innovation
- **New Zealand:** University of Waikato
Department of Management Systems
- **Poland:** Uniwersytet Gdanski
University of Gdansk
Department of Information Systems
- **Russia:** Moscow/Nizhny Novgorod State University
Higher School of Economics
Department of Business Informatics
- **Slovenia:** Univerza V Mariboru
University of Maribor
Faculty of Organizational Sciences, eCommerce Center
- **South Korea:** Korea Advanced Institute of Science and
Technology
Computer Science Department & Graduate School of
Software
- **Spain:** Universidad Politécnica de Madrid
Facultad de Informática
- **Switzerland:** University of St. Gallen
Institute of Information Management
- **United Kingdom:** University of Manchester
Manchester Business School
- **USA:** Stevens Institute of Technology
Wesley J. Howe School of Technology Management



Dear fellow ERCIS partners and interested readers of this report,

The year draws to a close and I think we all had an exciting research year with a lot of new projects, publications, co-operations and ideas for further conjoint activities. This report is the second one of its kind and is packed with interesting, up-to-date news from most of our partners. It also contains additional information about several ERCIS network activities.

This passing year has been quite eventful. In order to foster our collaborative research activities, we had a very fruitful meeting in Vaduz, Liechtenstein, where eight ERCIS partners came together to discuss and develop conjoint research and teaching strategies for the future. A detailed description of the results of this meeting can be found in the report.

We hope to be able to arrange such a network meeting every year, and our partners from the BEM already offered to host the next one. I would be very happy to see the network in Bordeaux next spring! So save the date, it will take place April 9, 2011!

We've had successful research proposals such as the just-started research project Networked Service Society, funded by the German Federal Ministry of Education and Research. Within the scope of this project, the University of Münster, the Queensland University of Technology, the KAIST College of Information and Science and the University of Waikato will contribute to theory and to the innovative design of artifacts in three decisive areas of service research, namely professionalization, digitalization, and sustainability. This project once again shows that ERCIS is a living network and that we are on the right track for constant excellent collaborative research.

Another ERCIS activity this year was the proposal for the EU-funded research project ENHANCE. Here, several ERCIS partners, namely the University of Münster, the Hochschule Liechtenstein, the University of Gdansk, the Kaunas University of Technology, the Higher School of Economics, and the University of Maribor cooperated with seven additional universities from the Austral-Asian and European region. The idea of the ERASMUS Mundus II proposal was to support students coming to Europe by providing an IT infrastructure to enhance the quality of information about courses of participating universities and to simplify the recognition process of exams. Although the proposal was rejected, the reviewers liked the general idea and proposed to resubmit, which will happen in the next couple of months.

Alongside these research activities, I would like to welcome our new partners from Nizhny Novgorod, a branch of the Higher School of Economics (HSE) in Moscow. This year was very eventful concerning the conjoint activities of the HSE and the University of Münster, since a double-Master cooperation treaty was signed as a result of the project TEMPUS POMBI, allowing students from both ERCIS partners to study in Moscow, Nizhny Novgorod and Münster respectively.

There are a lot of further ideas for the support and development of the ERCIS network, and in order to get all these things done, the ERCIS team was established during the last year. Apart from Dr. Armin Stein, who was introduced last year as new ERCIS coordinator, Katrin Bergener, Sara Hofmann, and Marcel Heddier are cur-



rently working with him on several enhancements concerning the network. This spans improvement of the ERCIS website and exchange possibilities such as summer schools, compact courses, invited talks, etc. If you have any questions, requests, further ideas, or recommendations concerning the ERCIS network, please feel free to contact the team! You'll find their contact details in this report, and they will be very happy to get feedback from around the world.

This leaves me to extend best wishes for a pleasant and peaceful Christmas time and a happy New Year for you and your families. I am looking forward to seeing you all in Bordeaux next year for another interesting meeting and a lively exchange of knowledge within the network, since we all know that "the whole is often greater than the sum of its parts" (Aristotle).

All the best,

Jörg Becker

Academic Director of ERCIS

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The ERCIS Team is a group of dedicated ERCIS staff members at the chair of Informations Systems and Information Management of the University of Münster, whose task is the coordination of the ERCIS network. The team leader Dr. Armin Stein and his colleagues are continuously working together with the ERCIS Directors on improving the strategic alignment of the network as well as the operational activities.

The field of activity of the ERCIS Team includes the development and proposition of the networks strategy, planning and execution of ERCIS events, editorial tasks concerning the reports and newsletters, maintaining the ERCIS website, and a good deal more. To get in touch with the team, please don't hesitate sending an email to ercis-team@ercis.uni-muenster.de



Armin Stein

After having finished his master studies in 2006, Armin started his academic education at the chair of Jörg Becker. During his three and a half years as research assistant he was involved in several research projects like Ref-Modo6 or FlexNet. His articles appear in proceedings of major conferences and journals.

His major research interests are, whenever finding the time for it, distributed conceptual modeling, especially concerning the area of supply chain management as well as knowledge management in the area of online research portals. Armin merges this different research topics mostly by developing feasible conceptual methods for

the enhancement and extension of the SCOR model (Supply Chain Operations Reference), which is his most important academic playground. Consequently, his cumulative PhD theses deals with this topic.

Armin took over from Axel Winkelmann as coordinator of the ERCIS network in 2009 as part-time job. After having finished his PhD studies in May 2010, he became Managing Director of the ERCIS, dedicating his time to pushing forward the network and, together with his team, bringing it to life.

Besides this, Armin is senior lecturer at the Department for IS at the University of Münster and the University of Applied Sciences in Osnabrück, where he teaches the basics of Information Systems and Workflow Management.

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Sara Hofmann, Marcel Heddier, Katrin Bergener, Armin Stein



Katrin Bergener

After studying linguistics in Münster and Auckland, New Zealand, Katrin became research assistant at the chair of Prof. Becker in December 2006. With a focus on communication- and collaboration management as well as communication and linguistic theories, she found her way into the IS department. Katrin is currently part of the ManKIP (management of creativity-intensive processes) research project team. The project aims at developing flexible IT architecture to support creativity-intensive processes in organizations.

Besides her research activities, Katrin is part of the ERCIS-Team and wants to enhance the ERCIS network to a living and vibrant network by fostering regular meetings, exchanges and conjoint programs and research activities.

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Sara Hofmann

Sara received her Bachelor's degree in Information Systems from the University of Münster in 2008. Afterwards, she passed her graduate studies in Information Systems at the University of Münster and the Université Paul Cézanne in Aix-en-Provence, France. Since October 2010 she is research assistance at the chair of Prof. Becker.

information management. This is also a function Sara will carry out as member of the newly started ERCIS team. She is looking forward to strengthen the relationships between the ERCIS members and to realize the hidden potentials of this international network.

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Marcel Heddier

After about four years of information systems studies and his degree as Diplom-Wirtschaftsinformatiker, Marcel became research assistant at the chair of Prof. Becker in May 2010. He studied at the University of Münster with focus on Business Administration and Information systems.

field of legal informatics and legal modeling. That is alongside his participation in the ERCIS-Team, where he contributes to the coordination and improvement of the network and the enhancement of the ERCIS website. If you should have any issues related to the website, feel free to contact him.

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First Annual ERCIS Meeting in Vaduz



First annual ERCIS workshop in Vaduz

From March 10th to March 12th 2010, Jan vom Brocke hosted the first annual ERCIS workshop in Vaduz, Liechtenstein. Participants were Jan vom Brocke, Stefan Seidel, Birgit Hofreiter, Bernd Schenk and Dieter Gunz from the Hochschule Liechtenstein; Robert Winter from the University of St. Gallen, Switzerland; Marco de Marco from the Università Cattolica del Sacro Cuore and Alessio Braccini from the LUISS “Guido Carli” University, both Italy; Jörg Becker, Herbert Kuchen, Ulrich Müller-Funk, Gottfried Vossen, Stefan Stieglitz and Armin Stein from the Headquarter in Münster, Germany; Stanisław Wrycza from the University of Gdańsk, Poland; Reima Suomi from the University of Turku, Finland; Tomáš Skopal from the Charles University in Prague, Czech Republic; Rimantas Butleris and Kęstutis Kapočius from the Kaunas University of Technology, Lithuania; and Günter Schmidt from the Saarland University, Germany.

After a relaxed welcome reception at the Nexus Bar on Wednesday evening, Thursday was packed with a four session workshop.

The first session, Teaching, was opened by Jan by introducing the idea of teaching code sharing. Code sharing or codeshare is an aviation business term for the practice of multiple airlines sell-

ing space on the same flights, where a seat can be purchased on one airline as if it was actually operated by a cooperating airline under a different flight number or code. This idea is planned to be



transferred to teaching in between the ERCIS network (for further details, see the report about the project seminar ERCIS Codesharing). Jan exemplified this by introducing a course offered by Münster that is open for every student of ERCIS members. This course should be capable of being integrated into the existing curricula of the respective partners and will be held in English. Furthermore, the courses should already exist and should

not have to be created from scratch. For this, a certain frame agreement has been planned; however, the rules are still loosely provided. The quality of the courses has to be guaranteed, which prevents the collection of “cheap” ECTS in different locations. Furthermore, the recognition of the different styles of ECTS (3, 5 or 6 ECTS per lecture) has to be considered and accepted by all partners involved. This ought to happen not on the administrative level of the university, but on a personal level, where each partner accepts the achievements of students attending courses of other partners. This indicates that it must be possible to recognize a 5 ECTS course attended in Münster as a 6 ECTS course in, for example, Kaunas. The exchange of students should not be performed under one umbrella together with ERASMUS, as ERASMUS adds additional complexity like a minimum amount of ECTS (15). However, ERASMUS could be used as a funding vehicle, facing the problem of student mobility.

In a nutshell, three different options for the realization of code sharing were discussed: 1) The student solely attends to one “foreign” course, 2) the course is being shared (or held) by different locations and 3) a whole joint program should be set up (which was refused for the moment, as the preparation would be too complex). For the first option,



Brainstorming

First Annual ERCIS Meeting in Vaduz



block courses would be the means most feasible and will be instantiated during summer term 2011 at the latest. For the second option, exchanges already exist. Marco, for example, already holds some lectures in Liechtenstein, Jan in Münster and Milano, and so on. This should be quite easy to realize, as it “just has to be done,” as Jan stated. From the experience gathered up to now, setting up such a mutual course is quite easy and does not come with a lot of bureaucracy. Another alternative could be “virtual” courses, completely held online. For this, there should be sufficient experience in the area of eLearning across ERCIS. However, those courses would have to be thoroughly prepared in advance, thus this idea was postponed.

It was agreed that for the ease of comparison, an (online) portal providing certain data standards would be beneficial (see again the project seminar report). As an initial step, the remainder of the session was used to specify IS lectures and courses that are capable of being opened for all ERCIS students. For this, each participant stated certain courses that to his or her mind would come into consideration. The results are the following clusters with the respective lectures:

- Management oriented
- Supply Chain management related
- Modeling related
- Domain specific

- Implementation related
- Formal

In the near future, an in-depth comparison of the lectures included in the clusters will be performed.

In the second session, the participants elaborated on their Ten Most Important Issues on Business Process Management. Moderated by Jan, each participant had to state three issues which in his or her mind are crucial for future BPM research. The topics were then again clustered to topic areas, for which certain task forces were defined. The re-

sults will be submitted for publication in a European IS Journal.

The third session’s topic was Research, intended to generate a new and updated ERCIS Research overview, which could then lead to possible ERCIS Special Interest Groups. The goal is to connect the right partners for given research problems.

The final session dealt with Research Funding opportunities and the respective areas of application. Four areas have been identified, namely 1) (Electric) Mobility, 2) Aging Society, 3) e-Learning, and 4) Network Evolution (see report on Network Evolution).

In the evening, Jan invited the participants to a Fondue Dinner at a mountain cabin, closing the day with a slope ride down the hill. During the next day, we visited the Hilti Headquarters in Schaan and took a guided tour. The meeting ended with a wine tasting at the ‘Hofkellerei’ of the Prince of Liechtenstein after a bus trip through the state.

Save the date: Next year’s ERCIS meeting will take place in Bordeaux from April 7th to April 9th!



Winetasting at the ‘Hofkellerei’ – From left: Prof. Dr. Jan vom Brocke, Prof. Dr. Ulrich Müller-Funk and Prof. Dr. Gottfried Vossen



About the Institution

The Institute of Business-to-Business Marketing (IAS) is part of the ERCIS Headquarters located in Münster and represents one of three chairs under the roof of the Marketing Center Münster (MCM). Business-to-Business Marketing, as well as the use and further development of multivariate data analysis, are traditionally the main research areas of the IAS. In addition, the research program is continuously expanding to other interesting and current areas of marketing research, such as E-Marketing and Standardization Processes. Parts of the research program are realized with the help of associates from research and industry.

Beyond high-quality research, the IAS has always defined itself through outstanding educational efforts. We maintain close ties with partners from a variety of industries and academic institutions all over the world to offer our marketing students compelling lectures and extraordinary

seminars.

Research Topics

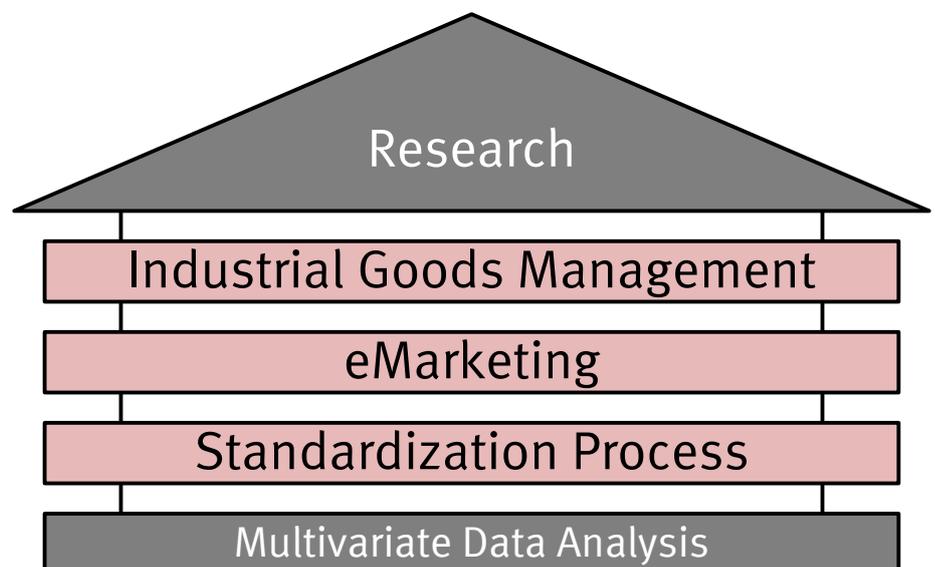
Our research mainly focuses on Industrial Marketing and the advancement of multivariate methods for data analysis. The results of this work have, inter alia, been documented in the following five defini-

tive textbooks: “Industriegütermarketing,” “Strategisches Marketing,” “Multivariate Analysemethoden,” “Fortgeschrittene Multivariate Analysemethoden” and “Vermarktung hybrider Leistungsbündel.” The high quality of these publications has been highlighted by several awards, among those the renowned Georg-Bergler-Preis 2008 and the Transferpreis 2010 of the University of Münster for their outstanding link between practice and science within the project “H2-ServPay.”

Current Research

The IAS has recently started a cooperative research project together with the Chair for Information Systems and Information Management in Münster and the Chair for International Marketing at the ESCP Berlin. The core focus of the project will be the quantification of productivity in industrial services with the help of Data-Envelopment-Analysis (DEA). The publicly funded study represents a follow-up of the award-winning “H2-ServPay” project.

Within the excellence initiative “Network e-Volution,” the IAS is engaged in a sub-project investigating the emergence of dominant designs



on network markets. These markets are characterized by the tendency to standardize, with producers and consumers likely to settle on one system design. Researchers at the Institute have previously made these phenomena the subject of their dissertations and continue to do so today.

In the field of E-Marketing, we investigate the diffusion of innovations in the era of social networking and electronic word-of-mouth.

Current research efforts further include a variety of issues in Business-to-Business Marketing, especially negotiation behavior and behavioral pricing.

Publications

Backhaus, K./Schneider, H. (2010): *Strategisches Marketing*, 2. Aufl., Berlin.

Backhaus, K./Erichson, B./Plinke, W./Weiber, R. (2010): *Multivariate Analysemethoden*, 13. Aufl., Berlin et al.



Backhaus, K./Erichson, B./Weiber, R. (2010): *Fortgeschrittene Multivariate Analysemethoden*, Berlin et al.

Backhaus, K./Voeth, M (2010): *Internationales Marketing*, Stuttgart.

Backhaus, K./Bröker, O./Wilken, R. (forthcoming): *Produktivitätsmessung von Dienstleistungen mit Hilfe von Varianten der DEA*.

Backhaus, K./Becker, J./Beverungen, D./Frohs, M./Knackstedt, R./Müller, O./Steiner, M./Weddeling, M. (2010): *Vermarktung hybrider Leistungsbündel – Das ServPay-Konzept*.

Dissertations

Cornelißen, Markus: *Behavioral Determinants of Pricing – Empirical Evidence from Consumer and Industrial Markets*.

Frohs, Margarethe: *Recommender Systeme für produktbegleitende Dienstleistungen – Konzeption und empirische Anwendung*.

Koch, Matthias: *Praxisrelevanz von Marketingforschung – Eine empirische Analyse der Einflussfaktoren und des Zusammenhangs mit wissenschaftlicher Relevanz*.

Weddeling, Matthias: *Performance Contracting für hybride Produkte – eine konzeptionelle und empirische Analyse des investiven Nachfragerverhaltens*.

Habilitations

The IAS employs Dr. Michael Steiner as Assistant Professor. Michael Steiner's research activities focus on brand management and consumer behavior (especially preference measurement).

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Key Facts

Institution

- Founded in 1986
- Researchers: 10

Research Topics

- Industrial Marketing
- Negotiation Behavior
- Standardization Processes
- E-Marketing
- Multivariate Data Analysis

Events

- Welcome to the volatile world (in cooperation with McKinsey&Company)
- Marketing Alumni Symposium ("What is the value of Marketing?")



About the Chair

The Chair for Information Systems and Information Management at the WWU Münster, directed by Prof. Dr. Jörg Becker, currently comprises 21 postgraduate research assistants and seven post docs as well as 25 undergraduate research assistants. Since April 1st, 2010, PD Dr. Axel Winkelmann serves as acting professor, as Prof. Dr. Jörg Becker is actually doing a sabbatical as Prorector of the University of Münster and as driver of the University's Excellence Initiative.

The courses offered as part of the Bachelors and Masters programs on Information Systems comprise Process Modeling (Application Systems, Information Modeling, Workflow Management) as well as Data Modeling (Data Management, Management Information Systems and Data Warehousing) topics. Early on in their studies students can enroll in additional domain-specific courses such as Elective Modules, Project Thesis, and Seminars. Soft-skills like presentation techniques and rhetoric are also conveyed. All courses consequently focus on integrating with current research and industry projects.

Research Topics

Focus areas of research are Process Modeling and Data Modeling. Besides

developing and evaluating new modeling methods, the methods are transferred into practice to generate business value for companies and governmental organizations. Focused domains of research comprise Service Science Management and Engineering (SSME), E-Government and Retail/Wholesale. As the chair is embedded into the European Research Center for Information Systems (ERCIS), the research projects incorporate Information Systems, Computer Science, Business Administration, and Legal points of view.

Selected Research Projects

Network e-Evolution

One of the largest challenges for the whole University of Münster is the participation in the next stage of the German Excellence Initiative. The Department of Information Systems is taking a lead role in pushing the Excellence Cluster "Network e-Evolution".

Our network society is characterized by the rise of electronic communication en-

vironments. As a result, we witness the emergence and proliferation of new forms of networking.

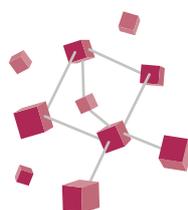
Networks access every area of life and connect people and computers with each other in new ways, allowing for rich communication and collaborative work that is distributed around the world. Examples can be identified in all societal subsystems. For instance, complex information systems enable companies to build up or enter global value networks to further increase their efficiency and to offer their goods and services on a global scale. On the personal level, IT-supported social network sites such as Facebook, XING or studiVZ have become quasi standards for social networking. Public administrations increasingly establish Public Private Partnerships in cooperation with companies in order to exploit synergetic benefits based on an electronic exchange of data.

Given the breadth and interconnectedness of network phenomena, the proposed Cluster of Excellence "Network e-Evolution" has an interdisciplinary focus in order to study various facets of networking. Apart from network uncertainty, issues such as governance and organization, information systems and software applications, psychology and communication, structure and dynamics, are covered. Research will focus on the evolution, structure and impact of networks that rely on an electronic exchange of data.

The organizational root of the proposed cluster is the European Research Center for Information Systems (ERCIS).

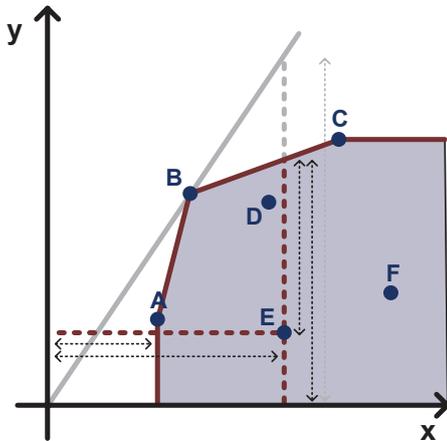
ServDEA

Beginning on September 2010 to June 2014, the new joint research project ServDEA is going to use the operations-



Network e-Evolution

CLUSTER OF EXCELLENCE | WWU MÜNSTER



research method *data envelopment analysis* (DEA) to develop a software tool that is capable of benchmarking so-called product-service-systems (often described as hybrid service bundles, *Hybride Leistungsbündel*, sometimes even as customer solutions).

A product-service-system is defined as a customized and integrated definition of goods and services to meet a customer's business needs. A good example for such a solution is a technical appliance with a guaranteed uptime. This therefore encompasses the appliance itself as well as its development, the implementation and maintenance services. However, in some cases product-service-systems can be also bought on the consumers market. A phone-contract is an excellent example: Customers buy the hardware paired with services (e.g., the helpline, voice services, and data plan).

Unfortunately in the business sector, product-service-systems in the appearance of highly customized products are demanded. Therefore they are aligned to the clients' needs, making them very individual in their configuration. This great heterogeneity amongst product-service-systems in conjunction with the fact that services feature attributes as immateriality, lack of storability and heavy customer-involvement makes comparing them very difficult, especially with regard to traditional business ratios as for example "productivity".

This challenge requires the application of a new method to incorporate the diverse features of product-service-systems. The DEA has the capability to accomplish the target of integrating these figures into one single evaluation by rating different subjects of study in relation to each other (non-parametric).

By evaluating the described method in tight cooperation with project partners, the benefits and practical feasibility will be assessed. The professional partners that support the evaluation are DMG AG, ThyssenKrupp AG and Trumpf GmbH + Co. KG. The research-partners of this research endeavor comprise the Chair of Prof. Wilken at the ESCP Berlin as well as the Chair of Professor Backhaus (both marketing) and the European Research Center for Information Systems (ERCIS). The research project is funded by the BMBF (Bundesministerium für Bildung und Forschung) within the funding program "Productivity of Services".

KollaPro

From September 2010 to August 2013, the new joint research project KollaPro will explore innovative strategies for collaborative business process management (BPM) in the services sector. The services sector has experienced a remarkable growth in most advanced economies over the last decades. The performance of service processes is measured in terms of productivity; a concept which is well understood in the context of manufacturing but still seems underdeveloped with regard to services. Here, the need to develop new instruments to manage and improve productivity is evident.

As service organizations increasingly find themselves becoming part of service networks created through complex sets of relationships with customers and other stakeholders, including external opinions, perspectives, and experiences into service process design appears to be imperative for reaching a higher level of service productivity. In this view, service processes can be regarded as cross-organizational

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Key Facts

Institution

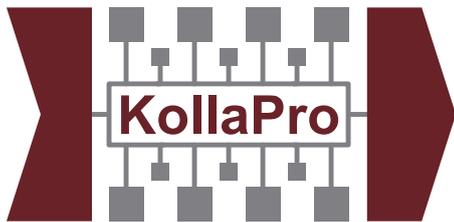
- 21 Research Assistants
- 7 Post Docs
- 20 Student Assistants

Research Topics

- Information Modelling
- Service Sciences
- Process Management
- Retail Information Systems
- eGovernment

Awards 2010

- Transfer Award of the University of Münster
- Burkhard Weiß was awarded with a scholarship of the DZ Bank Stiftung, supporting his PhD studies
- Mathias Eggert was awarded with a scholarship of the Konrad-Adenauer-Stiftung, supporting his PhD studies



and thus call for collaborative BPM. This new project will identify the critical success factors for BPM and will develop a toolkit that service organizations can use to assess and advance their collaborative BPM capability.

Project partners of this research endeavor comprise the European Research Center for Information Systems (ERCIS) of the WWU Münster, DURABLE Hunke & Jochheim GmbH & Co. KG, best practice consulting AG, and Software AG. The research project is funded by the bmbf (Bundesministerium für Bildung und Forschung) within the funding program "Productivity of Services".

AgeGov

From 2009 to 2014, the fellowship-based project will address questions of ICT & Aging. Specifically, it seeks to investigate into how governmental institutions might be able to

contribute to addressing aging-related societal challenges. The project builds upon an inter-disciplinary research approach and embraces economical, technological, and political science perspectives.

Initial ideas for the project were crafted particularly during research visits in Japan, the world's 'oldest' country when it comes to the population share of age of 65 yrs and older. Here, joint comparative research was carried out involving ERCIS, the Department of Political Science (University of Münster), and the Okuma School of Public Management (Waseda University, Tokyo).

Selected Publications

Becker, J.: Prozess der gestaltungsorientierten Wirtschaftsinformatik. In: Gestaltungsorientierte Wirtschaftsinformatik: Ein Plädoyer für Rigor und Relevanz. Editors: Hubert Österle, Robert Winter, Walter Brenner. St. Gallen 2010. S. 13 – 17.

Becker, J.; Bergener, P.; Räckers, M.: Activity-Based Costing in Public Administrations: A Business Process Modeling Approach. In: International Journal of E-Services and Mobile Applications (IJESMA), 2 (2010) 4, S. 1-10.

Becker, J.; Beverungen, D.; Knackstedt, R.: The Challenge of Conceptual Modeling for Product-Service Systems – Status-quo and Perspectives for Reference Models and Modeling Languages. In: Information Systems and e-Business Management (ISeB), 8 (2010) 1, S. 12-32.

Becker, J.; Matzner, M.; Voigt, M.: Theory-based Analyses of Interorganisational Standards for Self-organising, Adaptive Value Creation Networks. In: Electronic Communications of the EASST, 27 (2010).

Becker, J.; Pfeiffer, D.; Falk, T.; Räckers, M.: Semantic Business Process Analysis. In: International Handbook on Business Process Management. Editors: Jan vom Brocke, Michael Rosemann Berlin et al. 2010.

Becker, J.; Vilkov, L.; Weiß, B.; Winkelmann, A.: A Model Based Approach for Calculating the Process Driven Business Value of RFID Investments. In: International Journal of Production Economics, 127 (2010) 2, S. 358-371.

Delfmann, P.; Herwig, S.; Lis, L.; Stein, A.; Tent, K.; Becker, J.: Pattern Specification and Matching in Conceptual Models. A Generic Approach Based on Set Operations. Enterprise Modelling and Information Systems Architectures 5 (2010) 3, in press.

Delfmann, P.; Herwig, S.; Lis, L.; Becker, J.: Supporting Conceptual Model Analysis Using Semantic Standardization and

Structural Pattern Matching. Erscheint in: Smolnik, S.; Teuteberg, F.; Thomas, O. (Hrsg.): Semantic Technologies for Business and Information Systems Engineering: Concepts and Applications. Hershey, PA, USA 2010.

Niehaves, B.: Open Process Innovation: The Impact of Personnel Resource Scarcity on the Involvement of Customers and Consultants in Public Sector BPM. In: Business Process Management Journal, (2010) Accepted for Publication.

Niehaves, B.; Plattfaut, R.; Gorbacheva, E.; Vages, P.: Analysis of E-Inclusion Projects in Russia, Austria and Switzerland. In: Interactive Technology and Smart Education, 7 (2010) 2, S. 72-84.

Seidel, S.; Müller-Wienbergen, F.; Rosemann, M.: Pockets of Creativity in Business Processes. In: Communications of the AIS, 27 (2010) Article 23, S. 415-436.

Winkelmann, A.; Leyh, C.: Teaching ERP systems: A multi-perspective view on the ERP system market. In: Journal of Information Systems Education, 21 (2010) 2, S. 233-240.

Dissertations

Beverungen, D.: Value-Driven Service System Management – Designing IT Artifacts for Representing, Configuring and Pricing Customer Solutions. Dissertation, Westfälische Wilhelms-Universität Münster, Münster 2010.

Karow, M.: Business Process Documentation in Creative Work Systems – A Design Science Study in Television Production. Dissertation, Westfälische Wilhelms-Universität Münster, Münster 2010.

Müller-Wienbergen, F.: Creativity in Business Processes – Concept, Consequences, and Construction of Support. Dissertation, Westfälische Wilhelms-Universität Münster, Münster 2010.

Räckers, M.: Domänenspezifisches Prozessmanagement – Konstruktion und Evaluation einer Prozessmodellierungs- und -analysemethode für die öffentliche Verwaltung. Dissertation, Westfälische Wilhelms-Universität Münster, Münster 2010.

Stadler, D.: Konfigurative Referenzmodelle am Beispiel warenwirtschaftlicher Funktionen ausgewählter Handelsbranchen. Dissertation, Westfälische Wilhelms-Universität Münster, Münster 2010.

Stein, A.: Erweiterung des Supply Chain Operations Reference-Modells – Anforderungen, Konzepte und Werkzeuge. Dissertation, Westfälische Wilhelms-Universität Münster, Münster 2010.

Habilitations

Knackstedt, R.: Informationsmodellierung der hybriden Wertschöpfung – Methodische Konzepte und Softwarewerkzeuge. Habilitation, Westfälische Wilhelms-Universität Münster, Münster 2010.

Niehaves, B.: Business Process Governance. Habilitation, Westfälische Wilhelms-Universität Münster, Münster 2010.

Winkelmann, A.: Dynamic Reconfiguration of ERP Systems – Design of Information Systems and Information Models. Habilitation, Westfälische Wilhelms-Universität Münster, Münster 2010.

Events

MEMO Congress

The fifth annual congress MEMO 2010 (Methods and Tools for Modernising the Administration) dealt with two hot topics bothering current administrations: „Law and Risk in the IT sector“ and „Electronic Government in the Ageing Society“. The congress, which was attended by 90 visitors was started well-covered by the media by the financial state council

of the Free and Hanseatic City of Hamburg, Dr. Robert Heller.

HIS Congress

This year's Congress "Retail Information Systems" (Handelsinformationssysteme – HIS) was the 14th of its kind at the University of Münster. The round about 200 attendees got the chance to listen to a variety of presentations from research as well as from practice and participate in several discussion forums on the topic „IT in Networks“. Especially the established CIO panel was well-attended, as prestigious leaders from companies like REWE-Group, Electronic Partner GmbH or the Furnishing Network VME GmbH & Co. KG gave insights into their thoughts about the topic. The networking dinner was held in the Schlossgarten Café subsequent to a guided tour through the botanic garden of the University of Münster.

20 Years IS in Münster

In June 2010, the Institute for Information Systems celebrated its 20th anniversary together with students and invited guests, amongst them many alumni and partners from research and praxis.

The celebration started with an opening speech by Professor Gottfried Vossen, speeches of welcome by mayor Vilhjalmsson representing the city of Münster and by Dr. Marianne Ravenstein, the prorektor of the Westfälische Wilhelms-Universität Münster. Afterwards, Professor Becker, managing director of the institute, dared to depict future prospects.



HIS participants in the botanic garden

In a humorous way and with “a certain distance”, Professor Heinz Lothar Grob being an emeritus professor of Information Systems recalled the last 20 years. Professor Mathias Weske from the Hasso-Plattner-Institute in Potsdam presented his Münsterian roots by giving a speech on the consistency of process models. As a pioneering student of Information Systems and meanwhile senior manager at Steria Mummert Consulting, Lundgar Seiling delivered interesting insights into the job as consultant. The following evening programme continued to be entertaining: the Münsterian ensemble “Impro 005” performed an improvisation theatre show and the infamous professor band “Economix” got the audience rocking and ensured an atmospheric finale of a significant day.



From left to right: Prof. Dr. Müller-Funk, Prof. Dr. Kuchen, Prof. Dr. em. Grob, Prorektor Dr. Ravenstein, Prof. Dr. Vossen, Mayor Vilhjalmsson, Prof. Dr.-Ing Hellingrath, Prof. Dr. Becker, and Prof. Dr. Klein



New Research Group: IT Security at ERCIS HQ

Whenever information systems are being connected, a new potential security hole is created. In a world where computer networks are an indispensable backbone of wealth and growth, basic knowledge of the principles of security and privacy are no longer the domain of spies and specialists. Instead, this qualification will soon belong to the set of elementary skills of every businessperson and citizen – just like nowadays you know how to operate a door lock, or not to issue a blank check. ERCIS has accommodated to this need and welcomes Dr. Rainer Böhme as head of a new research group dedicated to IT security.

West Coast to Westphalia

Professor Dr.-Ing. Rainer Böhme was appointed as Assistant Professor (“Juniorprofessor”) on September 1st, 2010. Prior to this position, he worked as Postdoctoral Fellow at the International Computer Science Institute in Berkeley, California. He holds a Master’s degree in Communication Science and Economics and a Doctorate in Computer Science, both from Technische Universität Dresden in Germany. He also worked at the European Central Bank, where he served for the directorates of economics and financial stability & supervision. Professor Böhme’s research interests include economics of information security and privacy as well as multimedia security. He is particularly keen on teaching security in its breadth to students of the University of Münster’s Master program.

Security Economics

The new research group will take an interdisciplinary approach on a range of research questions in information security and privacy. One key field of research is economics of information security.

Security breaches are in the news almost daily, each bigger and more costly than the last. But rarely are they caused by technical failures. Bad security often is a result of wrong decisions on the deployment of security technology. The economic perspective on information security starts with looking at these decisions and analyzes underlying processes and incentive systems. Technology merely defines the action space. With insights into economic and behavioral mechanisms, technology can be designed and deployed in such a way that bad security decisions are less likely.

Relevant research questions include: How can security be measured? How much shall individuals, firms, and governments spend on information security? How exactly shall they invest? What incentives really drive privacy decisions? What distinguishes cyber-risks from conventional risks and what consequences emerge for cyber-risk management? How does all this affect the IT security industry?

The methods in the field of economics of information security range from economic modeling of isolated aspects, via quantitative empirical studies, to broader strategy/policy analyses targeted to corporate decision makers and governments.

Impact

Professor Böhme is an established capacity in this field. He has published nine papers on various topics in the past six editions of the prestigious Workshop on the Economics of Information Security. His work got cited in *Science*, *The Economist*, and in reports of international organizations like the UNCTAD, OECD and the European Commission. His 2009 paper entitled “The Iterated Weakest Link”, co-authored with Dr. Tyler Moore of Harvard’s Center for Research on Computation and Society, was awarded the inaugural Gordon Price in Managing Information Security Resources by the University of Maryland’s Smith School of Business. In 2008, Dr. Böhme co-authored an influential report on Security Economics and European Policy commissioned by the European Network and Information Security Agency (ENISA). Some of the 15 recommendation formulated therein have been taken up by policymakers in Europe, the US, and Asia.

Digital Image Forensics

Besides economic and managerial questions, the research group also contributes to advance the state of security technology. Its members belong to the leading European researchers in the field of digital image forensics. Forensic methods in general deal with the search and analysis of traces with the aim of reconstructing (criminal) activities as well as identifying culprits.

The wide acceptance of digital imaging coupled with ever better image processing software enables ordinary users to



Image 1: Image released to the press

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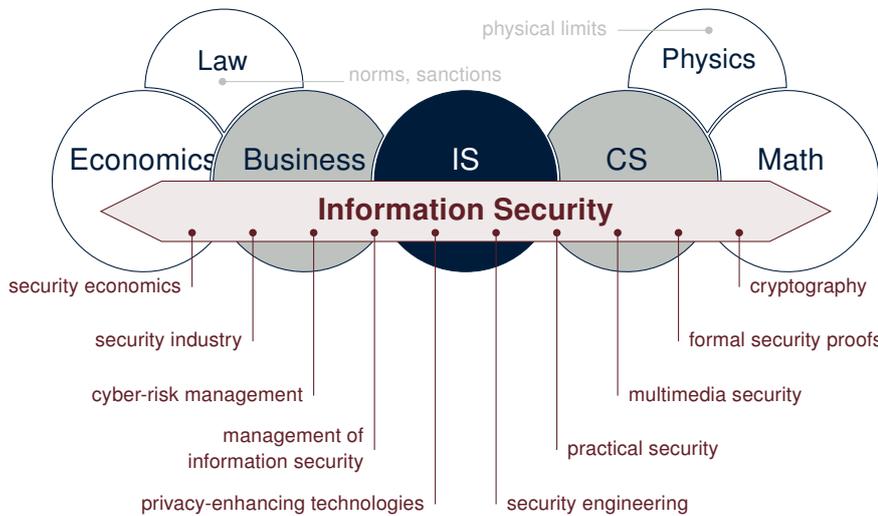
Key Facts

IT Security Research Group

- Launched in fall 2010
- 3 researchers

Research Topics

- Economics of Information Security
- Digital Forensics
- Steganography and Steganalysis
- Privacy-Enhancing Technologies
- Economics of Privacy
- Security and Usability



create deceptively clever manipulations and imitations. However, society traditionally considers images as particularly authentic proofs of evidence. Images are used to make momentous decisions, for example in courtrooms, science, and the formation of public opinion through the mass media.

To reestablish trust in digital images despite the ease of manipulation, the field of digital image forensics has matured as a scientific discipline. For example, digital images can be assigned to their digital camera or scanner by means of statistical analysis of their noise pattern. Other methods detect traces of post-processing operations.

Example

This set of images shows image forensics at work. The image on the left (1) depicts an allegedly successful rocket launch. It was released in 2008 by an



Image 2: Output of copy-move-detector

organization sympathizing with the Iranian rulers.

The image in the middle (2) depicts the output of a copy-and-move detector. White areas indicate parts of the image texture that are much too similar for natural images. Most likely, they emerged in a manipulation where parts of one rocket were duplicated to make the image appear more threatening. The presumable original image (3) shows that in fact one rocket failed. This image was published in the international press after the forgery had been uncovered.

Doctoral Students

Professor Böhme currently advises and co-advises four PhD students in the broader field of multimedia security (including digital image forensics) and one PhD student in the field of behavioral aspects of privacy.



Image 3: Presumable original image



About the Chair

The objective of the Chair for Information Systems and Supply Chain Management is to make a qualitative research contribution in the areas of supply chain management, operations management and logistics management with respect to the development of new theories and concepts, the transfer of research to practice and the quality of teaching.

In cooperation with industrial and research organizations, Prof. Hellgrath and his staff of eight assistants develop methods for optimizing supply chains for developing and applying information systems. The research team combines expertise from Business Administration, Information Systems, Computer Science, Logistics and Political Economy. This expertise enables the team to approach supply-chain management issues in a multi-disciplinary way.

Teaching is of great importance for the chair and is concentrated on the BSc and MSc programs in Information Systems and Business Economics. It focuses on the principles and application of Information Systems for the

design, planning and execution of intra- and inter-company supply chains. By offering several project seminars in cooperation with industrial partners, students get the chance to put the learned scientific knowledge, skills and competencies into practice. A recently implemented web-based platform helps students make contact with companies, find internships, and write their Master theses in a practical context. Furthermore, students are encouraged to take part in exchange programs with foreign universities, e.g. with the Pontifícia Universidade Católica do Rio de Janeiro in Brazil.

Research Topics

The Chair for Information Systems and Supply Chain Management does research on the design, planning and control of supply chains in combination with information technology. He aims to develop service-oriented concepts to enable companies to adapt to changing business environments. Achievement of flexibility in a supply chain (e.g., by [re]positioning the order decoupling point in a product lifecycle or by using multi-echelon inventory strategies) is a special research focus. Further research efforts

are being made in the field of decentralised coordination of supply chains by means of a self-developed agent-oriented framework and in the field of “green” supply chain management.

Current Research

Coordination approaches and their practical applicability are subject to current supply chain management research. In order to support practical applicability, a framework that allows the implementation and quantitative evaluation of the improvements of

decentralized coordination approaches is currently being developed. The framework will contain a modelling and runtime environment for decentralized supply-chain coordination approaches, accompanied by a guiding method supporting its application.

Further research is focusing on the development of a method that uses



flexibility measures in tactical network planning in order to improve the costs and performance of distribution networks. In an environment where the uncertainty of factors influencing the supply chain (e.g., demand) drives the necessity to be able to adapt to unanticipated changes, such a method enables enterprises to improve the costs and performance of their supply chains by the application of appropriate flexibility measures.

In close collaboration with industrial partners, including DB Schenker, arvalo services, Audi AG, Fraunhofer IML, Detecon and many more, the chair conducts several research projects. In cooperation with DB Schenker within the project InTerTrans (Integrated Scheduling and Transportation Planning), an efficient transportation planning process for the automotive industry has been developed, focusing on the consideration of sustainability within transportation planning and order scheduling. In cooperation with Fraunhofer IML, the project IMACS (Integrated Mobile Assistant Systems for Global Component Supply Chains) has developed an



assistant system for monitoring and scheduling flows of goods in a supply chain working as a mobile application. In the research field of “green” supply chains, a project is conducted in cooperation with Detecon and DB Schenker. The objective of the project is to devise the information system architecture for Reverse Logistics by means of TOGAF (The Open Group Architecture Framework). Finally, the chair is continuing his work on the development of a reference model for humanitarian logistics.

Selected Publications

Hellingrath, B.; Hegmanns, T.: Dezentrales und kollaboratives Bedarfs- und Kapazitätsmanagement in build-to-order Produktions- und Logistiknetzwerken; in: Delfmann, W.; Wimmer, T. (Hrsg.): Strukturwandel in der Logistik; 5. Wissenschaftssymposium Logistik 2010; Bundesvereinigung Logistik; Bremen; S. 11-31; 2010.

Böhle, C.; Dangelmaier, W.; Hellingrath, B.; Elskamp, D.: Workflow-based Agents for Supply Chain Management. In: Proceedings of the 8th IEEE International Conference on Industrial Informatics. 2010.

Hellingrath, B.; Böhle, C.: Integrierte agentenbasierte Produktions- und Logistikplanung in der Supply Chain. In: Künstliche Intelligenz, (2010).

Dissertations

Blecken, A.; A Reference Task Model for Supply Chain Processes of Humanitarian Organisations.

Böhle, Carsten: Eine theoretische und praktische Herleitung eines Verfahrens für die kostenminimale Koordination von Lieferanten und Logistikdienstleistern zur Belieferung lieferantengesteuerten Lager.

Hegmanns, T.: Dezentrales und kollaboratives Planungskonzept für ein flexibilitätsorientiertes BKM.

Contact Details



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Supply Chain Management
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Key Facts

Chair

- Founded in 2008
- Researchers: 8

Research Topics

- Supply Chain
- Flexibility
- Segmentation
- Sustainability
- Central/Decentral Coordination
- Security
- Humanitarian Logistics



About the Institution

The ITM is the leading Institute for Information-, Telecommunication-, and Media Law in Germany. The Institute's work aims to explore the legal framework and underlying policies of the information society with a particular focus on "information" as an economic and cultural good. The Institute emphasizes the importance of interdisciplinary work since a proper understanding of the technological or economic background is a pre-requirement to successful regulation. Many activities are carried out in close cooperation with the faculty of economics of the University of Münster. In 2002, the ITM was appointed the Competence Centre in Information-, Telecommunication-, and Media Law for North Rhine-Westphalia.

Prof. Dr. Thomas Hoeren is a professor of civil law at the University of Münster and has been the director of the ITM since 1997. Due to international projects such as CONSENT, LAPSI, IPR-Helpdesk, RESPECT and ECLIP, Prof. Hoeren has become recognised as a specialist in information law throughout Europe.

Research Topics

Our research focuses on Information Law, Telecommunication Law and Media Law as well as related areas such as Antitrust law and consumer protec-

tion. As Information, Telecommunication and Media law is characterized as a cross-sectional matter, it cannot be fully covered by any of the traditional legal disciplines alone. The ITM, therefore, strives for interdisciplinary research and teaching activities.

Current Research

Currently, the ITM is involved in several EU-funded and national projects.

CONSENT (Consumer sentiment regarding privacy on user generated content services in the digital economy) is an interdisciplinary research project on the EU-level. CONSENT aims to examine consumer sentiment regarding privacy on user generated content (UGC) services such as Youtube, Facebook and MySpace in the digital economy.

Within the LAPSI project (Legal Aspects of Public Sector Information), we explore the legal problems regarding Public Sector Information. LAPSI is also an EU-funded project.

The competence-centre for E-Learning is part of the European Research Centre for Information Systems (ERCIS) of the University of Münster. It is funded by the Federal Ministry of Education and Research with a focus on "New Media and Education". The aim of this project is the development of a technology-driven model for the organization, promotion and integration of E-Learning-Projects at universities. The Civil Law Department is in charge of the issue "Legal Aspects of E-Learning". Principally, we turn our attention to problems regarding data protection and copyright in the field

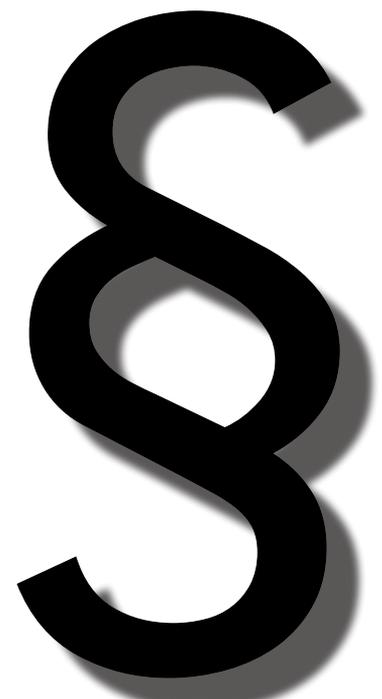
of teaching at universities.

Moreover, the ITM is part of the German Research Network (Deutsches Forschungsnetz / DFN) that supports communication and the exchange of information between representatives of science, research, education and culture in national and international networks. Increasingly, our DFN-members are being faced with issues regarding to legal questions of liability, telecommunications and data protection. Therefore, the ITM functions as a legal consultant in terms of information and communication services.

The ITM also hosts the Research Centre for Industrial Property Rights, which offers training and conducts research activities in the sector of industrial property rights.

Publications

Hoeren, T., Neurauter, S. (2010) IPTV – Die wichtigsten Rechtsfragen aus Sicht der Anbieter.





Hoeren, T., Wikileaks, Island und „the Switzerland of Bits“, in: FIFT Kommunikation 3/2010, p. 20.

Hoeren, T., Luftverkehr, Check-In und Pass-/Personalausweisdaten, in: NVwZ 2010, pp. 1123-1127.

Hoeren, T., Das neue BDSG und die Auftragsdatenverarbeitung, in: Dud 2010, pp. 688-691.

Hoeren, T., Der Erschöpfungsgrundsatz bei Software - Körperliche Übertragung und Folgeprobleme, in: GRUR 2010, pp. 665-673.

Hoeren, T., Vossen, G., Die Rolle des Rechts in einer durch das Web 2.0 dominierten Welt, in: DuD 2010, pp. 463-466.

Hoeren, T., Altemark, C., Musikverwertungsgesellschaften und Urheberrechtswahrnehmungsgesetz am Beispiel der CELAS, in: GRUR 2010, 16 -22.

Hoeren, T., The new German Data Protection Act and its compatibility

with the European Data Protection Directive, in: Computer Law & Security Review 2009, pp. 318-324.

Dissertations

Bajon, Benjamin: Interessenausgleich im Wissenschaftsurheberrecht.

Beckhaus, Gerrit: Die Bewältigung von Informationsdefiziten bei der Sachverhaltsaufklärung.

Bröckers, Stefan: Second-Hand-Software im urheberrechtlichen Kontext.

Gausling, Tina: Die verdachtsunabhängige Speicherung von Verkehrsdaten auf Vorrat.

Gräwe, Lena: Die Entstehung der Rechtsinformatik.

Planned Activities

There will be regular discussions on research topic related issues like copyright law or data protection law.

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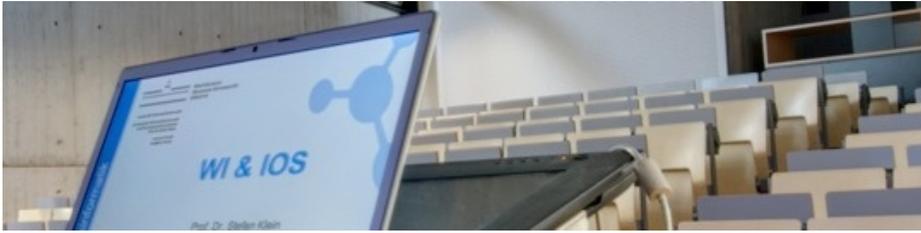
Key Facts

Institution

- Founded in 1997
- Researchers: 13
- Assistants: 19
- 3 additional education programs

Research Topics

- Information Law
- Telecommunication Law
- Media Law
- Informatics in Legal Profession



About the Institution

The chair for IS and Interorganizational Systems (IOS) pursues a strategy of linking research and teaching in three interrelated thematic fields: Corporate Leadership and Information Management, Communication and Collaboration systems, and Interorganizational Systems.

Across these three groups we focus on types of information infrastructure - within and across organizations – as standardized, large-scale and transparent platforms linking emerging sets of practices. Interorganizational infrastructures are developed and emerge in the context of broader societal debates concerning the modernization of health care, political agendas and regulatory regimes. They require some form of collective action and affect multiple stakeholders.

Research across the groups is theoretically driven, empirically founded and geared towards qualitative and interpretative approaches. We believe that information infrastructure needs to be conceptualized as socially and organizationally embedded and be studied over longer periods of time. We pursue an interdisciplinary approach with an emphasis on organiza-

tional, economic and social theories. The dynamics across different levels of analysis – from micro to macro – are constitutive for our research.

Research Topics

The research group “Corporate Leadership and Information Management” addresses the managerial challenges of deploying ICT in a corporate environment. It explores conceptual underpinnings and approaches for the planning, design and assessment of ICT: what is the impact of information and communication competencies on companies’ success? What is the link between corporate and ICT strategies? How can IT investments be evaluated?

The research group “Communication and Collaboration Systems” investigates collaboration phenomena in the Information Systems and Management domains. The impact of (new) ICTs on new (distributed) modes of organizing and the practices of network and cooperation management are studied on the inter-organizational or network level. On the corporate level, the strategic potential of emerging communication infrastructure is assessed. On the team or group level, we are looking into the appropriation of this infrastructure and the transformation of (community) practices.

The research group “Interorganizational Systems” explores technology-enabled organizational innovation – with an emphasis on the network and industry level – and the associated strategic and management implications. In particular, we focus on the manner in which technology (encom-

passing both material artifacts such as ICT applications/infrastructure and broader management technologies/practices) may engender innovative modes of working to transform the social fabric of companies, industries and societies.

Current Research

One of the key challenges for European governments is solving the paradox of increasing the security of international trade while simultaneously reducing the administrative overhead for commercial as well as public administration organizations. ITAIDE – an EU IST 6th Framework funded Integrated Project, in which five ERCIS members participated – has contributed to the vision of Europe’s governments overcoming the fragmentation of parochial eGovernment solutions by developing integrative architecture for eCustoms and taxation involving citizens and businesses.



Innovation in the eCustoms domain happens in complex constellations of heterogeneous stakeholders. Understanding and shaping the dynamics of these stakeholder constellations is critical for the success in terms of achieving collective action and precarious in terms of power struggles among stakeholders. Novel modes of multi-organizational innovation are necessary. Living Labs provides a setting in which complex multi-agent systems can be designed, implemented, tested, studied, with further requirements solicited, and with mobilized institutional support. The Information Infrastructure Framework depicts the philosophy and contributions of ITAIDE.

Contact Details



Prof. Dr. Stefan Klein

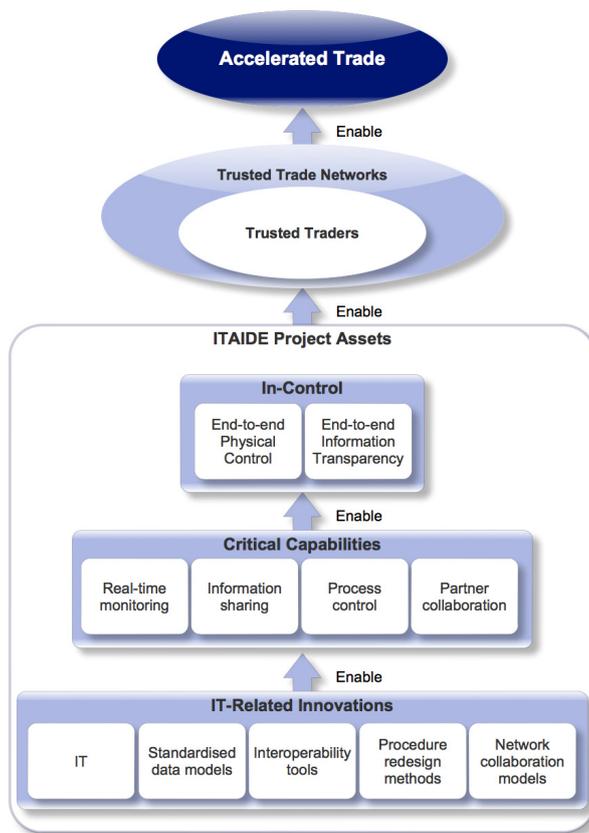
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Key Facts

Research Topics

- Information and Communications Infrastructures
- Strategic Alignment
- IT Value
- Organization Theory of IS
- Transformation of Work
- Appropriation of Communication Infrastructures
- Communities of Practice
- Collective Action and Standardization
- Living Lab Research Approach



ITAIDE Information Infrastructure Framework

Publications

Klein, S.; Schellhammer, S. (2011): Developing IOIS as Collective Action: A Cross-Country Comparison in the Health Care Sector, In: Proceedings of the 44th Hawaii International Conference on System Sciences (HICSS 2011). Koloa, USA, 2011.

Schellhammer, St. (2011): Towards an Evolutionary Theory of Interorganizational Information Systems (IOIS), In: Proceedings of the 44th Hawaii International Conference on System Sciences (HICSS 2011). Koloa, USA, 2011.

Tan, Y.-H., Bjørn-Andersen, N., Klein, S.; Rukanova, B. (eds.) (2011): Accelerating Global Supply Chains with IT Innovation - ITAIDE Methods and Tools, Springer, Heidelberg.

Chen, D. Q.; Mocker, M.; Preston, D. S.; Teubner, A. (2010): Information Systems Strategy: Reconceptualization, Measurement, and Implications. In: MIS Quarterly, 34 (2), 233-259.

Reimers, Kai; Johnston, Robert B.; Klein, Stefan (2010a): Toward a Theory of IOIS Variance - A New Framework for Studying Inter-organisational Information Systems, in: International Journal of Information Systems Technologies and Applications, 1 (2010) 3, 36-56.

Reimers, Kai; Johnston, Robert B.; Klein, Stefan (2010b): The Difficulty of Studying Inter-organisational IS Phenomena on Large Scales: Critical Reflections on a Research Journey. In: Electronic Markets 20 (3).

Schellhammer, Stefan (2010a): Organizational Identity as Perspective - Investigating the IT-artifact, in: 16th Americas Conference on Information Systems (AMCIS), Lima, Peru.

Schellhammer, Stefan (2010b): Metaphysics of Change and Identity, in: 16th Americas Conference on Information Systems (AMCIS), Lima, Peru.

Klein, Stefan; Vehring, Nadine; Kramer, Malte (2010): Introducing Real Time Communication: Frames, modes & rules, in: Proceedings 23rd Bled eConference eTrust: Implications for the Individual, Enterprises and Society, June 20-23, 2010, Bled, Slovenia.



About the Institution

Since 1997, the Chair of Practical Computer Science has been led by Prof. Dr. Herbert Kuchen who is responsible for teaching in the scope of software engineering, programming languages, and programming techniques.

Maintaining close partnerships and collaborations with several local companies, we are offering students to write bachelor and master theses that have a high practical relevance to the professional world.

Research Topics

Our research focuses on selected aspects of software engineering. The most important fields of research are Model Driven Software Design, Parallel Programming, Software Testing, and Debugging. Furthermore, we are developing new methods and techniques in the area of E-Learning and E-Assessment systems.

Current Research

Practical exercises play an important role in academic teaching. However, high student-to-faculty ratios as well as shortage of financial and human resources make it difficult to offer exercises with a high standard of quality. Our E-Assessment system EASy aims to facilitate the management of exercises and supports preparation, conduction, and postprocessing of exercises. EASy supports multiple-choice tests, programming tasks, and mathematical proofs as well as verification proofs. Currently, we are developing further modules to support additional types of exercises.

In the field of Model Driven Software Design (MDS), we are working on a generator for web applications, which supports model-to-model and model-to-source code transformations. The generator supports multiple platforms and stands out due to its suitability for real-world applications.

Furthermore, we are investigating approaches to apply MDS techniques within the domain of Business Process Modelling. We are developing model-to-model transformations for process-modelling languages, in particular in the area of the Business Process Modelling Notation (BPMN) language. We are also investigating approaches to facilitate the development of domain specific languages (DSL).

Experience shows that the development of parallel programs is an elaborate and time-consuming task. The Münster Skeleton Library (Muesli) is a collection of high-level concepts that facilitate the development of parallel programs. The library contains so-called algorithmic skeletons, i.e. frequently occurring parallel programming patterns, which can be easily and efficiently combined with parallel applications. In the past year, we have added algorithmic skeletons to Muesli, which support hybrid memory architectures and multi-node, multi-core computers as well as a distributed data structure for sparse matrices.

In the area of program debugging, we are developing the Java Hybrid Debugger (JHyde). Traditionally, Java programs are debugged using a trace debugger to follow the execution step by step. JHyde combines different new debugging techniques that help to simplify and speed up the search for bugs in Java programs.

Software testing is essential for the creation of high-quality software products. We drew the status quo of software testing as done by IT companies in the Münsterland region and worked out best practices and recommendations. Moreover, we are developing the Münster generator of glass-box test cases (Muggl). Recently, we started adding so-called generators and validators to Muggl. Generators create complex object structures instead of using random testing. This greatly increases Muggl's efficiency. Validators

can be used to check the outcome of test runs.

Publications

Ciechanowicz, P. & Kuchen, H. (2010). Enhancing Muesli's Data Parallel Skeletons for Multi-Core Computer Architectures. Proc. of the 12th IEEE Int. Conf. on High Performance Computing and Communication (HPCC).

Ciechanowicz P., Kegel P., Schellmann M., Gorlatch S., & Kuchen H. (2010). Parallelizing the LM OSEM Image Reconstruction on Multi-Core Clusters. Parallel Computing: From Multicores and GPU's to Petascale. Proceedings of the International Conference on Parallel Computing (ParCo).

Gruttman, S., Usener, C. A., Majchrzak, T. A. & Kuchen, H. (2010). Formative E-Assessment of Software Verification Skills in Higher Education. Proc. of the IADIS Int. Conf. on e-Learning 2010 (eL2010).

Hermanns, C. & Kuchen, H. (2010). Implementation and Evaluation of a Declarative Debugger for Java. Functional and (Constraint) Logic Programming: 19th International Workshop (WFLP).

Majchrzak, T. A. (2010). Status Quo of Software Testing – Regional Findings and Global Inductions. Journal of Information Science and Technology (JIST).

Majchrzak, T. A., Bergener, K., Jansing, T., Kuchen, H. & Becker, J. (2010). Towards a Web-Based Collaborative Dictionary for Verbalized Body Language. Proc. of the 8th Annual Conf. on Information Science, Technology and Management (CISTM).

Majchrzak, T. A. (2010). Best Practices for Technical Aspects of Software Testing in Enterprises. In: Proc. of the Int. Conf. on Information Society (i-Society 2010).

Majchrzak, T. A., Noack, O., Kuchen, H., Neuhaus, P., & Ückert, F. (2010). Towards a Decision Support System for the Allocation of Traumatized Patients. Proc. of the 7th Int. Conf. on Information Systems for Crisis Response and Management (ISCRAM).

Majchrzak, T. A. (2010). Status Quo of Software Testing - Regional Findings and Global Inductions. In: Proc. of the 9th ISOOneWorld Conference.

Majchrzak, T. A. (2010). Best Practices for the Organizational Implementation of Software Testing. Proc. of the 43th Annual Hawaii Int. Conf. on System Sciences (HICSS-43).

Neuhaus, P., Noack, O., Majchrzak, T. A., & Ückert, F. (2010). Using a Business Rule Management System to Improve Disposition of Traumatized Patients. MEDINFO 2010 – Proc. of the 13th World Congress on Medical and Health Informatics.

Usener, C. A., Gruttman, S., Majchrzak, T. A. & Kuchen, H. (2010). Computer-supported Assessment of Software Verification Proofs – Towards High-quality E-assessments in Computer Science Education. Proc. of the 2010 Int. Conf. on Education and Information Technology (ICEIT 2010).

Dissertations

Ciechanowicz, Philipp: Data parallel algorithmic skeletons.

Hermanns, Christian: Design and Implementation of a hybrid debugger for Java.

Gruttman, Susanne: Formative E-Assessment in Higher Education.

Planned Activities

In September 2011 we are going to host the 16th Colloquium of Programming Languages (KPS'11) in Raesfeld Castle in the Münsterland region.

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Key Facts

Chair

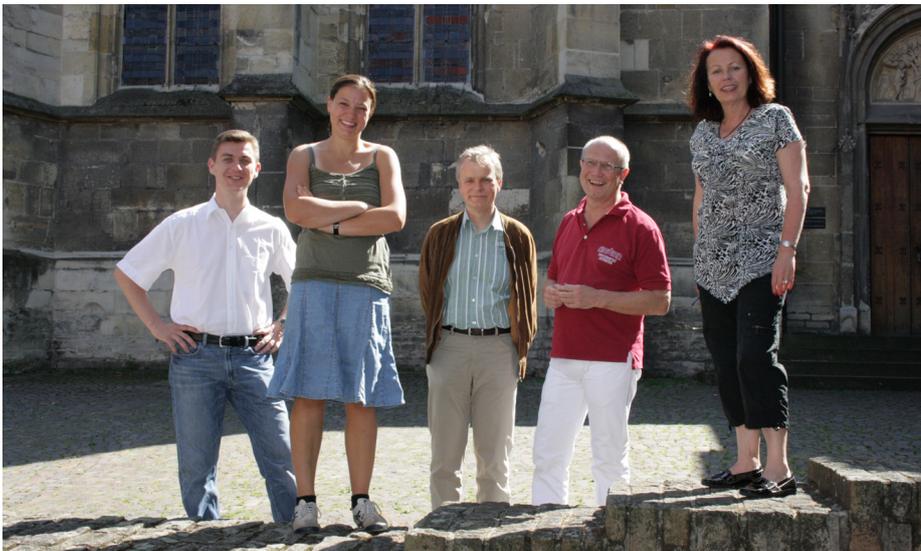
- Founded in 1997
- Researchers: 7

Research Topics

- E-Learning
- Model Driven Software Engineering
- Parallel Programming
- Software Testing and
- Debugging

Events

Colloquium of Programming Languages, September 2011



- analysis of networks, i.e. sub-structures (“communities”) and roles.

Furthermore we are interested in aspects of simulation, e.g goodness-of-fit tests.

A good part of the topics mentioned above can sub- summarized under the heading non-linear methods in multi-variate data analysis. In other words, we are working our way through the different parts of the analysis-“q” as shown in the graphic.

Current Research

Social communities are a phenomenon of constantly increasing interest. Starting from ideal communities, mathematically known as cliques, i.e. fully connected sub graphs; we are looking for parts of the graph that are similar to cliques. In order to do that, a distance measure is needed to determine if a sub graph lies close to a clique. Therefore, we look at the degree distribution and compare sub graphs to the ideal degree distribution of cliques. Not only are we looking for a distance measure to determine neighbourhood structures, but we also develop algorithms that enable

About the Group

The group is part of the department of Information Systems at the WUU and consequently member of the European Research Center for Information Systems (ERCIS).

Ulrich Müller-Funk, head of the group, is a member of various scientific societies, e.g., the German Association for Classification. He was dean of the faculty from 1999 to 2000 and prorector of Münster University from 2002 to 2006.

Research Topics

Our research focuses on factor selection, classification and pre-classification. In particular, we are interested in

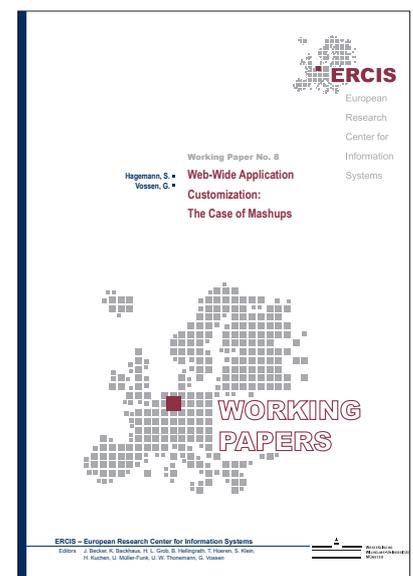
- fraud detection, i.e. models for the non-fraud case, alternatives to the chi square approach;
- multivariate measures of correlation and association, i.e. indices based on multivariate copulas;
- association analysis, i.e. extension of the by now classical rules
- information retrieval,

New ERCIS Working Paper No. 8 by Hagemann, S.; Vossen, G.:

Web-Wide Application Customization: The Case of Mashups

Application development is commonly a balancing of interests, as the question of what should actually be implemented is answered differently by different stakeholders. This paper considers mashups, which are a way of allowing an application to grow beyond the capabilities of the original developers. First, it introduces several approaches to integrate mashups into the services, or Web pages, that they are based upon. These approaches commonly implement ways to determine which mashups are potentially relevant for display in a certain Web page context. One approach, ActiveTags, enables users to create reliable mashups based on tags, which effectively, leads to customized views of Web pages with tagged content. A scenario that demonstrates the potential benefits of this approach is presented. Second, a formalization of the approaches is presented which uses a relational analog to show their commonalities. The abstraction from implementation specifics opens the range of vision for fundamental capabilities and gives a clear picture of future work.

http://www.ercis.org/sites/default/files/publications/2010/ercis_wp_no_8.pdf



us to identify sub graphs as described above. Entities are not restricted to belong to one community only, but they are allowed membership of more than one community. This notion of overlapping comes much closer to real life networks than strictly disjunctive partitioning methods.

We are also interested in semantic information retrieval algorithms. Our goal is to create approaches that do not rely on mere pattern matching but reach out to incorporate the notion of semantics into queries. This way, search strings do not have to be identical with the contents of a document but only need to be situated in the same semantic area. Currently, we are exploring opportunities to improve the performance and try to facilitate the use of different analytical tools like homogeneity analysis.

Another project is to work out “ground rules of proper fraud detection”. This entails determining appropriate digit distributions to describe the “normal” situation, finding transformations that effect

the data-generating process as well as measuring deviations from normality. The project is joint work with S. Dlugosz (Mannheim) and L. Mochty (Essen).

Publications

Baumgart, A. & Müller-Funk, U. (2010). Analysis of Network-Data based on Probability Neighborhood-Cliques. To appear in proceedings of 34th Annual Conference of the German Classification Society.

Hildebrand, K. F. & Müller-Funk, U. (2010). HOMALS for Dimension Reduction in Information Retrieval. To appear in the proceedings of 34th Annual Conference of the German Classification Society.

Planned Activities

The group is planning on attending 35th Annual Conference of the German Classification Society as well as the International Classification Conference in St. Andrews.

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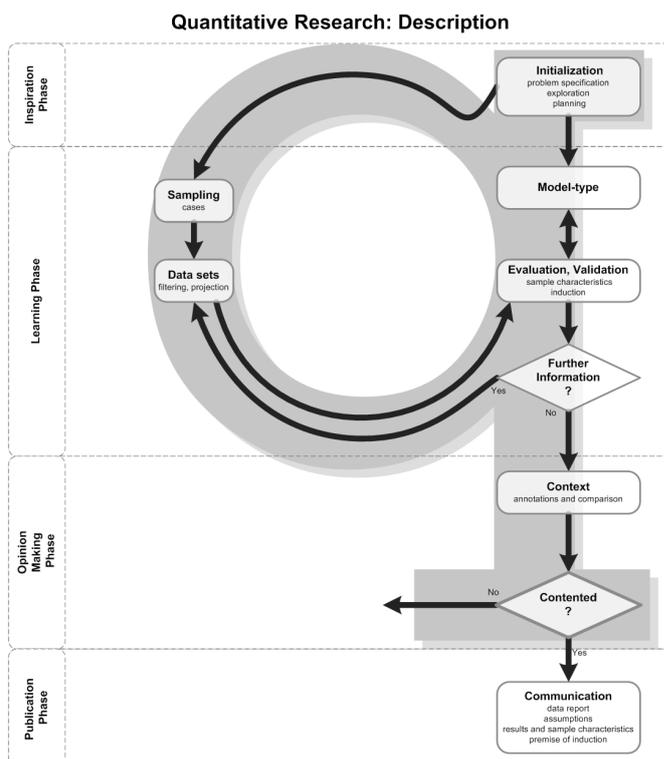
Key Facts

Institution

- Researchers: 4

Research Topics

- Statistical Learning
- Probability Models
- Network Theories
- Information Retrieval





New Research Group for Communication and Collaboration Management

Caused by an increasing relevance of distributed tasks and project-based work, the demand for new communication and collaboration technologies and concepts is growing. Additionally, social networks such as Facebook and Twitter, but also real time communication solutions such as Skype, are used as new platforms for communication and collaboration as well as for management of relations and self-expression. To address these developments on an academic level, the University of Münster appointed the first Juniorprofessor within the ERCIS network. In April 2010, Stefan Stieglitz took responsibility as head of the ERCIS research group Communication and Collaboration Management.

Stieglitz @ERCIS-Münster

Prior to his current position, Prof. Dr. Stefan Stieglitz worked as post-doctoral fellow at the University of Potsdam. There, he initiated and managed several research projects in the fields of social networking and virtual worlds. Furthermore, he teaches at the School of Design Thinking at the

Hasso-Plattner Institute. Stieglitz studied business economics at the universities of Cologne and Paderborn and received a master's degree as well as a doctorate by the University of Potsdam. He formerly held positions as project manager in the financial industry and in the Internet economy.

His research focuses on economic, social, and technological aspects of collaboration software. He is particularly interested in the management and transformation processes that resulted from the introduction of social media in companies. Additionally, he is engaged in the field of unified communication & collaboration. Stieglitz published several articles in reputable international journals. Since May 2010 he is academic director and co-founder of the Competence Center Smarter Work at the ERCIS network.

Research Program

Due to new concepts and technologies, the possibilities and usage of the Internet have changed rapidly in the past years. Virtual Communities and Social Networks were formed, new ways of communication were established, and the integration of technology into everyday life increased.

Concerning this development, the research group concentrates on investigating communication and collaboration systems and their introduction into business environments. The research program is related to the field of computer supported cooperative work (CSCW). Inductive and explorative research approaches based on empirical social science as well as on social media analytics are designed to address research questions.

Area 1 – Social Media-based Communication and Collaboration

The advent of social media changed the way of interaction in private life as well as in business. The research group investigates this development on the level of the

- Individual (e.g. How to administrate impression management and availability status? What are motives and incentives for usage of social media?),
- Group (e.g. Can social media help to build up social capital? How does social media support virtual teams?),
- Organization (e.g. How can information be filtered? How to introduce social media? -> Area II),
- Society (How does opinion-making work in social media? What is the impact of a social media-divide?).

Area 2 – Community Engineering: Introduction, Operation, and Controlling of Social Networks in Organizations

Communication in social networks is based on voluntariness and self-monitoring (Web 2.0 paradigm). However, the introduction and operation of collaboration software can also be understood as a project, which requires transformation and management activities. Empirical studies are needed to investigate the contradictory contexts of voluntariness and organizational hierarchies. Furthermore, the group researches benefits and risks of social media provision for companies and the stakeholders (employees, customers, partners). Related fields are social media monitoring and social network analysis.

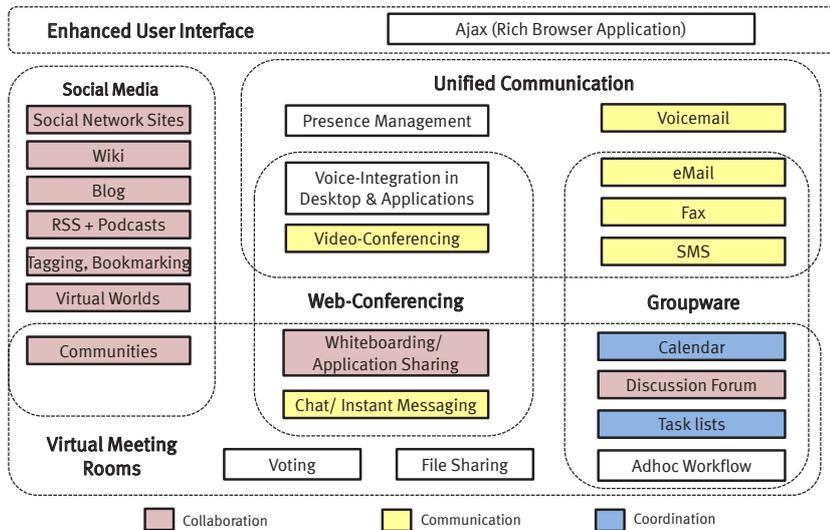


Figure 1: Communication and Collaboration Framework

Research Projects

Enterprise 3D

Funded by the German Federal Ministry of Economics and Technology, Prof. Stieglitz launched the research project “Enterprise 3D” in July 2010. In this project, the virtual world OpenSim is used to design and implement a platform to involve customers in companies’ product development processes. The aim of this project is to explore the potential of virtual worlds for collaborative customer integration.

Social Network Analysis

The importance of Twitter, Facebook and other Social Networking Sites (SNS) is continuously increasing. Companies can benefit by analyzing those social media platforms (e.g. to improve Issues Management or to identify trends). The aim of this project, which is set up with researchers from communication science, is to identify patterns that help explain the emergence of topics in those networks. Therefore, a prototype is developed which is used to monitor the Twitter network.

Within the framework of the ERCIS Competence Center for Smarter Work, further projects are set up with partners from industry.

Doctoral Students

Prof. Stieglitz currently advises four doctoral students in the broader field of communication and collaboration management (e.g. analytics of public social network sites, customer integration by social media).

Selected Publications

Stieglitz, S., Lattemann, C., Kallischnigg, M. (2010): Experiential Learning in Virtual Worlds – A Case Study for Entrepreneurial Training, in: Proceedings of the Americas Conference on Information Systems (AMCIS) 2010, Paper 352.

Stieglitz, S.; Fuchß, C.; Lattemann, C. (2009): A Business Model for Mobile Communities, in: Hofreiter, B., Werthner, H. (Eds.): Proceedings of the 11th IEEE Conference on Commerce and Enterprise Computing (CEC’09), IEEE Computer Society, pp. 252-257.

Stieglitz, Stefan (2008): Steuerung Virtueller Communities, Gabler, Wiesbaden.

Stieglitz, S.; Schneider, A.-M. (2008): The Impact of Social Software on Customer Decision Making Processes, in: The E-Business Review, Vol. VIII, pp. 265-268.

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Key facts

Communication and Collaboration Management Group

- Launched in April 2010
- 4 Researchers
- Joint projects with industry partners - ERCIS Competence Center Smarter Work

Research Program

- Relevance of Social Media for Business
- Community Engineering
- Social Media Monitoring
- Collaboration in Virtual Worlds

DBIS Group

Databases & Information Systems

About the Institution

The Chair of Computer Science in the Department of Information Systems at the University of Münster, Germany, is a member of the European Research Center (ERCIS).

Gottfried Vossen, Chair of Computer Science, is the European Editor-in-Chief of Information Systems, an international journal. He is also Associate Editor of the International Journal on Semantic Web and Information Systems, scientific advisor of Deutsche Informatik-Akademie (DIA, German Informatics Academy), continuous-education subsidiary of the German Computer Science, university contact person of the German Computer Science Society (GI) as well as speaker of the local GI chapter. Furthermore, he is deputy chairman of the steering committee of the German information technology certification agency Cert-IT, Editor-in-Chief of the dissertation series “Databases and Information Systems” (DISDBIS) of aka Verlag, as well as member of several editorial boards and program committees.

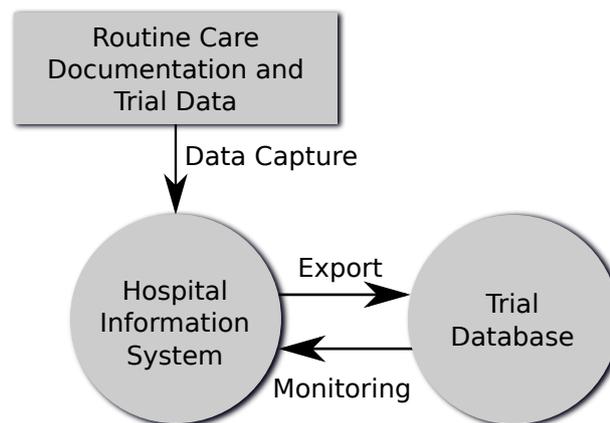
Research Topics

Our goal is to advance the database field (and its surroundings) so that it becomes an integrated, embedded technology in all aspects of computing

and meets the challenges of the IT future (w.r.t. internet, web, mobility, universal storage and access).

Current Research

Within the project “Single Source,” which is funded by the German Research Foundation (DFG), we cooperate with the Department of Medical Informatics and Biomathematics, Münster. The main goal of the project is to demonstrate how to perform medical



documentation according to the single-source concept.

The single-source concept aims for the integration of data collected for routine patient care on the one hand and for clinical research on the other. In contrast, the current practice of separate documentation workflows for

patient care and research in separate information systems causes considerable overhead for data management; in particular, data for clinical research is collected redundantly even if it is readily available within patient care information systems. In view of this redundancy and overhead, the single-source concept strives for a single point of data entry followed by dual use for patient care and clinical research. Hence, redundant data collection will be avoided, and data-quality improvement processes, which are continuously applied on research data, will help improve data quality for patient care as well.

Publications

Th.C. Rakow, H. Faeskorn-Woyke, B. Schiefer, G. Vossen, J. Wäsch: Tools für die Lehre in Datenbanken; Datenbank-Spektrum, Heft 29, Mai 2009 (Themenheft Lehre in Datenbanken und Information Retrieval), 5-13.

D. Dahl, G. Vossen: Towards Learning Object Metadata Quality Control - The Next Steps; Proc. EDEN (European Distance and E-Learning Network) Annual Conference 2009, Gdansk, Poland, (on CD-ROM, ISBN 978-963-87914-3-6).

G. Vossen: Web 2.0: a Buzzword, a Serious Development, Just Fun, or What?; Proc. International Conference on e-Business (ICE-B) 2009, Milan, Italy, IS-33-IS-40.

J. Schwieren, G. Vossen: ID-Services: An RFID Middleware Architecture for Mobile Applications; to appear in Information Systems Frontiers, Special Issue on Advances in RFID Technology, 2009.

M. Dugas, B. Breil, V. Thiemann, J. Lechtenböcker, G. Vossen: Single Source Information Systems to

Connect Patient Care and Clinical Research; Proc. 22nd International Conference of the European Federation for Medical Informatics: Medical Informatics in a United and Healthy Europe (MIE) 2009, Sarajevo, Bosnia and Herzegovina.

M. Dugas, B. Breil, V. Thiemann, J. Lechtenböcker, G. Vossen: Single Source Informationssysteme – Nutzung von Routinedaten für die klinische Forschung; Proc. 54. Jahrestagung der Deutschen Gesellschaft für Medizinische Informatik, Biometrie und Epidemiologie e.V. (GMDS) 2009, Essen, Germany.

St. Hagemann, G. Vossen: Web-Wide Application Customization: The Case of Mashups; ERCIS Research Report, January 2010.

St. Hagemann, G. Vossen: Web Page Augmentation with Client-Side Mashups as Meta-Querying; Proc. 2nd Asian Conference on Intelligent Information and Database Systems (ACIIDS) Part I, Hue, Vietnam, 2010, Springer LNAI 5990, 23-32.

T. Haselmann, A. Winkelmann, G. Vossen: Towards a Conceptual Model for Trustworthy Skills Profiles in Online Social Networks; Proc. 19th International Conference on Information Systems Development (ISD) 2010, Prague, Czech Republic.

T. Haselmann, G. Thies, G. Vossen: Looking into a REST-based API for Database-as-a-Service Systems to appear in Proc. 12th IEEE Conference on Commerce and Enterprise Computing (CEC) 2010, Shanghai, China.

Th. Hoeren, G. Vossen: Die Rolle des Rechts in einer durch das Web 2.0 dominierten Welt; Datenschutz und Datensicherheit (DuD) 7, 2010, 463-466.

E. Deakins, G. Vossen: Women Leading and Learning through Present-Day

Web Linking Technology; International Journal of Knowledge and Learning 6, 2010, 1-27.

G. Thies, G. Vossen: Identification, Specification, and Development of Web-Oriented Architectures to appear in International Journal of Information Systems in the Service Sector (IJSSS) 2011, Special Issue on “Advanced Research Topics in Services Computing”.

D. Dahl, G. Vossen: Creating High-Quality Learning Object Metadata Based on Web 2.0 Concepts; Chapter 4 in L. Tomei (ed.), ICTs for Modern Educational and Instructional Advancement: New Approaches to Teaching; Information Science Reference (IGI Global), Hershey, NY, USA, 2010, 32-47.

G. Vossen: Der Umgang mit Information in Aus- und Weiterbildung: inflationär oder deflationär? wird erscheinen in Festschrift zum 40-jährigen Jubiläum der Gesellschaft für Konsumforschung (GfK), 2010, 433-443.

D.D.E. Long, G. Vossen, J. Xu Yu (eds.): Special Issue on WISE 2009: Web Information Systems Engineering; to appear in Information Systems 36, 2011.

Dissertations

Stephan Hagemann: A Framework for the Consistent Usage of Tag-based Mashups.

Joachim Schwierien: Konzeption und Realisierung einer RFID-Middleware-Architektur für Mobile Systeme.

Daniel Dahl: Integration von Lernobjekten auf Metadatenebene - Ein Web 2.0-geprägter Ansatz.

Planned Activities

Following three successful annual events since 2008, we plan to host ERCIS Launch Pad again in October, 2011 in Münster.

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Key Facts

Research Topics

- Skills2Web
- Single Source
- MoVIS - Mobile Visitor Information System
- Database-as-a-Service
- Web oriented architectures
- Web 2.0: New Services and Mashups
- xLx - eXtreme e-Learning eXperience
- Data Warehouse Schema Design

Events

- ERCIS Launch Pad, October 2011

BEM – Bordeaux Management School – Academic Department of Operations Management and IS – Research team “Information, Decision and Management”



the transported products “intelligent” by giving them the means to communicate real-time information, which is useful for the organization and the control of flow of transported goods (i.e., reducing empty miles, route optimization, optimization of freight volumes, etc.).

About the Institution

A pioneer in French elite Grandes Ecoles system, BEM-Bordeaux Management School, founded in 1874, provides a high value-added education in business administration and management. Twenty thousand companies and professional organizations work regularly with BEM, providing active support for its educational programs and research.

The “Operations Management and IS” department is valued for its competency in purchasing, logistics, supply chain and information systems management. The team members are highly recognized for expertise in the area of Information and Decision Science, in Knowledge Management and Organizational Learning research fields.

Research Topics

The areas of research pursued by the team members are wide-ranging: developing business models of electronic marketplaces and measurement of electronic service quality, a systemic analysis of organizational design and the performance of inventory control systems, formal modelling for the different organisational learning mechanisms, and causal mapping applications in managerial decision-making.

The multi-disciplinary approach serves as a powerful factor of innovation and creativity, not only in research studies but also in teaching: every

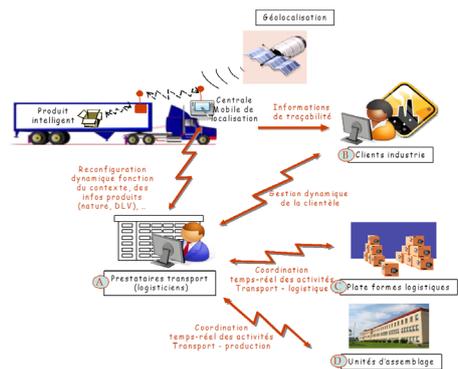
team member gains from the dynamic exchange of ideas at the monthly research seminars.

Current Research

Several research projects are conducted by the team members in close collaboration with industrial partners.

PRODIGE project (ANR)

The project ‘PRODIGE’ is funded by the French National Agency of Research and conducted by BEM Bordeaux Man-



agement School in collaboration with other partners of the Campus Supply Chain Research Group. The project deals with the “real time” organization and optimization of goods transportation within the supply chain using the RFID (Radio Frequency Identification) technology.

The aim of the project is to consider the RFID technology as a way to make

The project was started in November of 2009 and has been ongoing for a period of 3 years (2.7 M€.)

ORISCO project (CIGREF)

This new seven-month project ORISCO is an organisational and IS COntigurations for exploration and exploitation trade-off, launched together with a multinational company – Group Legrand – a long-term BEM partner, is financed by the CIGREF foundation (15 Ke).

The project focuses on the use of information systems by structurally ambidextrous firms to investigate explorative and exploitative knowledge flows throughout the organization both at the organisational level and at the individual level.

The ambitious goals of the study are the following: to extract predominant factors from this case study (Legrand in France, Russia, and India) and to develop a formal model and emergent scenarios. Identification of emerging trends and development of recommendations for the geographically dispersed companies will help accomplish a better integration of organizational functioning in subsidiaries.



BEM – Bordeaux Management School – Academic Department of Operations Management and IS – Research team “Information, Decision and Management”

RIRL conference

www.rirl.bem.edu

The International Conference on Logistics Research (RIRL) was held from September 29, 2010 to October 1, 2010. This event was organized by the team to attract researchers from all across the world with an interest in Logistics, IS and Supply Chain Management. One hundred seventy-two participants of twenty nationalities came to BEM; forty were doctoral students. More than 260 papers were submitted to RIRL, 106 were accepted.

Publications

ALLALCHERIF O. “CarFab case study: the role of information systems in the purchasing function”, ECCH N 609-018-1.

ALLALCHERIF O. “How IS Contribute to the Development of a Sustainable Procurement Policy”, in L.M. Camarinha-Matos et al. (Ed), Collaborative Networks for a Sustainable World, PROVE 2010, IFIP AICT 336, pp. 133–141, 2010, Springer Science, ISBN: 978-3-642-15960-2.

BABAI, M.Z., JEMAI, Z., DALLERY Y. “Analysis of Order-Up-To-Level in Inventory Systems with Compound Poisson

Demand”, European Journal of Operational Research, 2010 –online.

BRESSOLLES G.; “A typology of online consumers for wine websites based on electronic service quality’s dimensions”, IJWR, N 22 (4), 2010.

BRESSOLLES, G. “La qualité de service électronique : NetQual : Mesure, conséquences et variables modératrices”, Sarrebruck : Editions Universitaires Européennes, 2010.

LAGUECIR-DERUJINSKY A., MASSUÉ M.-L.; COLAS H. “Unexpected Utilizations of Information Technology: off Interaction between Users and EDI”, Problems and Perspectives in Management, Vol. 8, Issue 3, September 2010.

Dissertations

Dominique Estampe, Director of ISLI program, member of the team presented his PhD thesis “Evaluation Model of the Supply Chain performance: a measurement tool for value creation “ at the Ecole Centrale de Paris.

The members of the ERCIS network are welcome at BEM to present their studies at monthly research seminars.

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Key Facts

Institution

- Founded in 1874
- One of the “oldest Grandes Ecoles” en France
- 14 researchers

Research Topics

- IS in Operations Management
- Purchasing and IS
- e-distribution
- Supply Chain and OM Decision-Making & Decision Analysis
- Organizational Learning/ Knowledge Management/Competences
- Electronic Marketplaces





Queensland University of Technology Brisbane Australia

About the Institution

QUT's Business Process Management (BPM) Group is one of the world's largest applied research groups dedicated to rigorous and relevant research on all facets of process-centered management. With more than 30 members, substantial knowledge exists to conduct a broad scope of topics in great depth and detail.

With a global reputation for our work on maturity management, process life-cycle management, process modelling, workflow patterns, and YAWL (Yet Another Workflow Language), our group has had a substantial impact on the global body of BPM knowledge and its uptake in industry and academia. A number of books published by QUT members have become standard references in the BPM domain, and many of the group's scientific articles reside amongst the most cited works in BPM.

QUT was the first university, outside Europe, to host the International Conference on Business Process Management in 2007.

Our vision is to be the global innovator

and educator in the area of BPM, and to draw from and positively impact industry and the community via the conduct and transfer of research following highest standards.

Research Topics

We are conducting applied research on the entire business process lifecycle. A key focus of the BPM group is process modelling and process execution with a concentration on the design of models, which are intuitive, scalable, configurable and executable. Special areas of research are business process modelling in the large, the configuration of reference process models and the ontological analysis of process modelling techniques.

The research portfolio of the BPM Group covers topics such as:

- BPM maturity management
- BPM value management
- Process modelling standards (e.g. BPMN)
- BPM in selected industries (e.g. health, finance, retail, aviation, entertainment)

- Process visualisation
- BPM education / BPM body of knowledge
- Workflow management
- Managing large repositories of business process models
- Business Service Management.

We have an established track record of conducting collaborative, mutually beneficial research on applied BPM problems. These are either directly funded by an industry partner or leverage third party funding [e.g. as part of an Australian Research Council (ARC) Linkage grant or within a Collaborative Research Centre (CRC)]. The projects typically cover a period from six months to up to three years and focus on innovative problems leading to new intellectual property.

Examples of recent projects include:

- Orchestration of Managerial Services as Part of Large Scale Business Transformations (funded by SAP Business Transformation, 2010-2013)
- Value-centred Business Process Management (funded by Accenture, USA, 2010-2011)
- Risk-aware Business Process Management (funded by the Australian Research Council, 2011-2013)
- Business Process Standardisation and Reuse (funded by Australian Research Council and Suncorp)
- Business Service Management (funded by CRC Smart Services, 2008-2013)
- Airports of the Future (funded by Australian Research Council and a large number of aviation stakeholders, 2010-2013)



exploring new possibilities...

Dr Ross Brown :: PhD graduate :: QUT senior lecturer in information technology

Dr Ross Brown's research investigates the overlap between 3D virtual environments, such as Second Life, and business process management. 'QUT is the ideal place to explore this exciting new area, with strong research successes in the fields of games technology and business process management. The Business Process Management Research Group at QUT is a world-leading research concentration with an approach to research that is rigorous, relevant and farsighted. Within this group I am exploring the many new possibilities offered by using games technology to visualise business processes and aid decision making. This ability to explore new areas in a flexible manner is one of the great strengths of QUT.'



- Designing a Process Improvement Methodology (funded by Woolworths, 2010)

Selected Publications

J. vom Brocke, M. Rosemann (eds.): Handbook on Business Process Management. Two volumes. Springer, Berlin et al. 2010.

Recker, J., Rosemann, M., Green, P., Indulska, M. (2011): Do Ontological Deficiencies in Modeling Grammars Matter? Management Information Systems Quarterly, Vol. 35, No. 1.

La Rosa, M., Dumas, M., ter Hofstede, A.H.M., Mendling, J. (2011): Configurable multiperspective business process models. Information Systems, Vol. 36.

Recker, J., Indulska, M., Rosemann, M., Green, P. (2010): The Ontological Deficiencies of Process Modeling in Practice. European Journal of Information Systems, Vol. 19, No. 5, pp. 501-525.

W.M.P. van der Aalst, M. Dumas, F. Gottschalk, A.H.M. ter Hofstede, M. La Rosa, J. Mendling, Preserving Correctness During Business Process Model Configuration. In Formal Aspects of Computing (FACS). Vol. 22 No. 3-4, 2010.

Recker, J. (2010): Explaining Usage of Process Modeling Grammars: Comparing

Three Theoretical Models in the Study of Two Grammars. Information & Management, Vol. 47, No. 5-6, pp. 316-324.

Dissertations

Bandar Saleh Alhaqbani: Privacy and trust management for electronic health records.

Nick Russell: Foundations of Process-Aware Information System.

Awards and Recognitions

Michael Rosemann was appointed as Visiting Professor at Viktoria Institute, Sweden.

Arthur ter Hofstede was appointed as Senior Visiting Scholar at Tsinghua University Beijing, China.

Jan Recker was awarded an Alexander-von-Humboldt Fellowship for his research on process model quality.



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Key Facts

Institution

- Established in 1989
- 40,000 students
- BPM group with 11 academic staff

Research Topics

- Business Process Modeling
- Process Value Management
- Workflow
- BPM Maturity
- Business Service Management
- BPM in selected sectors

Events

- Host of the 21st Australasian Conference on Information Systems (ACIS 2010)
- Host of the 14th Pacific Asia Conference on Information Systems (PACIS 2011)



Copenhagen Business School

HANDELSHØJSKOLEN

About the Institution

Research at the Department of Informatics focuses on the development, management and use of Information and Communication Technologies (ICT) in society, institutions and businesses. The department's research is multi-disciplinary, and the staff's proficient background includes computer science, organizational science, economics, psychology and engineering.

Teaching at the department concentrates on the BSc and MSc programs in IT and Business Economics and the BA in Information Management.

Research Topics

The department's research concentrates on the following themes:

Development of Information Systems (IS) and ICTs: Information systems development practices and management, development methodologies, usability of information systems, distributed information systems, and database systems.

Management of ICT-enabled processes: Designing and examining ICT-enabled business models and management innovation in areas such as outsourcing, software venturing and entrepreneurship, knowledge-based systems, and open source systems.

Current Research

Open Innovation

In the project "Open Innovation in the IT industry" we study a new business model in the IT industry, that customizes standard software as the foundation for a software company's earnings. Based on a case study of a small Danish company that has specialised in customizing specific products from a global IT provider, we investigate how the original software producer's approach to open innovation has a vital impact on the customizing company's business and work practices (Professor Karlheinz Kautz).

Social media in healthcare

This project extends previous research on the use of technology in health care by focusing on how nurses can act as mediators to facilitate and support patients' adoption and use of social media.

itGrows

The objective of the itGrows project is to develop a greenhouse climate-management system that integrates state-of-the-art hardware and software with the newest knowledge in greenhouse production and human-machine interaction. The project is funded by the Danish National Advanced Technology Foundation and includes both industrial and university partners. At INF, the main task will be to develop new techniques for user interface development in process control systems and to design the system's user interface (Associate professors Torkil Clemmensen and Rasmus U. Pedersen).

Co-creation lab for Innovation (CCLFI)

The central idea of CCLFI is to consider ICT as the core enabler of innovation and then provide a bridge between innovation theories, information system theories of innovation processes, and management theories about innovation. ICT would then link these theories to the real world of practice, including enabling experiments in partnership with the industry, academia and government to create solutions to disruptive phenomena brought about by the introduction of information and communication technology. We conceptualise co-creation as a platform, independent-knowledge process driven by the need to develop products and services and re-engineer low-cost products for global markets, thus creating new opportunities and future markets (PhD Sudhanshu Rai and Professor Mogens K. Pedersen).





Selected Publications

Almbjerg, S. K., Christensen, K.S.: Designing for Innovative Capability in the Structure of Organisations, *International Journal of Entrepreneurship and Innovation Management.*, Vol. 11(2), 2010, 194-212.

Ambos, B., Mahnke, V.: How Do MNC Headquarters Add Value?, *Management International Review*, Vol. 50(4), 2010, 403-412.

Kjærgaard, A., Nielsen, P. A., Kautz, K. (2010), Making Sense Of Software Project Management: A Case Of Knowledge Sharing In Software Development, *Scandinavian Journal of Information Systems*, Vol. 22(1), 3-26.

Ngwenyama, O., Nørbjerg, J.: Software Process Improvement with Weak Management Support : An Analysis of the Dynamics of IntraOrganizational Alliances

in IS Change Initiatives, *European Journal of Information Systems.*; Vol. 19(3) 2010, 303-319.

Rai, S., Vendelø, M. T.: Knowledge Transfer in Cross-Functional Contexts : A Case for Further Investigation, *International Journal of Business and Systems Research*, Vol. 4(4), 2010, 365-378.

Dissertations

Busquets, J.: Orchestrating Network Behavior for Innovation, Copenhagen Business School Press, 2010.

Secher, A. C.: Edeltagelse i praksis : Politikernes og forvaltningens medkonstruktion og konsekvenserne heraf, Copenhagen Business School Press, 2010.

Shi, Q.: An Empirical Study of Thinking Aloud Usability Testing From a Cultural Perspective, Department of Informatics, Copenhagen Business School Press, 2010.

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Key Facts

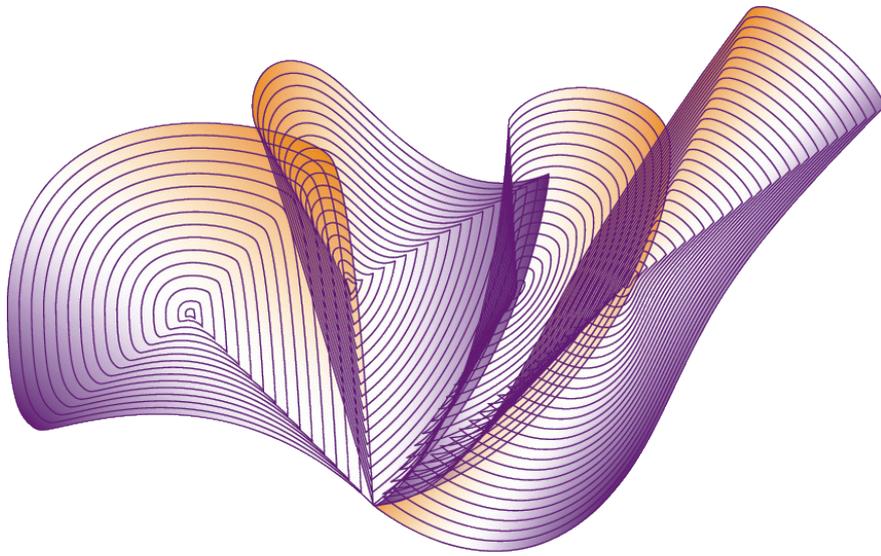
Institution

- Researchers: 14
- PhD students: 8

Research Topics

- Information systems development practices and management
- Development methodologies
- Usability of information systems
- Information Management
- Distributed information systems
- ICT-enabled business models and management innovation
- Outsourcing.
- Software venturing and entrepreneurship.
- Open source based business models.





novay

NETWORKED INNOVATION

About Novay

Novay (formerly known as the Telematica Institute) connects companies, knowledge partners and government organizations in an open network to realize ICT innovations which have an impact on people, society and the economy. Companies, universities and governments each contribute their financial share.

As a Technological Top Institute, Novay is independent and driven to achieve solutions that go beyond the latest fads. We use the most up-to-date knowledge and expertise, bringing in the best minds from universities at home and abroad, working together in partnerships. It is the combination of our business partners' know-how that ensures that solutions can directly prove their value in practice.

About Networked Enterprises

The section Networked Enterprises focuses on three themes, i.e. Enterprise Architectures, Service Delivery and Innovation Services.

Networked Enterprises considers innovation within and by networks of organizations. It considers three core items, i.e. interaction and information exchange between organizations in the network, joint service delivery, and the innovative capacity of the network of organizations.

With regard to cooperation between organizations and joint service delivery, the focus is on sectors with organizations that have large information processing activities such as the finance sector, the public sector, and the health

sector. The knowledge area innovation in networks has a much broader application area. Companies innovating with ICT play a central role.

Research Topics

Research within Networked Enterprises revolves around three thematic areas:

Enterprise Architectures (EA) focuses on innovations in method and model-driven development, semantic, technical and organizational interoperability and standardizations.

Service Delivery (SD) focuses on innovation and improvement in services delivery from organisations to customer segments. Efficiency and effectiveness are the scales of the balance in determining the focus and designing the service.

Innovation Services (IS) is active in networked business modeling, evaluation, innovation management and development of tools and methodologies for business innovation.

Current Research

Channels in Balance: Multi-channel management for public organizations and private companies focusing on effective channel configuration.

Socio-economic impact of open service innovation: E.U. funded project on the impact of open innovation together with Logica, IBM, Nokia, and Intel.

Archival: Architecture-based valuation of IT.

B-dossier: Integrated electronic service delivery to citizens and companies.

Publications

Van Buuren, R., Haaker, T., Janssen, W. (2009). Networked Innovation, Novay, Enschede. (<https://doc.novay.nl/dsweb/Get/Document-104950>)

Lankhorst, M.M., Proper, H.A., Jonkers, H. (2009) The architecture of the Archimate language, In: Halpin, T.A. and Krogstie, J. and Nurcan, S. and Proper,

H.A. and Schmidt, R. and Soffer, P. and Ukor, R. (Eds.), Enterprise, Business Process and Information Systems Modeling - Proc. 10th International Workshop, BPMDS 2009 and 14th International Conference, EMMSAD 2009, held at CAiSE 2009, Amsterdam.

Pieterse, W., Teerling, M., (2009). Channel integration in government service delivery; the effects on citizen behavior and perception. In: Electronic Government. 8th International Conference, EGOV 2009, #554, Springer Verlag: Heidelberg et al, LNCS.

De Reuver, M., Bouwman, H. & Haaker, T. (2009) Mobile business models: organizational and financial design issues that matter. Electronic Markets 19(1): 3-13.

Ter Hofte, G.H. & Peddemors, A.: GeoTherm, a proximity-based thermostat: Can we save 15% on domestic heating in 3 million Dutch house, in: Poster abstract for The Web and Beyond: Proximity, Amsterdam, the Netherlands, 1 June 2010.

Ter Hofte, G.H. & Peddemors, A.: GeoTherm: Saving 15% on heating in 3 million Dutch households? In: For The Web and Beyond: Proximity, Amsterdam, the Netherlands, 1 June 2010.

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Key Facts

Institution

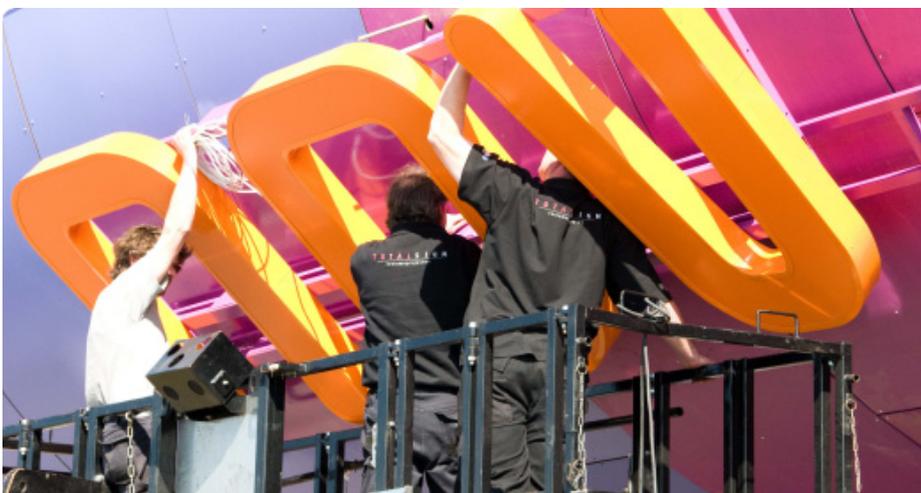
- Founded: 1995
- Researchers: 25

Research Topics

- Enterprise Architectures
- Service Delivery
- Innovation Services

Events

- Tuesday Updates by Novay
Novay organizes for its partners every two months on the first Tuesday of the month networking events with inspirational speakers and room networking.





KOREA
ADVANCED INSTITUTE OF
SCIENCE AND TECHNOLOGY



About the Institution

Graduate School of Software

The SW Graduate School program in the KAIST College of Information and Science is managed jointly with private companies. The goal is to educate students of distinguished talent in ways that will equip them with practical skills in the global SW market to adapt and become managers and leaders in SW related organizations.

Educational Contents: Track specific education such as embedded SW, mobile SW, enterprise SW, as well as basics of SW engineering. A real project in conjunction with the comanaging firms of this program will be conducted in the second year, and the results are used to draw up a dissertation in order to graduate.

We would like to exchange students and researchers henceforth. In particular, LG Electronics is currently interested in hiring human resources from the BRICs countries, especially gifted Russians among other ERCIS members upon graduation from KAIST.

Center for Software Policy Study

KAIST Center for SW Policy Study was founded to improve the competitive advantage of SW firms in the global market. The Center wishes to contribute to the strength of innovative capabilities of human resources and SW firms through education and R&D of hands on approaches.

The primary field of research is the strategies of SW firms and government policies for an improvement of competitive advantage of SW firms in the global market. Based on this research, the Center proposes policies and serves an advisory role to the government. Another valuable field of research is the improvement of competitive advantage of traditional industries through convergences with IT, a great emphasis laid by the Korean government.

The Center will also initiate new activities in order to improve competitive advantage of the SW industry through the cooperation among the government, firms, universities, and research institutes. In order to achieve this we need to establish a network by exchanging personnel among renowned universi-

ties and research institutes, and conduct internationally credible research.

Project & Research Topics

The establishment of App Center for Mobile Application developers is under way as of November 2009. Additional research on methods of ensuring competitive advantage of IT service and SW firms, models of measuring SW values, developing SW related to carbon emission rights, Personal Health Record system and other areas of invaluable research are in process.

Current Project

Establishment of App Center:

Since the launch of Apple's iPhone, the relationship among stakeholders and market environment of mobile phones (especially smart phones) has been rapidly changing.

We see that Application SW differentiation will become a decisive factor in the Mobile phone market and as well as a surge in Direct Sales Channels of Application SW developers. In other words, there are much more opportu-



nities for SW developers. However, the majority of popular Application SW will gradually be replaced by SW offered by firms rather than individuals.

The situation of Korean mobile application developers, the role of App Center and current status, participation request to ERCIS members:

- SW developing environment in Korea is still weak, and the competitive position of SW firms are also yet fragile.
- The KAIST App Center is proposing is looking to assist such individual SW developers.
- As of November 2009, many firms and organizations in Korea have promised support.

The reasons for many organizations in Korea to support App Center are as follows:

- Many firms such as Google, Microsoft, Samsung Electronics, LG Electronics are benefitted by having as many developers as possible developing SW for their products.
- A positive effect due to KAIST's influence and a first mover effect are expected. Expanding the support of such various institutions to ERCIS members will create an even greater network effect.
- For ERCIS members to establish App Center, being able to exert influence in each nation is pivotal.
- The first mover effect is an important factor in achieving this point.

We wish to propose the currently ongoing establishment of App Center to the EUREKA Project with ERCIS members as a joint venture. Any member hoping to take part may apply.

Current Research

Improving the competitive advantage of IT Service and SW firms in global market:

In 2007, the number of SW engineers in Korea reached 700,000. The proportion of that population working in a SW specializing firm were only around 19%. Expertise and competitive position of Korean SW firms are quite weak in the global market.

Such position of the Korean SW industry may lead to losing a competitive position of traditional industries. In other words, the SW industry is essential in improving the competitive position on a national level as well as creating added value.

Korea may have a small SW market but the industry is in a poorer condition despite the potential. Like many other countries apart from the United States, Korea does not have a SW firm that has a competitive advantage in the global market. Presently, the focus of our research is on the role of the government in fostering SW firms in Korea. We are also planning to carry out a comprehensive research on strategies of SW firms and drawing international comparisons.

Planned Activities

Projects on developing SW related to carbon emission rights, PHR (Personal Health Record), e-government, etc. are intended.

Research on SOA (Service Oriented Architecture) and MDE (Model Driven Engineering) are also under way in order to be utilized in SW development.

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Key Facts

Institution

- Founded in 2009
- Researcher 8

Research Topics

- Developing Mobile Application Software
- SW Policy: Improving the competitive advantage of IT Service and SW firms in global market
- Developing SW related to carbon emission rights
- Developing Personal Health Record System



UNIWERSYTET GDAŃSKI

About the Institution

With almost 33,000 students in the nine faculties and 1,700 academic staff members, the University of Gdansk is the largest institute of higher education in the Pomeranian region. It offers the possibility of studying in almost thirty different fields with over a hundred specializations.

The Department of Business Informatics of The University of Gdansk is involved in research and teaching in the field of business informatics on the Bachelor, Master and Doctoral

levels according to Bologna process standards. The department is the main contributor to e-learning of the Educational Platform of The University of Gdansk. The Department of BI is also the organizer of The Pomeranian Regional CISCO Academy conducting numerous courses educating computer network administrators with international certificates. The projects of several students were distinguished in organization by Dublin University, International Business Informatics Challenge of 2006 and 2007. The department conducted the Observatory of Pomeranian Digital Economy. In 1995, the Department founded the Polish Society for Business Informat-

ics. The following international, educational and research initiatives of the BI Department have been carried out in recent years:

- TEMPUS Joint European Project (1994-97) in cooperation with Universities in Barcelona and Lisbon - “Restructuring of existing and establishment of new forms of Business Informatics Education;”
- “BITNET: Promotion and Dissemination of Information Society Research in Baltic Sea Area,” Vth Framework Program of EU (2003-2004);
- “System of Electronic Business for Pomeranian SMEs” (2004-2007);
- “Academic on-Line courses – the concept and implementation” (2008-2010);

The Department of Business Informatics of University of Gdansk cooperates with academic centers of Baltic Sea Region in the following transbaltic initiatives:

- BSVC – Baltic Sea Virtual Campus, consortium developing and implementing of e-learning courses;
- BIR – Annual International Conference on Perspectives in Business Informatics Research;
- Doctoral Consortium MINE - Methodologies For Interactive Networked Enterprises, financed by the Nordforsk Council of Ministers

The department is involved in the following international initiatives:



The Annual International Conference on Perspectives in Business Informatics Research – BIR



Polish Chapter of Association for Information Systems – PLAIS



Information Systems Academic Heads International – ISAHI



Xth European Conference of Information Systems – ECIS 2002

Research Topics

- Business Informatics
- Data Bases
- Information Systems Development
- eBusiness, Information Society
- Business Systems Modeling
- UML and SysML
- ERP, CRM, SCM, WFM, BI Systems
- eLearning
- Computer Programming
- Computer Networks



Publications

Bajaj A., Wrycza S. System Analysis and Design for Advanced Modelling Methods, IGI Global, New York, 2009.

Kuciapski M., Specification for designing web-based training courses and an application model based on it (in:) M. Barry, C., Lang, M., Wojtkowski, W., Wojtkowski, G., Wrycza, S., & Zupancic, J. (eds.) The Inter-Networked World: ISD Theory, Practice, and Education. Springer-Verlag, New York, 2008.

Kuciapski M., Wrycza S. Design and Implementation of e-learning courses (in:) European Distance and E-Learning Network EDEN Annual Conference. Gdansk, 2009.

Marcinkowski B. Business Modeling with UML and BPMN: Features and Comparison (in:) BIR2008 – The 7th International Conference on Perspectives in Business Informatics Research; University of Gdansk Press, 2008.

Wrycza S. (ed.) Proceedings of BIR'2008, The Seventh International Conference on Perspectives in Business Informatics Research. University of Gdansk, 2008.

Wrycza S., Marcinkowski B. A Light Version of UML 2: Survey And Out-

comes redistribution permission (in:) Proceedings of the 2007 Computer Science and IT Education Conference; University of Technology Mauritius, 2007.

Wrycza S., Marcinkowski B., Wryzykowski K. Information systems modeling with UML. Helion, 2005 (in Polish, 450pp).

Wrycza S., Marcinkowski B., SysML – The Systems Engineering Language. Architecture and Applications. Helion, 2010 (in Polish, 150pp).

Wrycza S., Business Informatics. PWE, Warsaw 2010 (in Polish, 700pp).

Dissertations

Maslankowski J. – A study of premises data warehouses implementation in business organizations, University of Gdansk, 2009 .

Habilitations

Auksztol J. – IT outsourcing in management, theory and practice, University of Gdansk 2009.

Cooperation with Business

The Department cooperates effectively, on the basis of formal agreements with: CISCO, IBM, Oracle, Microsoft, Sun, Zensar (India) and Lufthansa Systems.

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Key Facts

About the Person

- Head of Department of Business Informatics
- Vice President of ISAHI - Information Systems Academic Heads International
- Chairman of BIR Steering Committee – The Annual International Conference on Business Informatics Research
- Senior Editor of Information Management Journal
- Honourable Ambassador of Polish Congresses

Institution

- Founded in 1967
- Researchers: 16

Events

- CAISE 2012 - The 24th International Conference on Advanced Information Systems Engineering, June, 2012



About the Institution

The Department of Information Systems of Kaunas University of Technology (KTU) was founded in 1993 as a result of more than 20 years of research into the field of information systems. We have since established two laboratories and have grown to become one of the largest departments in the KTU Faculty of Informatics. Being among the leading IS research centers in Lithuania, the department has built good relationships with the local IT companies at the same time accumulating valuable research experience within Lithuania and with international partners.

Our academic work is directed towards providing quality education on fundamental and advanced subjects in the field of information systems. The department is responsible for the post-

graduate studies' programme "IS Engineering" and in 2010 has launched the newly developed programme for undergraduate studies.

Research Topics

The department specializes in topics related to business analysis, IS requirements engineering, and systems design. We are constantly striving to extend our field of expertise while maintaining focus on the following topics:

- Conceptual modeling, ontologies and databases
- Requirements engineering
- Modeling of business processes and business rules
- Enterprise modeling
- Information systems engineering
- Model-driven and service-oriented development
- Project management
- Business analysis and intelligence
- Knowledge-based systems
- Graphical user interface and system usability

Current Research

In 2010, the Department began work on two large-scale academic research projects.

With the Kaunas High-Tech and IT Park we were working in the Thematic Network for Innovation in Language and Semantic Business Modeling Technologies. The research should be completed in September, 2012.

The Department also got involved in the development and implementation of the Internship Organization Model for the IT students. This two-year-long EU Structural Funds-sponsored project was initiated by the Association of Lithuanian IT Companies, INFOBALT, and is supported by 14 other academic and industry partners.

The Department was active in supporting the new SME-oriented initiative from the Lithuanian Agency for Science, Innovation and Technology. We successfully carried out 7 innovative R&D projects initiated by local companies. At the same time we got involved in three longer-term industry-initiated research projects that evolved around the development of ontologies based on reference models, research of the latest data/content management solutions, and similar activities.

The Department also managed to attract some promising new researchers and right now we are supervising 11 doctoral students.

Publications

Here are some of the more significant results of latest research published in 2010:

Nemuraite, L.; Skersys, T.; Sukys, A.; Sinkevicius, E.; Ablonskis, L.: VETIS tool for editing and transforming SBVR business vocabularies and business rules into UML&OCL models, in: Information Technologies' 2010: proceedings of the 16th international conference on Information and Software Technologies, IT 2010, Kaunas: Technologija, 2010, p. 377-384.

Mikulas, G.; Butleris R.: An approach for constructing evaluation model of



suitability assessment of agile methods using analytic hierarchy process, in: Electronics and Electrical Engineering, No 10 (106), 2010.

Lopata, A.; Ambraziunas, M.: MDA Compatible Knowledge-Based IS Engineering Approach, in: Proceedings of International Conference, AICI 2010, Part II, Series: Lecture Notes in Computer Science, Vol. 6320, Subseries: Lecture Notes in Artificial Intelligence, 1st Edition, 2010.

Vysniauskas, E.; Nemuraite, L.; Sukys, A.: A hybrid approach for relating ontologies and relational databases, in: Perspectives in Business Informatics Research: 9th International Conference, BIR 2010, LNBIP, T. 64, p. Springer - Verlag Berlin Heidelberg, 2010, p. 86-101.

Dissertations

In May of this year, our PhD student Edvinas Pakalnickas has defended his thesis titled “Information Systems Development Method Based on Component System Model”.

Two more dissertations are scheduled for defense this winter:

Laurikaitis, Aurimas: Extracting Conceptual Data Specifications from Legacy Information Systems.



Mikulenias, Gytenis: The Construction and Research of the Framework for a Partial Agile Method Adaptation.

Planned Activities

While proceeding with the already mentioned long-term projects that have started in 2010, we are planning to initiate a number of new projects. Most notable is “Methodological and Technological Issues of Semantics-Driven Information Systems Development” that should be sponsored by the Research Council of Lithuania.

The Department is continuing the development of the Information Systems Engineering bachelor study programme. In 2011, we will launch two specializations that will introduce a host of brand new modules that are under development at the Department.

At the same time, the Department is organizing the annual International Conference on Information and Software Technologies that will take place in Kaunas in April of next year (please visit isd.ktu.lt/IT2011 for more information and the CFP). We are also planning to stage the Industrial Tutorials for IT professionals that were a great success in 2010.

In 2011 we should also see the start of the construction of the new Information Technology Research Center (part of the Integrated Valley “Santaka”, set to open in 2012). This will intensify our preparations for the upcoming increase of the department’s technological and human R&D resources.

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Key Facts

Institution

- Founded in 1993
- Is part of the KTU Faculty of Informatics
- More than 20 researchers

Research Topics

- Conceptual modeling, ontologies and databases
- Requirements engineering
- Modeling of business processes and business rules
- Enterprise modeling
- IS engineering
- Model-driven and service-oriented development, project management
- Business analysis and intelligence
- Knowledge based systems
- GUI and system usability

Key Organized Events (2010)

- 16th International Conference on Information and Software Technologies, IT 2010. Kaunas, Lithuania, April 21-23.
- Industrial Tutorials of the 16th International Conference on Information and Software Technologies, IT 2010. Kaunas, Lithuania, May 21.



POLITÉCNICA

UNIVERSIDAD POLITÉCNICA DE MADRID FACULTAD DE INFORMÁTICA

About the Institution

Universidad Politécnica de Madrid was founded in 1971 as a result of the merger of different technical schools of engineering and architecture which originated mainly in the 18th century. It has been ranked as Spain's top technical university. The Facultad de Informática (School of Computer Science) was among the first three schools to offer a degree in Computer Science in 1976. The School is located on the Montegancedo Campus and was recently awarded the International Excellence label by the Spanish government.

Contact with ERCIS is managed by the Babel research group, one of UPM's officially recognised groups and partner to the recently founded Madrid Institute for Advanced Studies in Software Technologies (IMDEA-SW Foundation), which is also located on the campus.

Research Topics

From a bird's-eye view, the group's research interests are:

- Languages and environments for declarative programming.
- Formal specification, development, verification, and validation.

- Validated design and development of software components.
- Software technologies for reliable and high-quality software development.

Some examples worth mentioning are the design of the functional-logic programming language, Babel, and the co-design of its successor, Curry. We have equipped the logic programming language, Prolog, with several flavours of constructive negation and fuzzy reasoning features. We have extended the generic version of the popular functional language, Haskell, with facilities for generic programming with abstract types. We have also developed a model checker for the popular concurrent functional language, Erlang. These two functional languages are widely acclaimed thanks to their clean support of multiprocessing, which is crucial given the switch toward hardware multi-core architectures.

Current Research

The group is currently involved in several European and national research projects:

- ProTest: Property-based Testing, EU STREP FP7.
- SafeCer: Safety Certification with

Reusable Software Components. ARTEMIS-JU Call 2010, proposal no. 269265-2.

- COST Action IC0701: Formal Verification of Object Oriented Software.
- DESAFIOS10: Development of High-Quality, Reliable, Distributed, and Secure Software. Spanish Ministry of Science and Innovation TIN2009-14599-Co3-00.
- PROMETIDOS: Program in Methods for Rigorous Software Development. Regional Government of Madrid, P2009/TIC-1465.

Publications

Journal Papers

Murdoch J. Gabbay and Dominic Muligan. Curry-howard for incomplete first-order logic derivations using one-and-a-half level terms. *Information and Computation*, 208:230-258, March 2010.

Emilio J. Gallego, James Lipton, Julio Mariño and Pablo Nogueira. First-order unification using variable-free relational algebra. *Journal of Algorithms in Cognition, Informatics and Logic*, 2010.

Susana Muñoz, Víctor Pablos and Hannes Strass. Rfuzzy: Syntax, semantics and implementation details of a simple and expressive fuzzy tool over Prolog. *Information Sciences*, In Press, 2010.

Murdoch J. Gabbay and Aad Mathijssen. Nominal universal algebra: equational logic with names and binding. *Journal of Logic and Computation*, 19(6):1455-1508, December 2009.

Murdoch J. Gabbay and Stéphane Legrand. The lambda-context calculus (extended version). *Information and computation*, 207:1369-1400, December 2009.

Other Publications

Álvaro Fernández, Clara Benac and Lars-Åke Fredlund. Implementing a multia-



POLITÉCNICA

gent negotiation protocol in erlang. In Ninth ACM SIGPLAN Erlang Workshop, Erlang'10, Baltimore, Maryland, USA, September 2010.

Víctor Pablos, Álvaro Fernández and Susana Muñoz. Developing user-sensitive search engines from fuzzy concepts. In JISBD'2010, September 2010.

Álvaro García, Pablo Nogueira, and Emilio J. Gallego. The beta cube (extended abstract). In César Muñoz and Hélène Kirchner, editors, Proceedings of the 1st International Workshop on Strategies in Rewriting, Proving, and Programming (IWS'10), pages 3-7, Edinburgh, UK, July 9 2010.

Ángel Herranz and Julio Mariño. Executable specifications in an object oriented formal notation. In 20th International Symposium on Logic-Based Program Synthesis and Transformation, LOPSTR 2010, Hagenberg, Austria, July 2010. Research Institute for Symbolic Computation (RISC) of the Johannes Kepler University Linz.

Álvaro Fernández, Susana Muñoz, and Víctor Pablos. Developing user-sensitive e-commerce applications from fuzzy concepts. In Algebraic methods, soft computing, and program verification, International Center for Mathematical Meetings (CIEM), Castro Urdiales, Cantabria, Spain, April 2010. Julio Rubio (Univ. de La Rioja) and Manuel Ojeda (Univ. de Málaga).

Óscar Corcho, Catherine Roussey, Luis M. Vilches, and Iván Pérez. Pattern-based OWL Ontology Debugging Guide-

lines. In Eva Blomqvist, Kurt Sandkuhl, Francois Scharffe, and Vojtech Svatek., editors, Workshop on Ontology Patterns (WOP 2009), collocated with the 8th International Semantic Web Conference (ISWC-2009)., CEUR Workshop proceedings, pages 68-82, October 2009.

Iván Pérez and Óscar Corcho. Pattern Definitions and Semantically Annotated Instances. In Eva Blomqvist, Kurt Sandkuhl, Francois Scharffe, and Vojtech Svatek, editors, Workshop on Ontology Patterns (WOP 2009), collocated with the 8th International Semantic Web Conference (ISWC-2009), CEUR Workshop proceedings, pages 131-138, October 2009.

Dissertations

Ángel Herranz: An Object-oriented Formal Notation: Executable Specifications in Clay, defense scheduled for January 2011. PhD thesis.

Ana M. Fernández: A Proposal for Integrating Numeric Constraints in Spreadsheets. Master thesis, 2010.

Rubén Monjaraz: From the ω -calculus to Flat GHC. European Master in Computational Logic. 2010.

Álvaro García: Exploring the Beta-Hypercube. Master thesis associated to the PhD Programme in Complex Software Systems Development, 2009.

Iván Pérez: Gadget Composition and Automatic Discovery in EzWeb. European Master in Computational Logic, 2009.

Víctor Pablos: Negative non-ground queries in well founded semantics. Master's thesis, Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, October 2009.



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Key Facts

Institution

- Founded in 1971
- Located in one of the 10 Spanish "International Excellence" campuses
- 15 researchers (Babel group)

Research Topics

- Declarative programming
- Formal methods and specification languages
- Component-based software
- Validated, highly reliable SW development

Events

- 37th ACM Symposium POPL2010. Madrid, January 20-22.



Events

Recently, we co-hosted the 37th ACM SIGACT-SIGPLAN Symposium on Principles of Programming Languages, POPL2010, and chaired some of its associated events, such as the Workshop on Functional and Logic Programming, WFLP2010.

Among the planned activities, we have:

- Hosting the 2012 International Conference on Mathematics of Program Construction.
- Organising the 3rd Spanish Workshop on Functional Programming.



About the Centre

The Centre for Innovation, Technology & Organisation (CITO) is a multi-disciplinary research community that is concerned with how information and communication technology (ICT) may be used to facilitate innovative modes of working and organising within and between business

corporations and broader social institutions.

The research activities of CITO are focused on understanding the relationship between innovation, technology and organisation, and the associated policy and management implications. Our approach is guided by the assumption that a sophisticated understanding of technology, and its role in the constitution of social and organisational life, should be based on an appreciation of how it comes to be embedded within broader institutional (organisational, cultural, economic, political) contexts.

Research Approach

Our research work uses indepth empirical studies of technology implementation and use that are especially attentive to the underlying social relations and practices within which such systems are embedded. We are committed to developing ap-

propriate theoretical perspectives for illuminating such processes by drawing from a variety of intellectual traditions including: philosophy, sociology, political science, psychology, economics and organisation theory. The emphasis is on the pragmatic use of theory to make tangible and insightful contributions to technology management practice.

Research Topics

CITO has several research streams:

- Understanding and managing ICT-enabled social / organisational change
- Knowledge, innovation and organisation
- ICT and new modes of organising in a globalised world
- The production and consumption of technological artefacts
- Evolution of Information Infrastructures and IOIS

Our work has applications in corporate knowledge management, IT

governance and outsourcing, ICT-enabled supply chain management, management of software development, and e-health.

Recent Publications

Reimers, K., Johnston, R.B. and Klein, S. (2010). “Toward a Theory of IOIS Variance: A New Framework for Studying Interorganisational Information Systems.” *International Journal of Strategic Information Technology and Applications* 1(3):26-45.

Vidolov, S., Kelly, S. (2010) “A Psychological Perspective on Collective Sensemaking in Distributed Contexts: Embodiment, mood and materiality”. 26th EGOS Colloquium. Lisbon, Portugal.

Higgins, A., & Nandhakumar, J. (2010). “Conceptualising Co-design Work in Teams”. 26th EGOS Colloquium. Lisbon, Portugal.

McGrath, P. and O’Toole, M. (2010) “Exploring the Dynamics of Organi-

zational Learning from Tribunals of Inquiry”. 26th EGOS Colloquium, Lisbon.

Kelly, S. and C. Noonan (2010). “(Re-)assembling and translating public health infrastructures in the Global South”. 26th EGOS Colloquium. Lisbon, Portugal.

Waller, V. and Johnston, R.B. (2009). “Making Ubiquitous Computing Available.” *Communications of the ACM* 52(10):127-130 .

Kelly S. and Noonan C (2008). “Anxiety and psychological security in offshoring relationships: the role and development of trust as emotional commitment” *Journal of Information Technology*, 23(2).

Dissertations

A Practice Theoretical Analysis of Real Time Collaboration Technology: Skype and Sametime in Software Development Projects. Frank Frößler

Contact Details



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Key facts

Institution

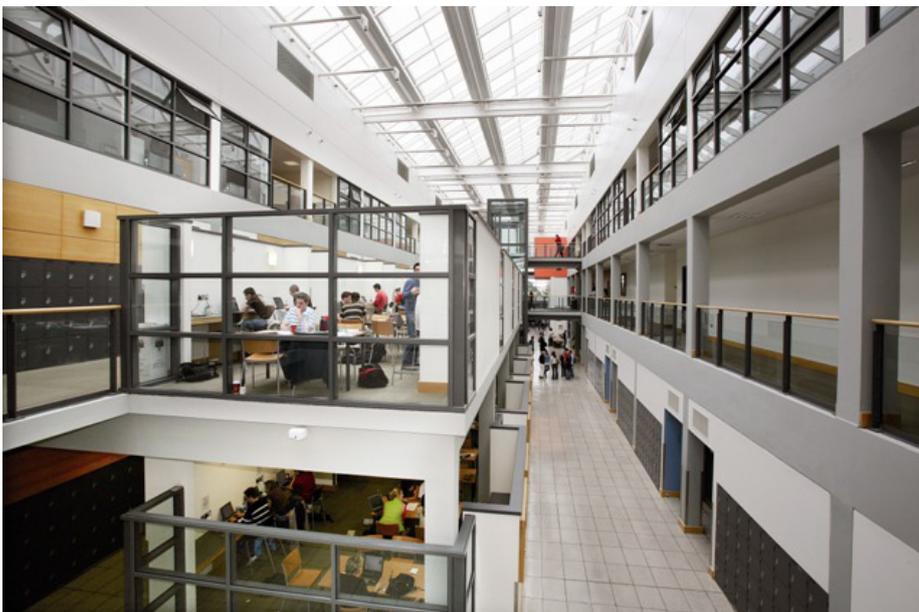
- Centre founded 2003
- Researchers: 5

Topics

- Understanding and managing ICT-enabled social / organisational change
- Knowledge, innovation and organisation
- ICT and new modes of organising in a globalised world
- The production and consumption technological artefacts
- Evolution of Information Infrastructures and IOIS

Events

- CITO participates annually in the Quadrangular Conference on Technology, Organisations and Society, jointly organised by CITO (UCD), Judge Business School (Cambridge), IS and Innovation Group (LSE) and Organisation, Work and Technology Group (Lancaster).





About the Institution

The Research Center on Information Systems (CeRSI) is the unit of the LUISS Guido Carli University in charge of both base and applied research in the areas of: Information Systems, Organization Studies, Information and Communication Technologies.

According to its objectives, the CeRSI:

- Regularly runs scientific research and consultancy activities and participates in national, European, and international research and development programs;
- Promotes the development of research in cooperation with the most prominent Italian and foreign scientific communities, such as: ItAIS and AIS in the area of Information Systems; the AIDEA and particularly SECS-P/10 and AOM in the area of Organization Studies; and AICA, IFIP, and ACM in the area of ICT;

- Organizes and manages training courses or similar training activities specializing in its areas of competence, even in synergy with other structures in the LUISS University;
- Performs, upon request by public or private, national or international, entities or organizations, scientific counselling and research in the aforementioned thematic areas.

Besides these main activities, other activities considered instrumentals, are part of the daily operational work of the CeRSI research center. In that matter the CeRSI:

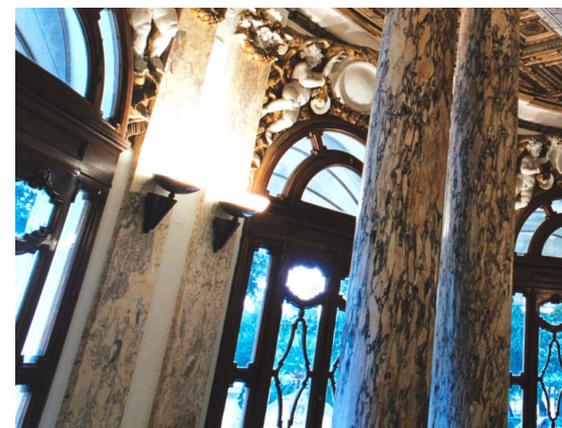
- Promotes seminars, conferences, or research colloquia pertinent to researches run by the center;
- Disseminates results of studies and researches by means of report and publications;
- Fosters cooperation agreements or conventions with other

universities or research centers, both national and international, in support of the CeRSI operational activity;

- Provides services to third parties in the sectors pertinent to Information Systems, Organization Studies, and Information and Communication Technologies;
- Provides research assistance and counselling to Italian and foreigner researchers on the basis of the availability of the necessary economic resources;
- Promotes observatories and scientific laboratories in the areas of interest for the center.

The CeRSI research center is among the most relevant (when not the most relevant) research centers in the area of Information Systems in Italy, not only for the quality of the research activities performed, but also for having contributed to the birth and to the growth of the itAIS (www.itais.org), the Italian Chapter of the AIS (www.aisnet.org), and for having promoted and coordinated the role of the Italian academic and scientific community, especially at an international level.

In the international landscape, even though it cannot compete with other organizations that have longer and more solid experience, the CeRSI is credited with a relevant position achieved mainly thanks to its par-





ticipation in a high number of international research projects, its agreements on scientific operation, and the contributions to the organization of several international events (for example, the research center will cooperate in the organization of the upcoming ICIS 2013 world conference which will be held in Italy).

The CeRSI research center is directed by Prof. Alessandro D'Atri and has a staff composed of an assistant professor, a researcher, a post-doc, four PhDs, and one PhD student. The staff of the research center has provided training courses on Organization Studies, Information Systems, and Informatics to the LUISS Guido Carli University and to other partner universities like the University of L'Aquila, the University of Urbino, the University of Bologna, and the University Guglielmo Marconi.

In 2010, the CeRSI research center has hosted as visitors or for seminars: Tamara Dinev (Florida Atlantic University), Claudia Löbbecke (University of Köln), Amihai Motro (George Mason

University), Jan vom Brocke (University of Liechtenstein), Joey George (Florida State University), Daniel Muzio (Leeds Business School).

Research Topics

The main competencies and research activities run by the CeRSI research center focus on theories and methodologies for the design of organizations and of their Information Systems, enterprise and process modelling, business models connected to ICT services, smart Information Systems, inter-organizational systems, virtual enterprises, organizational transformation, information management, information analysis, systems and methods for the analysis of managerial and professional competences, business training, university training, workflow management systems, methods and systems to organize and manage knowledge possessed by an organization, analysis of the impacts of ICT on enterprises, training on Information Systems, management and assessment of security and quality in organizations, green IT.

The main topics in which the CeRSI research center performs research activities are: electronic commerce, e-business, e-government, network applications for central and regional PAs, healthcare information systems, management of medical information via internet, smart services for citizens and cities, methods to improve the quality of life of elderly people, innovative systems for professional and flexible training in e-learning, information systems for tourism and cultural heritage management, ICT applications to transports.

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Key Facts

Institution

- Amongst the most relevant research institutions in the IS research area in Italy
- 5 researchers
- 1 PhD student
- Several external national and international coworkers

Research Topics

- E-business
- E-government
- E-health
- E-learning
- IS for Cultural Heritage

Events

- VIII Conference of the Italian Chapter of AIS, Rome, September 2011 .



Current Research

The CeRSI research center is currently working on the following active research projects:

HOPES – HELP AND SOCIAL INTERACTION FOR ELDERLY ON A MULTIMEDIA PLATFORM WITH E-SOCIAL BEST PRACTICES, financed by the European Joint Programme Ambient Assistant Living, Call 2. Partnership: GTN SAS (Coordinator), Microsoft UK, Franunhofer Gesellschaft zur Förderung der angewandten Forschung, LEKS-CNR, Fondazione Alberto Sordi.

AUTOMATIC – DEVELOPMENT OF CURRICULA AND INNOVATIVE TRAINING TOOLS FOR INDUSTRIAL AUTOMATION SYSTEMS FOR PEOPLE EMPLOYED IN SMES, financed by the “Leonardo da Vinci” Community Vocational Training Programme – LdV Transfer of Innovation, ID LLPLINK: 2009-1-BG1-LEO05-01640. Partnership: Technical University of Gabrovo (coordinator), European Center for Quality, Tallinn Technical University, Multidisciplinary European Research Institute Graz – MERIG.

AutoMatic



EARNFILE – EVALUATION AND RECOGNITION OF NON-FORMAL AND INFORMAL LEARNING, financed by the “Leonardo da Vinci” Community Vocational Training Programme – LdV Partnerships, ID LLPLINK: 2009-1-BG1-LEO04-015913 (national ID LLP-LDV-PA-09-IT-0276). Partnership: European Center for Quality (coordinato), Multidisziplinäres Institut für Europa-Forschung Graz,

earnfile

Centre De Coordination Et De Gestion Des Programmes Européens Pour L’enseignement Secondaire En Alternance Et L’enseignement Secondaire Technique Et Professionnel De Plein Exercice (Belgium), Roemeling Projectleiding (Olanda).

MID-BLUE – MULTIMEDIA INFORMATION DISTRIBUTION USING BLUE-TOOTH, financed by the Regional Law (Lazio) 4, of April 28th 2006, Art. 182, sub 4, let. C. Entrepreneurial Projects, Vertical Actions for the Development of Innovation and Technological transfers. Partnership: ITHUM, CeRSI – LUISS Guido Carli.

LIVES – LEARNING IN VIRTUAL EXTENDED SPACES, financed by the Regional Law (Lazio) 4, of April 28th 2006, Art. 182, sub 4, let. C. Entrepreneurial Projects, Vertical Actions for the Development of Innovation and Technological transfers. Partnership: Arakne, CeRSI – LUISS Guido Carli.

DTC-L – Distretto Tecnologico della Cultura della Regione Lazio, financed by the Lazio Region (Filas). Partnership: BNC S.p.a., TXT Polymedia S.p.A.

Smart-cities Laboratory on eHealth/eCare. This joint research (CeRSI-LUISS Guido Carli/Accenture) aims to analyze the state of the art of current good practices in eHealth/eCare in Europe in order to support the definition of a strategic plan for the city of Rome.

Furthermore, the CeRSI research center has contributed to organizing the annual conference of the Italian Chapter of AIS. The conference was held in Naples on October 8th – 9th in cooperation with the Parthenope University of Naples.

Training Activities

Regarding the training activities, the CeRSI research center, besides coordinating and giving training in the ordinary courses of the LUISS university in the areas of Organization Studies, Information Systems, and Informatics, it organizes specific training courses addressed to graduate students.

The CeRSI research center is also responsible for the technical, organizational, and didactic activities of the Test Center of the LUISS Guido Carli





University for IT certifications (www.cersi.it/ecdl). Besides the European Computer Driving License (ECDL), the Test Center is entitled, since 2006, as a University Competence Center by the CINI for the European Certification of Informatics Professionals (EUCIP) certification. Since 2007 the Test Center has also started the certification activities of the European Quality Driving License (EQDL). In its four years of activities, the Test Center has released more than 1000 EUCIP skill cards, and performed more than 3000 examinations.

Besides the certification activity, in cooperation with CPI-Progetti, a private company, the CeRSI research in 2010 center also organized an EUCIP Core training course targeted to the technical personnel of the Peripheral Offices of the Arma dei Carabinieri, and is organizing a similar IT Administrator training initiative for the employees of the peripheral offices of the ACI.

Finally, in 2010 the CeRSI research center has provided, in partnership with the private company Adfor, an executive training initiative on the topic of Strategic Management of ICT.

Publications

D'Atri, A., De Marco, M., Braccini, A. M., Cabiddu, F. (2010), *Management of the Interconnected World*, Physica-Verlag, Berlin, Heidelberg.

Braccini, A. M., Za, S., D'Atri, A. (2010), *Investigating end Users' Satisfaction of the Usage of an e-Learning Platform: a Statistical Analysis*, *International Journal of Global Management Studies*.

Braccini, A. M., Federici, T. (2010) *An Is for Archaeological finds Management as a Platform for Knowledge Management: the Archeotrac case*. *VINE: The Journal of Information and Knowledge Management Studies*.

Spagnoletti P. and Federici T. (2010) "Exploring FLOSS implementation in the Public Sector: an empirically grounded framework", *EU-RAM 2010, Back to the future*, Roma, 19-22 May 2010.

D'Atri, A., Ferrara, M., George J.F. and Spagnoletti P. (2010), *Proceedings of VII Conference of the Italian Chapter of AIS (Eds)*, Naples 8–9 October 2010 (ISBN 978-88-6105-124-9).

Dissertations

Braccini, Alessio Maria: *On the Impact of IT on Value Generating Activities in Organisations: an Ontology Based Approach*.

Habilitations

The CeRSI research center employs an Assistant Professor.

Paolo Spagnoletti's research interests include IT-based service innovation and IT systems adoption. He has conducted multiple-case studies in the public sector domain.

Planned Activities

In September 2011 in Rome, the CeRSI research center will organize the VIII edition of the Conference of the Italian Chapter of the AIS.

In 2011 the book containing the best papers presented at the VII edition of the Conference of the Italian Chapter of AIS will be published with Springer. It will be edited by: D'Atri, A., Ferrara, M., George, J. and Spagnoletti, P. and will be titled "Information Technology and Innovation Trends in Organizations."



University of St. Gallen



About the Institution

The Institute of Information Management at the University of St. Gallen (IWI-HSG), founded in 1989, is an autonomous research institution affiliated to the University of St. Gallen (HSG). The institute's budget is provided through private research mandates (ca. 80%), teaching commitments at HSG's M.A. in Information, Media and Communication Management, as well as Ph.D. in Management (Business Innovation) programmes, and executive education degree programmes such as Executive Master of Business Engineering (EMBE HSG) and Diploma in IT Business Management.

Research at IWI-HSG is guided by the frame research programme "Business Engineering" which focuses on supporting business transformation ("Change the Business") through engineered generic artefacts like methods. Pursuing the competence centre (CC) approach for its main research topics, IWI-HSG coordinates and moderates several companies in developing an innovative solution approach

to an important, relevant design problem in information management.

Currently IWI-HSG is comprised of five departments, each headed by a full professor (Andrea Back, Walter Brenner, Reinhard Jung, Hubert Österle, and Robert Winter). In 2010, IWI-HSG staff consisted of ca. 15 Post-Docs and ca. 35 research associates (employed PhD students).

Research Topics and Current Research

The CC "Information Logistics Management" continues the long tradition of Business Intelligence and Data Warehouse research at IWI-HSG. It focuses on topics like BI strategy, process analytics, and systematic management of enterprise-wide synergies of information usage.

The CC "Corporate Data Quality" develops methods, architectures, reference models, and prototypes needed for efficient implementation of corporate data quality management in organizations. In 2010, the third generation of the CC started as "CDQ3".

The CC "Integration Factory" combines the topics integration management and enterprise architecture management (EAM). In 2010, it focused on enterprise architecture planning and architecture principles. Moreover, the introduction of EAM in different organizational cultures is currently investigated.

The CC "Corporate Management Systems" develops concepts that enable large, international corporations to manage performance. In 2010, the evaluation of "Corporate Navigator" prototypes continued and was presented at several major industry events. A Europe-wide survey on the influence of the economic crisis on corporate information systems is still ongoing.

The CC "Industrialization of Information Management" investigates the transfer of industrial engineering approaches to the IT industry / to IT service providers. In 2010, the research topic "Group IT Controlling" was investigated through several workshops. Moreover, business process outsourcing was subject to research activities.

In conjunction with the University of Leipzig, the CC "Sourcing 3" develops concepts and instruments for managing financial networks. Research activities are aligned with the "Bank 2015" model that represents a vision of customer-oriented as well as service-oriented networking within a bank.

The CC "Health Network Engineering" focuses on the optimization of business processes in hospitals as well as on networkability within the public health sector. The publicly funded "Interreg IV" project on eHealth cooperation was continued in 2010 through several bilateral and multilateral workshops. Moreover, the CC successfully finished its work on a book on patient identification and

process orientation in hospitals.

The CC “Independent Living” aims at the networkability of service suppliers and electronic self-service platforms in order to provide better services for the elderly. In a first step, a comprehensive database on products and services in the field of independent living and ambient assisted living has been established.

The research project “Business 2.0” investigates the use of web 2.0 concepts within enterprises. It focuses on the communication and information exchange through innovative internet applications.

Publications

The following list represents a short extract of our publications. The complete list and many full text downloads are available at: www.iwi.unisg.ch/publikationen.

Aier, S.; Fischer, C.: Criteria of Progress for Information Systems Design Theories, in: Information Systems and E-Business Management, online first, 2010.

Aier, S.; Gleichauf, B.: Application of Enterprise Models for Engineering En-

terprise Transformation, in: Enterprise Modelling And Information Systems Architectures, 5, 1, 2010, pp. 58-75.

Aier, S.; Winter, R.: Fundamental Patterns for Enterprise Integration Services, in: International Journal of Service Science, Management, Engineering, and Technology, 1, 1, 2010, pp. 33-49.

Brocke, H., Uebernickel, F., Brenner, W.: Aligning IT-service propositions to changing business requirements in on-going service-systems, Proceedings of the Sixteenth Americas Conference on Information Systems (AMCIS), Lima, Peru, 2010.

Cleven, A., Wortmann, F.: Uncovering four strategies to approach master data management, Sprague, R. (Eds.): Proceedings of the 43rd Hawaii International Conference on System Sciences (HICSS 43), Koloa, Kaua’i, Hawaii, IEEE Computer Society, Los Alamitos, 2010.

Cleven, A., Wortmann, F., Winter, R.: Process Performance Management – Identifying Stereotype Problem Situations as a Basis for Effective and Efficient Design Research, Winter, R., Zhao, J., Aier, S. (Eds.): Global Perspectives on Design Science Research, St. Gallen, Springer, Berlin, Heidelberg, LNCS 6105, 2010, pp. 302–316.

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Key Facts

Institution

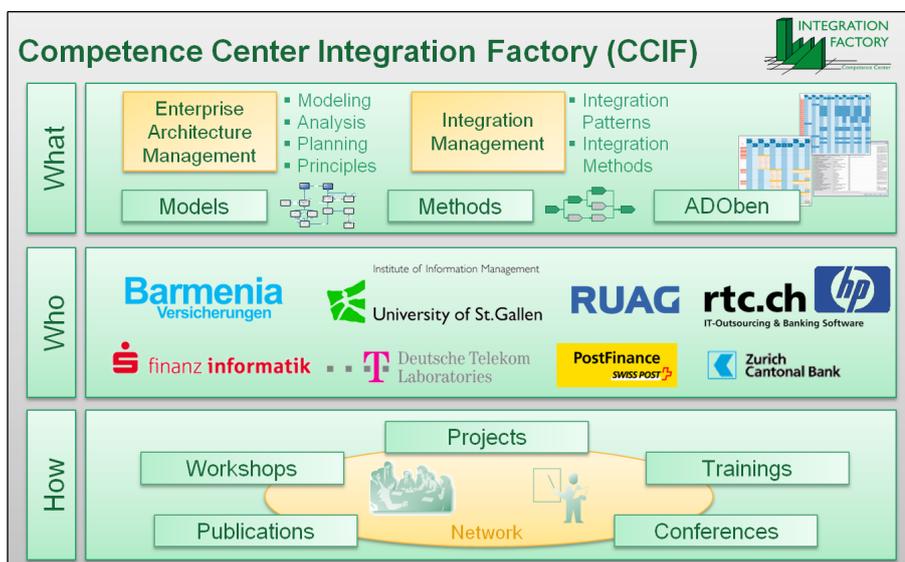
- Founded in 1989
- 5 Chairs
- 50 Researchers
- Executive Education
 - Programs: Executive Master in Business Engineering, Diploma in IT Business Management

Research Topics

- Information Logistics Mgmt
- Enterprise Architecture Mgmt
- Integration Project Mgmt
- Health Networking
- Corporate Controlling Systems
- Business Engineering
- Sourcing in Financial Services
- Independent Living
- IT Management
- Business Innovation

Events

- St. Galler Anwenderforum
 - On Enterprise Architecture Mgmt: 28.02.2011, St. Gallen
 - On Information Logistics & BI & Process Analytics: 30.05.2011, St. Gallen



Dinter, B.; Lahrmann, G.; Winter, R.: Information logistics as a conceptual foundation for enterprise-wide decision support, in: *Journal of Decision Systems*, 19, 2, 2010, pp. 175-200.

Fischer, C., Winter, R., Aier, S.: What is an Enterprise Architecture Design Principle? Towards a Consolidated Definition, in: Lee, R. (Eds.), *Computer and Information Science 2010*, Springer, Berlin, Heidelberg, 2010, pp. 193-205.

Fitterer, R.; Rohner, P.: Towards assessing the networkability of health care providers: a maturity model approach, in: *Information Systems and e-Business Management*, 8, 3, 2010, pp. 309-333.

Franke, U., Ekstedt, M., Lagerström, R., Saat, J., Winter, R.: Trends in Enterprise Architecture Practice - a Survey, Proper, E., Lankhorst, M., Schönherr, M. (Eds.): *5th Workshop Trends in Enterprise Architecture Research (TEAR2010)*, Delft, 2010.

Georgi, S., Jung, R.: Use of Swarm Intelligence to Involve Customers in Product Innovation, Bastiaens, T., Baumöl, U., Krämer, B. (Eds.): *On*

Collective Intelligence, Advances in Soft Computing, Hagen, Springer, Berlin, 2010.

Lahrmann, G., Marx, F.: Systematization of Maturity Model Extensions, Winter, R., Zhao, J., Aier, S. (Eds.): *Global Perspectives on Design Science Research*, Springer, Berlin, Heidelberg, LNCS 6105, 2010, pp. 522-525.

Mayer, J., Marx, F.: Managing a Paradox – Design Principles for Executives' IT Support, based on an empirical study, Liang, T., Chen, H. (Eds.): *Proceedings of the 14th Pacific Asia Conference on Information Systems*, Taipei, Taiwan, 2010, pp. 1321-1332.

Mansfeldt, K., Alt, R., Puschmann, T.: Ansatz zur integrierten Gestaltung und Bewertung am Beispiel des Financial Sourcing, Tagungsband der Multikonferenz Wirtschaftsinformatik (MKWI) 2010 – Management und Methoden, Technologien, Anwendungen, Göttingen, 2010.

Mettler, T.; Rohner, P.: Supplier Relationship Management in Healthcare, in: *Service Science and Logistics Informatics: Innovative*

Perspectives, 2010, pp. 206-229.

Otto, B., Hüner, K., Österle, H.: A Cybernetic View on Data Quality Management, *Proceedings of the Sixteenth Americas Conference on Information Systems (AMCIS)*, Lima, Peru, 2010.

Österle, H., Osl, P., Benz, A.: Dienstleistungen für Independent Living: Kundenanforderungen und Optionen für die Angebotsgestaltung, Tagungsband Ambient Assisted Living - 3. Deutscher Kongress mit Ausstellung, VDE Verlag GmbH, Berlin, Offenbach, 2010.

Rohner, P., Winter, R. (Eds.): *Patientenidentifikation und Prozessorientierung: Wesentliche Elemente des vernetzten Krankenhauses und der integrierten Versorgung*, Springer, Berlin, 2010.

Schulz, V., Herz, T., Rothenberger, M., Brenner, W.: IT Shared Service Center and External Market Activities, *Proceedings of the Sixteenth Americas Conference on Information Systems (AMCIS)*, Lima, Peru, 2010.

Shriver, S., Hofstetter, R., Nair, H.: Social Ties and User Generated Content: Evidence from an Online Social Network, *INFORMS Marketing Science, Marketing Science Conference 2010 - Cologne*, 2010.

Walter, T., Back, A.: Web-Analyse-Dienste als Instrument des Blog-Monitoring, Schuhmann, M., Kolbe, L., Breitner, M., Frerichs, A. (Hrsg.): *Tagungsband der Multikonferenz Wirtschaftsinformatik (MKWI) 2010 – Management und Methoden, Technologien, Anwendungen*, Göttingen, 2010.

Winter, R., Zhao, J., Aier, S. (Eds.): *Global Perspectives on Design Science Research*, Springer, Berlin, Heidelberg, 2010.





tion of large transformation projects. On successful attendance, an “Executive MBA” degree of the University of St. Gallen is awarded. The programme includes two modules that are conducted in cooperation with the Leavey School of Business at the University of Santa Clara, California, and with the Jiao Tong University in Shanghai.

The diploma programme IT Business Management HSG aims at developing business and leadership competencies for IT professionals with a technical background. The third class of ITBM started in October 2010.

Dissertations

Baacke, L.: *Verwaltungsmodellierung – Entwicklung und Evaluation einer Methode zur verteilten Modellierung und integrierten Analyse von Geschäftswissen in der öffentlichen Verwaltung*, 2010.

Ebert, Nico: *Produktionsplanung und -steuerung bei IT-Dienstleistern*, 2010.

Fitterer, R.: *Anforderungsbasierte Bewertung der Informationssystemarchitektur von mittelgrossen gemeinnützigen Krankenhäusern*, 2010.

Glissmann, S.: *IT Service-Oriented Investment Analysis*, 2010.

Grasl, O.: *Professional Service Firms : Business Model Analysis – Method and Case Studies*, 2010.

Hau, T.: *Quality of Service im Internet*, 2010.

Mettler, T.: *Supply Management im Krankenhaus: Konstruktion und Evaluation eines konfigurierbaren Reifegradmodells zur zielgerichteten Gestaltung*, 2010.

Riege, C.: *Evolution der referenzmodellbasierten Informationssystem -Architektur – Entwurf und Evaluation einer Methode am Beispiel der Versicherungswirtschaft*, 2010.

Ritschel, A.: *Produktionsengineering bei industrialisierten IT-Dienstleistern*, 2010.

Saat, J.: *Planung der Unternehmensarchitektur. Vorgehen – Gestaltungsgegenstand – Alternativenbewertung*, 2010.

Schmaltz, M.: *Methode zur Messung und Steigerung der individuellen Akzeptanz von Informationslogistik in Unternehmen*, 2010.

Vogel, T.: *Serviceorientiertes Business Networking – Referenzarchitektur und Gestaltungsprinzipien*, 2010.

Executive Education

In 2010 the 14th class of the Executive Master of Business Engineering started. The interdisciplinary study program develops competencies for the systematic (model and method based) planning and implementa-

Events

The International Conference on Design Science Research in Information Systems and Technology (DESRIST) is a premier conference for design-oriented research in Information Systems. Becoming a truly global conference series, DESRIST was held in St. Gallen, Switzerland in 2010. DESRIST 2010 brought together ca. 100 design researchers from all over the world to provide global perspectives on both Design Science and Design Research through 35 accepted full papers, 10 short papers, 4 panels, 3 workshops, and 3 keynotes.

In 2010, the “Value Chain Forum” was replaced by the “Business Engineering Forum”. Its specialty is the interactive workshop format across various fields of BE.

The event series “Anwenderforum St. Gallen” (three p.a., forum.iwi.unisg.ch), as well as the bi-annual “DW/EA” conference series were also continued in 2010. They serve as networking and discussion platforms that bring together practitioners and academics.



Turun yliopisto
University of Turku



About the Institution

Turku School of Economics (TSE) is one of the largest institutes in Finland for education in economic science. TSE is part of the University of Turku. The Turku School of Economics is one of the largest institutes in Finland for education in economic science. From 1.1.2010 it has been an independent unit within the University of Turku. The Institute for Information Systems Science was established in the late 1970s. Now it has grown to have budgeted-for positions for 3 professors and a total staff of about 15. Some 25 people are on the payroll. Around 20 active doctoral level students are on the books. Yearly, some 25 Finnish students select Information Systems as their main topic from the intake to the whole Turku School of Economics, 250 in total, and University of Turku. In addition there are yearly some 20 master level students in the three international master programs of the Institute: Global Information Systems Management, International Master in Management of Information Technology, and Work Informatics Information

systems is a popular minor topic for students in many areas of economics and computer science.

The Institute carries a main responsibility within Turku Center for Computer Science (TUCS) for studies within IS. TUCS is a joint unit between the University of Turku, the Turku-based Swedish-speaking Åbo Akademi University, and Turku Polytechnics. All advance level courses within TUCS are taught in English.

Research Topics

Information systems science is a field of science that studies utilization of information and communication technology (ICT) in enterprises and other organizations. We have the following gravity points in research: Strategic planning of information management, Network economics, Health care information

systems, Decision and learning support systems, Management of IT and Work Informatics.

The most usual research method is action research, in which the researchers participate in the development of information systems of one or more enterprise or organization. The Institute is especially strong in research with public sector organizations.

Current Research

The research focusing on e-government, especially health care and well-being information systems began in 1997 with a project in cooperation with the University of Turku and Turku University Central Hospital. Since the beginning of the 2000s, many projects about health care and well-being information systems have been conducted in the institute. Recent developments put an emphasis on the management and organizational aspects of data security and privacy, as well as IT governance issues.

Growing areas of research within the Institution include for example different computer gaming applications, business models in the area of open source, and work informatics.

Publications

Heikkinen, Katja – Suomi, Reima – Jääskeläinen, Miika - Koljonen, Anne - Leino-Kilpi, Helena and Salanterä, Sanna (2010). Creation and evaluation of an ambulatory orthopaedic surgical





patient education website to support empowerment. Computers, Informatics, Nursing, 28(5).

Kiili – Lainema (2010). Power and the Experience Flow in Time-Intensive, Collaborative Decision-Making. Journal of Educational Multimedia and Hypermedia, 19(1).

Liu – Li - Carlsson (2010). Factors driving the adoption of m-learning: an empirical study. Computers & Education, 55(3).

Spil- van den Broek - Salmela (2010). It Takes Two to Tango: The Fit Between Network Context and Inter-Organizational Strategic Information Systems Planning. International Journal of Strategic Information Technology and Applications, 1(1).

Dissertations

Li, Hongxiu (2010). E-service continuance intention: an insight into the online travel services in China.

Bergum, Svein (2009) Management of teleworkers – managerial communications at a distance.

Salmivalli, Lauri (2008). Governing the Implementation of a Complex Inter-Organizational Information System Network – The Case of Finnish Prescription.

Alaranta, Maria (2008). “This has been quite some chaos.” Integrating information systems after a merger – a case study.

Ongoing research projects

VIBu - Virtual teams in international business training (VIBu training) is developed to help companies to meet the challenges that arise from today’s dispersed working environment. By VIBu training it is possible to discover in practice how cultural differences (e.g., national or organizational) affect teamwork and communication, and how virtuality as a working context affects daily operations and activities. As a result of the training, the participants learn how to use this knowledge to improve communication skills in order to improve team performance and satisfaction in virtual context. Collaboration partners in VIBu are Johannes Kepler University in Linz, Austria; Stern Business School, University of New York, USA; The University of Kaiserslautern, Kaiserslautern, Germany; and University of Melbourne, Australia.

Reward systems in health care – In this project motivation and reward factors for making workers in the health care sector first and foremost medical doctors are studied. The quest is to find reward elements that can be implemented into information systems in the health care industry. A metaphor is to introduce the open source kind of thinking to health care – to get healthcare professionals to make better input to health care systems such as patient records because of professional fame and networking.

German Empirica GmbH - The Institute continued to act as a Finnish national correspondent for EU benchmarking studies on information society, led by the German Empirica GmbH. During year 2009, projects on innovation practices in Europe and eHealth benchmarking took place.

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Key Facts

University of Turku

- International environment
- Approximately 23000 students
- Circa 3000 staff members

The Institute

- Yearly master level intake around 30
- 3 professors
- Circa 25 staff members
- Some 20 active doctoral students

IS Master Programs

- Global Information Technology Management (GITM)
- International Master in Management of Information Technology (IMMIT)
- Work Informatics

Research Topics

- Strategic planning of IS
- Network economics
- Health care information systems
- Decision and learning support systems
- Management of IT

Events

- IRIS and SCIS 2011
- Bi-annual Conference Well-being in the Information Society (WIS)



About the Institution

Founded in the early 1990s, the Institute of Information Systems consists of a young and motivated research group that has been continuously growing since then. The institute offers both a Bachelor's program in information systems (IS) and a new and innovative Master's program in business process reengineering. Additionally, the institute represents the Association for Information Systems (AIS) in Liechtenstein through the Liechtenstein Chapter of the AIS (LCAIS). Dr. Jan Recker, Associate Professor at Queensland University of Technology (QUT), Brisbane, Australia, was appointed the first LCAIS research fellow in 2010.

As an ERCIS member, and situated in the heart of Europe, the institute strives to be a networking hub that facilitates the exchange of both IS researchers and students. In this past year, we have had the pleasure of welcoming a number of distinguished IS researchers in Liechtenstein, including Alan R. Hevner (University of South Florida, USA), Marco de Marco (Università Cattolica, Italy), Ken Pfeffers (University of Nevada, USA), Jan Recker (QUT, Australia), Nicolas Romano (Spears School of Business, USA), and Reima Suomi (Turku School of Economics, Finland).



Furthermore, researchers from the institute held guest lectures on BPM, ECM, ERP, and related subjects at several partner institutions, including the Turku School of Economics (Finland), the University of Agder (Norway), Addis Abeba University (Ethiopia), the University of Münster (Germany), and the University of St. Gallen (Switzerland).

In addition, the Institute of Information Systems is a co-founder of the Hilti Fellowship Program that gives highly motivated and committed Master's students the opportunity to do an internship at the Hilti Corporation while taking courses at the University of Liechtenstein. In 2010, excellent students from Austria, Finland, Germany, Liechtenstein, and Lithuania participated in this unique program. The majority of the students were recommended by our international IS research partners from the ERCIS network.

Research Topics

Our research focuses on business process management (BPM) and related topics, including business process analysis and specification, creativity-intensive business processes, collaborative process modeling, the role of culture in BPM, and the role of BPM in enterprise sustainability. Other research areas include enterprise content management, document management, enterprise resource planning, service orientation, interoperability and standardization, e-learning, and social networking.

Competence Centers

In 2009, the Competence Center on Enterprise Content Management (CC-ECM) was established. The center focuses on research topics related to the management of enterprise content, including both technological and managerial challenges. Among other things, over the past year a novel approach towards content modeling was developed, an ECM implementation project was evaluated, drivers for ECM adoption were identified, and a research framework for ECM and creativity was proposed.

Additionally, in 2010, three new competence centers were initiated:

The Competence Center on Business Process Management (CC-BPM) investigates issues related to the analysis, improvement, and continuous management of business processes against the background that contemporary organizations are increasingly challenged to implement efficient and effective business processes.

The Competence Center on Enterprise Resource Planning (CC-ERP) focuses on the development, implementation, and application of ERP systems. Besides the application of conventional ERP components, the center also supports the dissemination of knowledge and skills related to new technologies such as cloud computing, service-oriented architectures, software-as-a-service, and enterprise application integration.

The Competence Center B2X (CC-B2X) investigates the challenges of interoperability between multiple business partners in collaboration projects. In this context, interoperability relates to the capability to realize and ensure an integrated exchange of information in heterogeneous information system infrastructures.

Publications

vom Brocke, J. & Rosemann, M. (Eds.) (2010). Handbook on Business Process Management (Vol. 1 & 2). Berlin: Springer.

vom Brocke, J. (2010). Betriebswirtschaftliche Formelsammlung. Die wichtigsten Begriffe, Methoden und Modelle kompakt erklärt (2 ed.). München: Vahlen.

vom Brocke, J., & Sinnl, T. (2010). Culture in Business Process Management. A Literature Review. Business Process Management Journal (BPMJ). In press.

Thomas, O., & vom Brocke, J. (2010). A value-driven approach to the design of service-oriented information systems - making use of conceptual models. Information Systems and e-Business Management (ISeB), 8(1), 67-97.

vom Brocke, J., Recker, J., & Mendling, J. (2010). Value-oriented Process Modeling: Integrating Financial Perspectives into Business Process Re-design. Business Process Management Journal (BPMJ), 16(2), 333-356.

Seidel, S., Müller-Wienbergen, F., & Becker, J. (2010). The Concept of Creativity in the Information Systems Discipline: Past, Present, and Prospects.

Communications of the Association for Information Systems (CAIS), 27(1), 217-242.

vom Brocke, J., Simons, A., & Cleven, A. (2010). Towards a Business Process-Oriented Approach to Enterprise Content Management: The ECM-Blueprinting Framework. Information Systems and e-Business Management (ISeB), accepted for publication (DOI: 10.1007/s10257-009-0124-6).

Dissertations

Lippe, S.: The management of collaborative research projects in information systems.

Sinnl, T.: The role of culture in business process management.

Simons, A.: Developing and evaluating guidelines for implementing enterprise content management systems.

Sonnenberg, C.: Value-oriented design of information systems.

Planned Activities

J. vom Brocke & A. Simons (Eds.) (2011) Enterprise Content Management: Foundations and Cases. Berlin et al.: Springer.

J. vom Brocke & S. Seidel (Eds.) (2011) Beyond Efficiency: Business Process Management for the Sustainable Enterprise. Berlin et al.: Springer.

The institute further plans to expand its international partnerships through researcher and student exchanges.

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Key Facts

Institution

- Founded in 1991
- Researchers: 15

Research Topics

- Business Process Management
- Enterprise Content
- Management
- Interoperability
- Sustainability
- Creativity
- IT Value

Events

- 13th IEEE International Conference on Commerce and Enterprise Computing (CEC), Luxembourg, General Chair.
- 19th European Conference on Information Systems (ECIS 2011), Helsinki, Track Co-Chair: Accounting Information Systems and ERP.
- 10th International Conference on Wirtschaftsinformatik, Zurich, Student Track Chair.
- PhD Seminar on Design Science Research, January 2011, Flums, Switzerland.



Vienna University of Economics and Business – Department of Information Systems and Operations



About the Institution

The Department of Information Systems and Operations, Vienna University of Economics and Business (WU Vienna), was founded in the course of WU's organizational restructuring in 2005. Since then, it has consolidated the know-how and reputation of four highly renowned institutes and 15 professors with distinguished focuses in research and teaching, providing a broad representation of IS research topics. The institutes are listed as follows:

- Institute for Information Business (Prof. Janko)
- Institute for Information Systems and New Media (Prof. Neumann)
- Institute for Management Information Systems (Prof. Spiekermann)
- Institute for Production Management (Prof. Taudes)

Besides, the department's faculty collaborates closely in certain projects and primarily in WU's degree programs emphasizing information systems. Our Bachelor's Program in Information Systems, as well as the subsequent Master's program, are recognized as Austria's leading degree programs in this field (according to Format Uni-Ranking, 2009). The recently-established trans-disciplinary Master's Program in Supply Chain Management (launched in the winter semester 2010/11) ambitiously attempts to follow in these successful steps.

Furthermore, the department participates in two interdisciplinary research institutes:

The Research Institute for Computational Methods includes researchers from four WU departments. Sharing a high-

performance computing infrastructure, advanced computational methods are developed in the areas of finance, information systems and marketing. The institute's primary goal is to foster interdisciplinary research and to develop highly sophisticated solutions.

The Research Institute for Supply Chain Management bundles the knowledge of seven professors from four different departments and tackles research questions concerning the integration of the material, information and financial flows between different companies or within a single company.

Current Research

The EU funded research project "LT-fLL" (Language Technologies for Lifelong Learning) conducted at the Institute for



Information Systems and New Media (Prof. Neumann) will create next-generation support and advice services to enhance individual and collaborative building of competences and knowledge creation in educational and organizational settings. The project makes extensive use of language technologies and cognitive models in the services.

Awards

The collaborative ROLE project has been announced and awarded as the winner of the PLE 2010 Mediacast Contest at this year's PLE Conference in Barcelona.

The top journal article "Refining Non-Taxonomic Relation Labels with External Structured Data to Support Ontology Learning" by A. Weichselbraun, G. Wohlgenannt, and A. Scharl (in: Data and Knowledge Engineering 69 (8), 2010, p. 763-778.) has been awarded a WU Research Award, acknowledging its excellence.

Publications

The following list represents a short extract of our publications:

Almeder, C.: A Hybrid Optimization Approach for Multi-Level Capacitated Lot-Sizing Problems, in: European Journal of Operational Research (EJOR), 2010, p. 200 599-606.

Almeder, C.; Almada-Lobo, B.: Synchronization of Scarce Resources for a Parallel Machine Lotsizing Problem, in: International Journal of Production Research, forthcoming.

Bernroider, E.; Obwegeser, N.; Stix, V.: Analysis of Heuristic Validity, Efficiency and Applicability of the Profile Distance Method for Implementation in Decision Support Systems, in: Computers and Operations Research, forthcoming.

Haberleitner, H.; Meyr, H.; Taudes, A.: Implementation of a demand planning system using advance order information, in: International Journal of Production Economics 128, 2010, p. 518-526.

Spiekermann, S.; Krasnova, H.; Günther, O.; Koroleva, K.: Online social networks: why we disclose, in: Journal of Information Technology 25 (2), 2010, p. 109-125.

Treiblmaier, H.; Filzmoser, P.: Exploratory Factor Analysis Revisited: How Robust Methods Support the Detection of Hidden Multivariate Data Structures in IS Research, in: Information and Management 47 (4), 2010, p. 197-207.

Outlook 2011

Prof. Dr. Edward Bernroider (currently Senior Lecturer in Technology and Information Management at Royal Holloway, University of London) is appointed to the newly-established chair "Management Information Systems with special emphasis on Financial Services and Accounting," and will join the department as full professor in March, 2011.

In the fall of the same year, the enhanced and reorganized Master's Program in Information Systems will launch. Due to the international orientation of the IT field in general and of this master's program in particular, the new program will be held entirely in English.

tion of the IT field in general and of this master's program in particular, the new program will be held entirely in English.

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Key Facts

Institution

- Founded in 2005
- More than 60 Researchers

Research Topics

- are manifold, we refer to the respective professors (see above)

Events

- Italks: ec.wu.ac.at
- EDEM 2001: On September 8-9, 2011 we will host the EDEM 2011 conference. As co-organizers of this event, we would like to encourage everyone interested in eDemocracy and eGovernment to submit papers (please visit edem2011.ocg.at for more information and the CFP).



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato



About the Institution

Waikato Management School has been awarded accreditation to AACSB International, EQUIS – the European Quality Improvement System, and AMBA – the UK-based Association of MBAs. AACSB is the US-based Association to Advance Collegiate Schools of Business and is the world's oldest-established quality assurance body in management education.

These accreditations are reviewed every few years by a team of academics from business schools around the world to ensure Waikato Management School staff continue to offer high quality and relevant teaching and that our top research rankings, programming and planning are maintained to international standard.

Our schools mission is one centred on sustainability, which is infused into all aspects of our teaching and research. As one of eight departments in the school, the Department of Management Systems comprises the disciplines of e-business, information systems management, supply chain management and decision sciences.

Research Topics

Our research reflects the multidisciplinary nature of the department. Topics of interest include:

- Electronic government
- IS strategic alignment
- Groupware
- Knowledge management
- Organisational learning
- Supply Chain management
- Descriptive/prescriptive decision processes
- systems Intelligence

Current Research

Recent work investigates knowledge transfer and knowledge building processes observed at technical support centres in China. Our work in e-government focuses on how social networks are utilised in government, and at policy maker's perspectives on how technology has been used at local levels. In the area of supply chain, work currently centres on external relationship building and the use of the Quick Scan Methodology to assess company supply chains. Other staff are working with the fellow ERCIS member from Bordeaux on lessons learned for prescriptive decision modelling from descriptive managerial behaviours. We also are busy with colleagues in Helsinki and Austria developing theory and measurement metrics for the new area of research called Systems Intelligence.

Publications

Here are some of the more significant articles published recently:

Chen, Jihong; McQueen, Robert (2010), Knowledge transfer processes for different experience levels of knowledge recipients at an offshore technical support center, *Information Technology & People*, 23 (1) : 54-79.

Deakins, Eric; Dillon, Stuart; Al Namani, Hamed; Zhang, Chao (2010), Local E-government impact in China, New Zealand, Oman and the United Kingdom, *International Journal of Public Sector Management*, 23 (6) : 1-12.

Chen, Jihong; Sun, Peter; McQueen, Robert (2010), The impact of national cultures of structured knowledge transfer, *Journal of Knowledge Management*, 14 (2) : 228-242.

Rastrick, Karyn; Corner, James (2010), Understanding ICT based advantages:



A techno savvy case study, *Interdisciplinary Journal of Information, Knowledge and Management*, 5, 305-326.

Deakins, Eric; Vossen, Gottfried (2010), Women leading and learning through present-day web linking technology, *International Journal of Knowledge and Learning*, 6 (1) : 1-27.

Deakins, Eric; Dillon, Stuart; Al Naman, Hamed (2009), Local e-government impact and policymakers' attitude towards adopting contemporary information technologies, *The International Journal of Knowledge, Culture and Change Management*, 8 (10) : 123-133.

Roy, Asim; Mackin, Patrick; Wallenius, Jyrki; Corner, James; Keith, Mark; Schymik, Gregory; Arora, Hina (2008), An interactive search method based on user preferences, *Decision Analysis*, 5 (4) : 203-229.

Li, Weiwei; McQueen, Robert (2008), Barriers to mobile commerce adoption: an analysis framework for a country-level perspective, *International Journal of Mobile Communications*, 6 (2) : 231-257.

Taylor, Hazel; Dillon, Stuart; Van Wingen, Melinda (2008), The changing face of information systems research: A lon-

gitudinal study of author influence, *Informing Science: the International Journal of an Emerging Transdiscipline*, 11, 107-123.

Dissertations

Ab Wahid, Roslina: Beyond Certification: The Maintenance of ISO 9000 in Malaysian Service Organisations, 2010.

Chen, Jihong: Exploring Knowledge Transfer and Knowledge Building at Off-shore Technical Support Centers, 2010 .

Boehme, Tillmann: Supply Chain Integration, 2009.

Siritanachot, Chansit: The impact of interventional change techniques on an Internet banking cross-functional team, 2008.

Rastrick, Karyn: Competitive Capabilities: A Resource Based Model of ICT Advantage, 2008.

Bircham-Connolly, Heather: Structured Articulation of Knowledge: The impact of the framing of questions, 2007.

Hung, Wei-Hsi: Supporting critical activities from web sites: an evaluation methodology, 2006.

Janson, Annick: Narratives of online collaborative experiences: Leaders and lurkers, 2006.



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Key Facts

Institution

- Waikato University was founded in 1964
- Department of Management Systems is one of eight departments in the Faculty of Management
- 8 full time researchers

Research Topics

- Electronic government
- IS strategic alignment
- Groupware
- Knowledge management
- Organisational learning
- Supply Chain management
- Descriptive/prescriptive decision processes
- Systems Intelligence



Prof. Bob McQueen

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Higher School of Economics – Nizhny Novgorod – Faculty of Business Informatics and Applied Mathematics

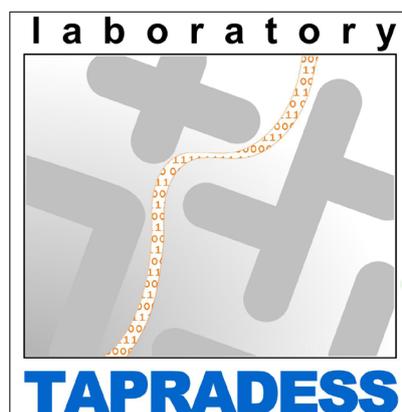


НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ
УНИВЕРСИТЕТ
НИЖНИЙ НОВГОРОД

About the Institution

The Higher School of Economics in Nizhny Novgorod (HSE NN) is a young and active part of an innovative Russian distributed university – National Research University, State University - Higher School of Economics (HSE). HSE NN was founded in 1996 and today it is a regional leader in business and economic education in the Volga Federal Region. The main educational activities of the Faculty of Business Informatics and Applied Mathematics (BIAM) of the HSE NN are related with modern enterprise organizations, enterprise architecture,

business mathematical and computer modeling. The Nizhny Novgorod region is an important industrial and research center of Russian Federation. The faculty at BIAM has a strong cooperation with many enterprises at the national and international level (Microsoft, INTEL, SAP, IBM, MERA Group and al.). Faculty BIAM offer to students the complete spectrum of educational programs at bachelor and master level. Since 2006, the Faculty has offered a doctoral program in Mathematical and Computer Modeling. HSE NN recognizes broad dissemination and the internationalization of the study programs as a principal strategic orientation of education activities. For foreign universities and partners, Faculty BIAM of HSE NN offers the establishment of a Double



Degree Master Program in Business-Informatics and Applied Mathematics with the specialization in the areas of Decision Support Systems, Customer Relationship Management and Operations Research with Logistic applications. Actually, HSE NN realizes two specific joint educational projects with the international companies INTEL and SAP in the field of Customer Relationship Management Systems (CRM).

Laboratory TAPRADESS (Theory and Practice of Decision Support Systems) is the research unit of the Faculty BIAM. It was founded in 2009 to promote a high level of research activity at HSE NN.

Research Topics

The research of the Faculty BIAM and TAPRADESS Laboratory is focused in the following directions:

- Cognitive science - the development of methods and techniques of receiving, processing, storage, and use and management of professional knowledge (examples: learning processes in organizations, industry knowledge, human interaction and complex information systems).
- Situational Modeling - multidimensional modeling of the behavior and decision-making processes of individual and collective agents in complex distributed systems (examples: a large corporation, a distributed university, public and municipal administration).
- Decision Making Analysis, Decision Making Algorithms including Discrete Applied Optimization Algorithms with applications to NP-hard problems.

In these areas our research teams are developing:

- Basic approaches to solving such important problems as the reengineering of companies using advanced technologies of e-business and a consistent set of formal process-oriented models, this result allows us to effectively



- conduct a systematic analysis of economic and technological factors affecting the sustainable development of business and e-commerce;
- Original ways of formalizing knowledge, based on ontological engineering, and supplemented by practical methods of integration and verification of complex corporate service - oriented systems;
 - New mathematical models and multi-agent optimization algorithms in distributed service - oriented systems applicable to different domains (transport, planning, training activities); the result defines new approaches to the creation and use of intelligent decision support systems in the modern service-oriented economy.
 - Axiomatic approach to non compensatory aggregation (decision making rules) and axiomatic approach to general measure of power (power indices) in a voting body.
 - Data correcting algorithms applied to NP-hard combinatorial optimization and quantitative logistics problems (for example, the traveling salesman, asymmetric capacitated vehicle routing, linear ordering, plant location, quadratic cost partition, max cut, optimal pricing and knapsack problems), polynomially solvable special cases of NP-hard problems, heuristics and computational complexity including the domination analysis.

Current Research

ProcessPedia. This work is performed under a joint research project agreement with SAP Research. The project pursues a goal to develop an object-oriented editor, business processes and tools of collective decision-making. Participants investigate the principles of collective business process modeling, analyze cases and develop the software architecture of Web-oriented system of collective decision-making.

Knowledge Representation with Ontologies. The project team performs analyses of different methods for modeling business processes, information services and business processes and their validation in the development and integration of heterogeneous software components and classes of information systems within a single decision support system. The analysis was done to evaluate formal-logical methods of specification of semantics of business processes and software systems based on relational logic and the Alloy Analyzer system. According to the analysis, it is planned to develop architecture and algorithms of a service-oriented decision support system using formal methods of knowledge representation.

Multi-agent algorithms in DSS. The goal of this project is development of multi-agent optimization models in logistics and transport management. The team builds a distributed model of management of a demand-responsive transport system, taking into account local and global system constraints. The inte-

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Key Facts

Institution

- Founded in 2003
- 12 researchers

Research Topics

- Cognitive Science
- Situational Modeling
- Decision Making Analysis

Events

International Scientific Summer School on quantitative logistics and operations research, Nizhny Novgorod, May 1st 2010 – May 15th 2010.



gration of the constructed model with the models of collective interaction is planned in the single DSS (together with foreign researchers).

Decision-making mechanisms and models. This project pursues a goal to investigate formal models of decision-making and multi-criteria analysis. The researchers made analyses of various decision-making mechanisms, and analyses of structural equation modeling techniques (Structural Equation Modeling). Application areas are developing a software module for medical diagnostics, multi-criteria analysis of investment portfolios and optimizing the parameters of insurance contracts.

Algorithms of non-compensatory aggregation. The research is focused in the investigation of rating algorithms, based on the principles of non-compensatory aggregation. Investigation was done in the context of multi criteria optimization (MCDM). The stability of the proposed algorithms is under investigation as well. Application areas are: rankings of students, credit ratings of bank customers, and ratings of investment projects.

Tolerance calculus in applied discrete optimization. Within this project researchers develop and analyze the tolerance-based efficient algorithms for solving the second order travelling salesmen problem

with practical applications in transportation logistics, job shop real-time scheduling and other complex modern problems.

Publications

Aleskerov F., Kalyagin V., Pogorelskiy, K. Distribution of power within the IMF: when does preference mean voice? Social Science Research Network, 2010. pp. 1–15.

Aleskerov F., Chistyakov V., Kalyagin V. Social threshold aggregations. Social Choice and Welfare, 2010. V. 35. 4. pp. 627–646.

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Application of Ontologies and Relational Logic for Service Composition // European Journal of Scientific Research ISSN: 1450-216X / 1450-202X, pp., V. 43 N. 4, 2010, pp. 571-589.

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Goldengorin B., Krushinskiy D. Experimental evaluation of p-median problem instances complexity, Mathematical and Computer Modeling (Elsevier International Journal), to appear.

Dissertations

Mikhail BATSYN (TAPRADESS member): Optimization problems in assurance models with discontinuous distribution of loss. Defended at HSE, Moscow.

Yulia TRETYACHENKO (BIAM member): Point wise selection principles for the functions of one and several real variables. Defended at the Federal Kazan State University, Kazan.

Andrey SAVCHENKO (BIAM member): Development of the method of the direct search in one class of classification problems. Presented for defense at HSE, Moscow.

Oleg NABIULLIN (TAPRADESS member): Development of the method of the design of multi-agent systems on the base of abstract machine formalism. Presented for defense at HSE, Moscow.

Planned Activities

International Conference on Mathematics of Logistic, May 2011, Higher School of Economics, Nizhny Novgorod, Russia.

About the Institution

The Department of Software Engineering is focused on research and teaching in the areas of database systems, software development and web technologies.

Research Topics

There are four research groups in the department, focusing on web semantization, similarity searching in multimedia databases, XML modeling and management and service-oriented systems.

Current Research

The department members are involved in a number of research projects funded by the Czech Science Foundation and the Grant Agency of Charles University.

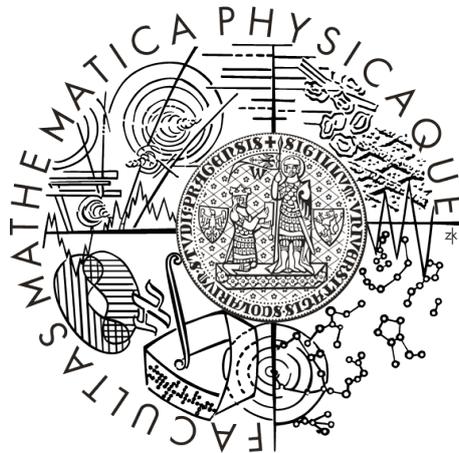
Dissertations

D. Hoksza, Similarity Search in Protein Databases, 2010.

J. Lokoc, Tree-based Indexing Methods for Similarity Search in Metric and Non-metric Spaces, 2010.

A. Eckhardt, Induction of User Preferences for Semantic Web, 2010.

J. Dokulil, Methods for effective querying of RDF data, 2010.



Selected Publications

Wojnar, A., Mlýnková, I., Dokulil, J.: Structural and Semantic Aspects of Similarity of Document Type Definitions and XML Schemas, in Information Sciences, 180(10):1817-1836, 2010.

Mlýnková, I., Necaský, M.: Towards Inference of More Realistic XSDs, 24th Annual ACM Symposium on Applied Computing, 2009.

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Key facts

Institution

- University founded in 1348
- Faculty founded in 1952
- Department founded in 1993
 - 5 professors
 - 12 researchers
 - 25 PhD students

Research Topics

- database systems
- semantic web
- similarity search
- XML
- service-oriented systems

Events

Organization of 19th Int. Conf. on Information Systems Development (ISD 2010) in Prague, Aug 25-27.



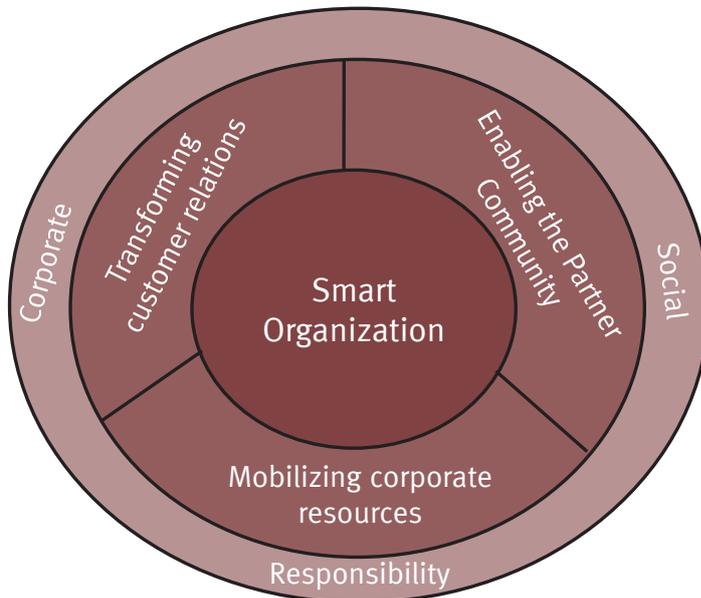


Figure 1: Research Scope

The Competence Center for Smarter Work @ ERCIS

was founded at the Department of Information Systems at the University of Münster in late 2009 by Professors Stefan Stieglitz and Stefan Klein, and industry expert Siegfried Schallenmüller (Siemens Enterprise). Within the ERCIS network, the Center provides research and transformation support in the area of Unified Communication / Collaboration (UCC) and Social Media. The integration of the underlying technologies and concepts into the workplace leads to the picture of a smart organization. UCC as well as social media provides new ways of interaction among stakeholders. Customer relations as well as partner communities can actively be transformed and managed by the introduction of UCC and Social Media. Furthermore, tools can be used to improve co-operation among employees, to strengthen social relations or to identify experts and specific information. Focusing on the interaction and behavior of different stakeholders, smart organizations can (and should) reflect corporate social responsibilities (CSR).

The following aspects of CSR are linked to the activities of the Center:

- Teleworking
- Employees' Mobility
- Diversity Management
- Work-life Balance
- CSR Supply Chain Management (Transparency)

The foundation of the Center has been motivated by the recent development of UCC and Social Media. Both have be-

come widely used approaches for management of private life while benefits and values for business are still under-researched. Furthermore, the convergence of both concepts increases the level of complexity regarding the introduction and use in a corporate environment.

Research agenda

Our research agenda comprises foresight studies, the understanding of transformation of work against the backdrop of the analysis of organizational contingencies as well as management issues resulting from the transformation (see Table 1). Based on a history of research in the areas of inter-organizational systems, communities of practice, electronic business and real time collaboration, we are extending our research agenda towards the effects of social media diffusion on the individual, the group and the organization level from a business perspective.

Research approaches

- Action research: participating observation, surveys, interviews, content analysis, and consultation in industry sites.

Foresight and trends	Scenario development: Organization of work 2020 and specific domains, such as customer relations, market research, partner management, HR, information management and innovation. Anticipating unintended effects such as communication overload and spill-over into the private sphere or social spam.
Understanding the transformation	Analysis of the design, introduction, adoption and deployment of communication and collaboration infrastructures. Studying media repertoire configurations on a corporate, group, and micro level. Learning from history: similarities and difference compared to eBusiness.
Analysis of contingencies	Acknowledging the diversity of organizational settings, we are exploring the influence of team and task structure, strategy and culture. What are organizational weak spots and levers for change? Opportunities and benefits will be divided unevenly: who are the likely profiteers and why?
Managing the transformation	Understanding the challenges for the “social CIO” and “Community Engineering”: Change does not happen automatically nor can it be fully controlled: It requires framing, expectation management, strategic alignment and setting of rules while maintaining scope for improvisation, experimentation and appropriation by individuals and groups.

Table 1: Research Agenda

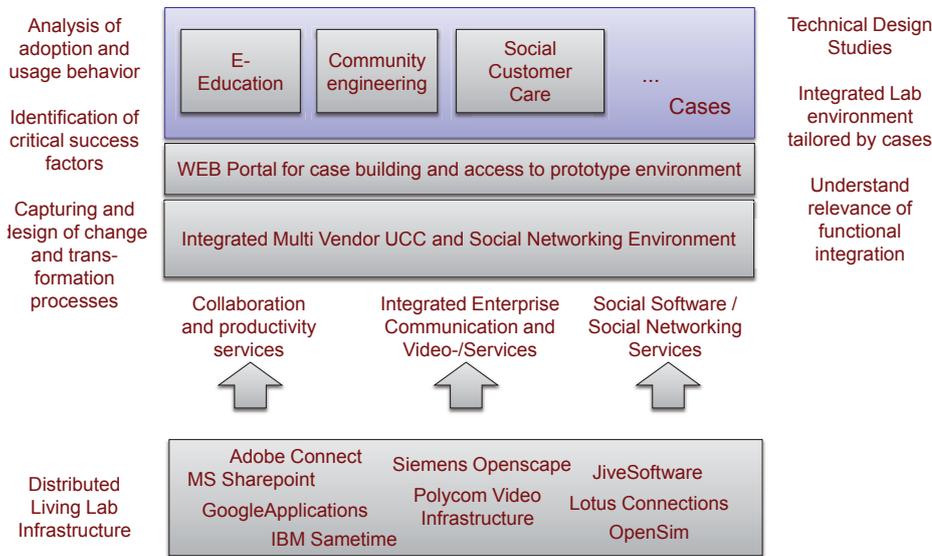


Figure 2: Living Lab Infrastructure

- Technical design: exploring media repertoire integration and configuration in a lab environment.
- Comparative statics analysis: exploring the dynamics of change by taking snapshots at different stages of the introduction and deployment.
- Social Network Analysis: graph-based approach for viewing on relationships which consist of nodes and ties. Identification of dynamics and drivers in social media networks.
- Multi-layer analysis: comparing and contrasting the transformation at different levels of the organization, across diverse organizational settings and functional domains (e.g. HR, marketing, information management), from vendors' and users' perspectives, using an interdisciplinary lens of analysis.

Living Lab

Innovation, adoption, and use can only be studied in a real world setting. We are hosting a distributed lab as test environment and for demonstrations. We are exploring options of cross media and cross platform integration.

Researching and understanding the effects of technology requires the capability of modeling real world scenarios based on real world technical infrastructures. Within our living lab we have established a multivendor environment which allows both rapid prototyping of integrated use case scenarios and providing a pilot environment for enterprises working with us on specific research questions on communication & collaboration and social networking.

Living up to the idea of smarter work, the lab is organized as a distributed environment across our research partner universities and technology partners. Furthermore, the living lab environment is used for teaching in order to ensure that students experience hands-on the potential of UCC and social networking technologies.

Researchers and students work together in the living lab, building prototypes and analyzing the functional integration of UCC and Social Media capabilities in multi vendor environments. Among other technologies, the Center hosts Jive and Lotus Connections as well as Open Source platforms (e.g. collaborative 3D-environment OpenSim). Currently we are working on the integration of Skype

Key Facts

Research network

- Interdisciplinary research combining Information Systems (focus on process / application), Computer Science (focus on technical integration) with Management Studies, Economics, Law, Psychology and Communication Science
- Integral part of the ERCIS network with access to > 200 researchers globally
- Specific cooperation with the University of Koblenz-Landau and the University of the German Armed Forces Munich, the University of Sydney and the University of Illinois at Chicago.

Mission and research focus

- Understanding the potential impact of Unified Communication Collaboration (UCC) and Social Media (SM) on the organization of work, culture and processes
- Facilitating the organizational transformation through UCC and SM on the management (strategic alignment and change management) and on the group level
- Inspiring innovation for UCC and SM supported workplaces and for new business models



Figure 3: Partner Eco System

and Siemens OpenScope with social media environments.

Partner Eco System

The Competence Center for SmarterWork moderates an eco-system both of technology partners / solution providers in the communication / collaboration and social networking space.

This network also includes domain experts contributing specific insights on social media or workplace developments. Additionally, a panel of enterprises across various industries provides current evidence for our research agenda in the area of communication / collaboration and social networking.

Based on common goals, different

modes of cooperation, such as research projects, case studies, and workshops, are realized (see Table 2). The Center combines teaching and research in its project-based seminars. Students and young researchers support those academic activities and cooperate with business partners. Therefore, they get the chance to solve real-world problems and train project management skills.

Current research

Current projects in the area of smarter work include the analysis of management activities and appropriation processes within and across organizational units during the introduction and deployment of real time collaboration technology. Moreover, we are studying challenges faced by organizations as a result of the

continuous development of social media capabilities and the incorporation into enterprise working environments. Issues include corporate social responsibility (e.g. work – life balance), the blurring line between the social and the enterprise, multi-generation work teams, social media etiquette and social spam.

A recent multi-client study conducted by the center has scrutinized the specific changes within IT-departments and the impact on the role of the CIO dealing with social media.

Further research focuses on value creation through social networking. Currently a research project with a global e-commerce company is conducted designing and analyzing the potential of social networks in channel partner communities. Specifically the type of interaction within the channel community and the impact of the integration of real time collaboration with social networking platforms are monitored and implemented as a research prototype with leading technology vendors.

To investigate the impact of public social media platforms such as Facebook or Twitter on companies, and to learn more about employee knowledge communities, the Center is conducting a joint project with researchers from the Communication Science Department. Social networks are usually characterized by a complex structure, where, unlike in traditional media institutionalized gatekeepers as well as traditional hierarchies initially do not exist or can rather be difficult to identify. Adopting methods and instrument of social media monitoring and social network analysis in-depth findings can be derived about topics as well as the network structures.

Future research directions and activities

We will extend our research on the integration of social media and real time collaboration technologies specifically with a focus on implementation, adoption

Research Project	Workshop
<ul style="list-style-type: none"> • Evaluation and analysis of customer case / real world problem, integration of expert knowledge • Development of research framework, problem definition • Delivery model: Multi Client Study, Benchmarking Prototyping 	<ul style="list-style-type: none"> • Moderation and coaching of workshops on social networking and real time collaboration • Introduction and discussion of case studies and business models • Joint development of innovation and transformation roadmaps • Delivery model: e.g. Scenario-workshop, Lead-User Workshop

Table 2: Modes of Cooperation

and value creation. This reflects an ongoing development in the marketplace driven by key vendors of delivering (hosted) highly integrated unified communication and collaboration capabilities with social community features as standard enterprise infrastructures. Enterprises are facing a steep (high) increase in complexity at the workplace level and simultaneously can capture enormous potential in customer and partner integration.

Accepting that there is no one-size-fits-all approach, a thorough scrutiny of key drivers considering technical, organizational and human complexity will help unlocking the potential of future workplace infrastructures.

We have initialized a series of case studies in this area and are developing a taxonomy based on the integrated perspective of real time collaboration and social media.

**We welcome your
feedback and questions!**

Publications

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- Lattemann, C.; Stieglitz, S.; Kupke, S. (2009): Deutsche Unternehmen auf dem Weg zum Web 2.0, in: HMD – Praxis der Wirtschaftsinformatik, Special Issue „E-Collaboration“, Heft Nr. 267, pp. 18-26.
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- Riemer, K.; Vehring, N.; Klein, S. (2008): Adoption of Communication Media in Virtual Organisations – Case Evidence of Structural Dilemmas, in: 16th European Conference on Information Systems (ECIS), Galway (IRL), June 9-11, 2008.
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- Riemer, K.; Fröbner, F.; Klein, S. (2007): Real Time Communication - Modes of Use in Distributed Teams, 15th European Conference on Information Systems.
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ENHANCE Project Proposal

The need for a transparent, standard higher education system in Europe has always been a concern for countries that are members of the European Union. In 1999, the Bologna Declaration was adopted with the intention of creating a “European Higher Education Area” (EHEA) by 2010. One major characteristic of the EHEA is that academic staff and students can move with ease between countries within the EHEA due to quick and fair recognition of their qualifications in Europe as well as in the global setting. However, there are still many obstacles which students, coordinators and persons in charge of course recognition decisions face. Students tend to encounter problems associated with different term structures, examination periods, and possibly required previous knowledge because this information is not made sufficiently transparent in most cases. Hence, the Universities of Münster, Sydney, Gdansk and Twente as the four core project partners as well as nine regional partners attempted to carry out a first large-scale ERDIS project addressing these challenges.

This project aimed at supporting the information needs of the actor groups involved in the recognition procedures in terms of a software platform. More specifically, the members sought to support students in finding supplementary (inducing specialization) as well as compatible (inducing faster studying) courses for taking in a term long exchange or even punctual visits, as in the case of summer school courses. Additionally, it was planned to ease the recognition process by supplying the competent authorities with structured information on the courses and pre-matching the basic course properties.

Besides the implementation of this pilot the project members further wanted to contribute to the development of standards for programme and course descriptions. Furthermore, these standards should be made available for discussion within the scientific community and made available for usage under an open content licence. The development of a joint standard for describing courses in a way that allows HEI-professionals to base their recognition decision upon them was a major objective of the project. The proper development of a standard is a prerequisite for successful diffusion and adoption of such a standard. It was consequently seen as a major building block of the software.

Similarly, the project team planned to create a reference process model for all processes related to student mobility (course selection, credit transfer). First, these models would be created on a conceptual level including all process participants and their respective activities. Second, the technical level would be addressed by defining interfaces and interaction schemes. Those describe how a centralized European course database could be accessed utilizing these standardized interfaces (e.g., implemented as Web Services). Hence, the pilot was supposed to implement these processes, data standards and interfaces.



In the attempt to support student mobility, the project wanted to concentrate on the field of Information Systems/ Business Informatics. This was planned in order to create proof of concept with a limited amount of data and as far as possible foreseeable complexity. The major target groups of the project were students, who should be provided with the information needed for planning a period of studies abroad, lecturers, who should be supported in making their course recognition decisions, and examination and international offices, which should be provided with means to monitor the recognition process transparently.

The first version of this proposal was submitted to the European Union as part of the Erasmus Mundus Program. However, it was rejected with the recommendation to re-submit it. The members will therefore adopt their proposal and hand it in once again.



New ERCIS Competence Center “BPM in Financial Industries”

On October 8th, 2010 the competence center “BPM in Financial Industries” was founded by the two ERCIS partners University of Münster and Queensland University of Technology (QUT) from Australia together with the ProcessLab at the Frankfurt School of Finance & Management (HfB) and the South Westphalia University of Applied Sciences.

The competence center addresses current business process management (BPM) topics that are of major interest to financial sector institutions – primarily focusing on banks and insurance companies. The main research areas of the competence center currently include:

- business process management
- process architecture / landscaping
- business process modeling
- business process analysis
- process controlling
- process optimization
- process benchmarking
- business process intelligence
- business process compliance management
- process-oriented operational risk management

Its aim is to foster joint research among the partner institutions of the competence center “BPM in Financial Industries”, as well as intensify an industry-academic exchange with leading financial sector institutions all over the world, with a current focus on Germany and Australia.

The founding partners are:

Prof. Dr. Jörg Becker, Managing Director of the ERCIS, Prorector of the University of Münster

Prof. Dr. André Coners, Professor for Controlling and Process Management, South Westphalian University of Applied Sciences

Prof. Dr. Jürgen Moormann, Director of the ProcessLab, Frankfurt School of Finance & Management (HfB)

Prof. Dr. Michael Rosemann, Head of the Information Systems Discipline, Co-Leader of the Business Process Management Group, Queensland University of Technology (QUT)

PD Dr. Axel Winkelmann, Acting Professor at the Chair for IS and Information Management, University of Münster

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Kick-off meeting at the University of Münster (from left to right):

Burkhard Weiß, Prof. Dr. André Coners, Prof. Dr. Jürgen Moormann, Prof. Dr. Jörg Becker, PD Dr. Axel Winkelmann, Dr. Armin Stein



ERCIS Codesharing Project

One important aim of the Bologna process is to increase student mobility. Though significant efforts were made, most notably the introduction of a common system of credit points, have been made to achieve this goal, some obstacles remain. The scarce and heterogeneously structured provision of course information and the uncertainties students face concerning the recognition of foreign courses at their home university are often mentioned barriers.



How can we solve these problems in order to encourage students to participate in exchange programs? An important inspiration was borrowed from the aviation industry: the idea of code sharing.

The term “code sharing” denotes an agreement between two or more airlines whereby one airline operating a certain flight allows one or more other airlines to market and sell seats on this flight as if they were operating it themselves. Airlines conduct such partnerships in order to reduce the number of empty seats, extend their range and, ultimately, increase revenue. However, the customers also profit by the improved transparency and the fact that they only have to deal with one operator when planning their trips.

Transferring this idea to the domain of higher education, one can imagine universities integrating

offerings like lectures or summer sessions of other universities seamlessly into their own offerings. Students who are interested in these foreign offerings can attend them abroad and have the upfront guarantee that their home university will recognize the acquired credits. The planning of exchange semesters can be completed without the time-consuming and discouraging search for scattered websites, and lectures can be chosen without the risk of spending many working hours on earning credits that are nullified upon return to one’s home university. For the university staff responsible for recognition decisions, a great deal of time can be saved because the recognition of a certain course combination has to be evaluated only once. Once this combination is denied or accepted, adjacent decisions can, to a certain extent, be automated.

In order to approach this vision, the ERCIS Codesharing Project has been launched. Its initial aim was to create a



software platform that allows participating universities to maintain information about offered courses. Furthermore, complete course catalogues, term dates and course descriptions about single courses can be made available on the platform. The system can for example map lectures between universities, keep track of ECTS points, and manage lecturer approvals. Obviously, in the

course of developing such a system, the various needs of different universities have to be taken into account. Thus, we tried to include partner universities as early as possible. The first project iteration lasted from March to August 2010. During this period of time, the project team, consisting of eight master and four postgraduate students, processed three sequentially related working packages.

1. Interviews

To identify possible pitfalls of the project idea, seven semi-structured interviews with a total of 16 persons at six ERCIS partner universities were conducted. Each interview lasted between 60 and 90 minutes. Questions on the individual recognition process and information provision for exchange students as well as a discussion of the general project idea conveyed essential insights into differences and similarities among the different institutions.

2. Scenario Development

The insights gathered during the interviews reveal several difficulties in regard to the original project goals. The responsibility for data input was identified as a main strategic determinant. Moreover, the great diversity between the different institutions, for example concerning the exiting information systems landscape, complicates the whole endeavor. Based



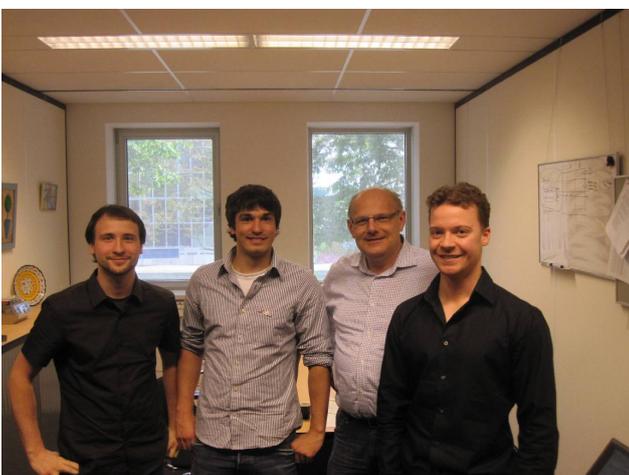
on these constraints, three conceptual scenarios for a supporting information system were developed and discussed with professors of the ERCIS headquarter in Münster.

3. Implementation

The three conceptual scenarios share one common core. This core consists of basic functionalities concerning the management of course information, users and institutions. The project team implemented a fully functional, basic prototype that supports this common core. Due to the modularity of the prototype, it can be extended to any of the possible application scenarios. The software consists of a fully encapsulated backend that is connected to the user frontend via web services. This allows other institutions to integrate backend functionalities seamlessly into their own websites.

The results of the first project iteration are the basis for further development of the project idea. The possible application scenarios and the basic prototype will be used in subsequent iterations to evaluate the potential and shortcomings of the project endeavor in close cooperation with the partner institutions.

codesharing.uni-muenster.de



Report on EU-funded Project “TEMPUS POMBI”



From left to right: Prof. Dr. Victor Nikitin (HSE), Mathias Eggert, Matthias Voigt (both University of Münster), Prof. Dr. Alexander Gromoff (HSE)

TEMPUS POMBI

The EU-funded TEMPUS project “Process Oriented EU-RU Master in Business Informatics” (POMBI), which started in 2008, was successfully finished with the signing of a double-diploma agreement between two of the project partners, the University of Münster, Germany and the Higher School of Economics (HSE) in Moscow and Nizhny Novgorod, Russia. Furthermore, two other partners – the Université de la Méditerranée in Marseille, France and SAP as an educational partner – also contributed to the success of the project. The objective of the POMBI project was to develop and implement a new, practice-oriented curriculum “Master of Business Informatics” at Russian universities according to the Bologna requirements. In addition, the project fostered the relationship between the project partners regarding educational and research-oriented goals.

A major part of the project activities concerned the development and implementation of new courses for the Master of Business Informatics curriculum and the joint teaching of these courses for Russian students. Overall, three new courses have been developed: “Information Modeling,” “Business Simulation” and “Enterprise Architectures.” The lectures held by lecturers from Münster in Moscow and Nizhny Novgorod were very

well received by Russian students. An evaluation of the jointly-taught lectures received top marks from 2/3 of the students. “We are convinced that our students can get an even deeper insight in the topic of ‘Enterprise Architectures’ using the new Material from Münster,” says Prof. Dr. Alexander Gromoff of the HSE Moscow. All three courses will be included in the newly-developed curriculum and will be taught at the Higher School of Economics as well as in other Russian universities adopting this curriculum.

Furthermore, the project seminar practice was adopted by the Higher School of Economics. This practice is an integral part of the Münster curriculum in Information Systems. It allows students to self-dependently work on a real-world project with practice partners during a semester. This way, the students not only apply the theoretical knowledge from their studies in a real-world environment but are also motivated to train their time-management and organizational skills by working in a team on the solution to a given problem. During the project practice implementation within the TEMPUS POMBI project, a joint project seminar of German and Russian students with SAP and the South Russian Center Invest Bank worked together on a project dubbed “provelT.” The goal of provelT was the analysis of process-oriented optimization possibilities in the banking sector in connection with the implementation of company-wide IT solutions. The students worked together over the course of six months, spending part of this time in Russia and another part in Germany. Both the students and the practice partners

were very pleased with the results of the project.

Another major goal of the POMBI project was the implementation of a double-diploma agreement between German and Russian universities. This agreement was signed in October, 2010. It will enable students from the University of Münster and the HSE to achieve a double diploma from both universities by spending one year of their Master studies at their home university and the other year at the respective host university. Doing this successfully will earn the students both the title of “Master of Science in Information Systems” at the University of Münster and “Master of Business Informatics” at the HSE. During the EU-funded pilot phase, seven students from the HSE already completed one year of their studies in Münster and are currently completing their studies in Russia. More students have already been accepted for the double-diploma program, documenting the great interest in this program and ensuring its continuance beyond the funded phase.

Overall, the project yielded very positive results for all project partners. “We are glad that our course contents were so well received. Furthermore, discussions with the HSE professors provided points of contact for an intensification of our contacts with our Russian colleagues,” says Prof. Dr. Jörg Becker.



From left to right: Prof. Dr. Jörg Becker, Prof. Dr. Ursula Nelles, Prof. Dr. Valery Kalyagin, Prof. Dr. Eduard Babkin, Irina Thome

Joint Project Seminar Slipstream

The project seminar Slipstream was conducted by the European Research Center for Information Systems at the University of Münster in cooperation with SAP Research Brisbane. The project was comprised of seven IS Master students. During the project, the students worked self-responsibly and self-organized in their team. Weekly meetings with local advisors from the Information Systems department as well as biweekly conference calls with SAP Research Brisbane complemented the usual communication to coordinate the cooperation and debate issues, results, and goals of the project.

The goal of the project Slipstream was the development of a real-time, pro-active Business Activity Management (BAM) solution. Current Business Activity Monitoring solutions suffer from a number of drawbacks: there is a considerable time lag between the occurrence and the observation of critical events, the integration with Business Process Management (BPM) engines is often hard-wired, and most solutions focus on passive monitoring of business processes without allowance for pro-active intervention of running process instances. Applying the concept of Complex Event Processing (CEP) to BAM seems to be a promising way to tackle these issues. CEP, in general, comprises a set of techniques for mak-

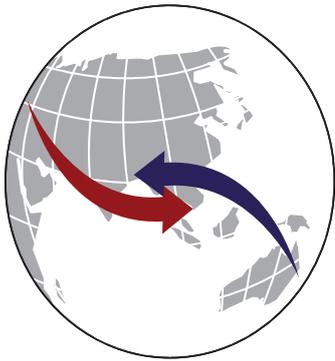
ing sense of events in a system by deriving higher-level knowledge from lower-level system events in a timely and online fashion. A CEP system acts as a parallel running platform that defines, analyses, processes, and acts upon events produced by another system. The team had to build their solution on the basis of SAP standard software (i.e., SAP Netweaver BPM, BRM and CE, Aleri Streaming Platform [recently acquired by SAP in the course of the Sybase acquisition], and SAP Business Objects Xcelsius). From a business perspective, a challenge to be solved by the seminar was to elaborate use cases to demonstrate the features of their solution. These include event publishing, filtering, aggregation, analysis, prediction, and pro-active reaction to events. Therefore, the team used an example business process from the field of supply chain management, namely a perfect order scenario.

The team fully accomplished all goals defined by SAP Research and the ERCIS. On a conceptual level, the team developed a reference architecture for the event-driven Business Activity Management. Furthermore, the team adapted an existing event format (i.e., Business Process Analytics Format, BPAF) to communicate between the involved systems. The conceptual design has been fully implemented using the mentioned software products. The results currently serve as a valuable input for the SAP Netweaver development department in Walldorf. A transfer of the architecture to industry is expected to emerge from cooperation with SAP Research. Research papers as well as Master theses are already on their way. Additionally, the developed prototype has been presented at the Innovation Lab of the SAP TechEd 2010 in Berlin (Oct. 12th – 14th).



The team at the Innovation Lab of the SAP TechEd 2010 in Berlin

New EU-funded Project “Networked Service Society”



ERCIS Research Project: Networked Service Society,

The German Federal Ministry of Education and Research has launched 18 research projects to build up joint research structures with the Asian-Pacific region. In this context, researchers of ERCIS collaborate on understanding and designing the “Networked Service Society”.

With the rise of the service economy, the prosperity of industrial countries is more than ever based on engineering, selling, and delivering highly advanced services. In addition, some recent break-through innovations in IT enable companies, public administrations, and individuals to network around the globe in near real-time. Against the backdrop of these two mega trends, flexible and efficient networking increasingly is an essential prerequisite for companies to enter and serve their markets globally.

With the research done in our project, we will contribute to theory and to the innovative design of IT artifacts in three decisive areas:

Professionalization: Whereas services today tend to be developed non-systematically and are often provided to customers in a reactive fashion,

value creation in the future Networked Services Society must be proactive. In addition, the development of management concepts and IT artifacts used in international service networks has to consider differences with respect to the intercultural contexts that shape different manifestations of service societies. For instance, the service societies in Germany or South Korea tend to be more focused on industrial services in the B2B sector, whereas services in Australia, New Zealand or the US tend to be focused on professional or personal services.

Digitalization: Value Creation in the Networked Service Society has to be both effective and efficient. To address both perspectives, appropriate IT artifacts need to enable global collaboration amongst companies and public administrations at reasonable cost. In particular, service computing has enabled companies to tap into the resources of other companies around the globe. This results in a need to design flexible service infrastructures as well as predefined business content that can be included into service processes at run time, irrespective of space constraints.

Sustainability: Against the background of the demographic change and the scarcity of natural resources, services

of the future must comply with the social and ecological responsibility that is expected from highly developed industrial nations. Services that account for the special needs of elderly people and services that enable networks to design their business processes in a sustainable way are two prominent examples.

Besides conducting joint research in a Networked Service Society context, the structural goal of the project is to further establish long-term research structures with the Asia Pacific region. For this purpose, the permanent presence of an Information Systems researcher from the University of Münster will be arranged at the Queensland University of Technology (QUT) in Brisbane. In addition, short term research visits from Münster to KAIST in Seoul will be funded. We strive to jointly apply for subsequent research projects to further enhance the quality and scope of our cooperation.



Service Research at the European Research Center for Information Systems

Project partners are Jörg Becker (WWU, Münster), Michael Rosemann (QUT, Brisbane), Jin Hyung Kim (KAIST, Seoul), and Jim L. Corner (University of Waikato, Hamilton).

The research project Networked Service Society is funded by the German Federal Ministry of Education and Research (BMBF), promotion sign APR 10/805, from July 2010 to June 2012.

For more information, please visit: www.networkedservicesociety.net



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

New ERCIS Website launched

During the last year, the ERCIS website has been completely reworked. Basing on the university-wide used content management system (CMS) Imperia, the website could not be opened to grant writable access to users outside the university. Because of this, only the headquarters was able to keep the website up-to-date and disseminate its research results or news. It is, however, one of the most important issues for future ERCIS cooperation, that all participants get the chance to contribute to the website, generate content and explicate their research results in terms of e.g., sending newsletters, adding research projects, or publications.

The Open Source CMS Drupal is perfectly suitable for supporting these requirements, as it is shipped very slim, built in a modular way, and provides myriads of user developed modules. Due to a very large and active community behind it, its continued existence is guaranteed.

- **Get all the news:** What happens where? Who is looking for a project partner? Just use the RSS feed!
- **Sign in and communicate!** Contribute to the network! Tell us, what you're doing!

Create Project

Title: *

ADMINISTRATIVE

Long Title:

Project Logo:

Maximum Filesize: 50 MB
Allowed Extensions: png gif jpg jpeg

DURATION

From date:

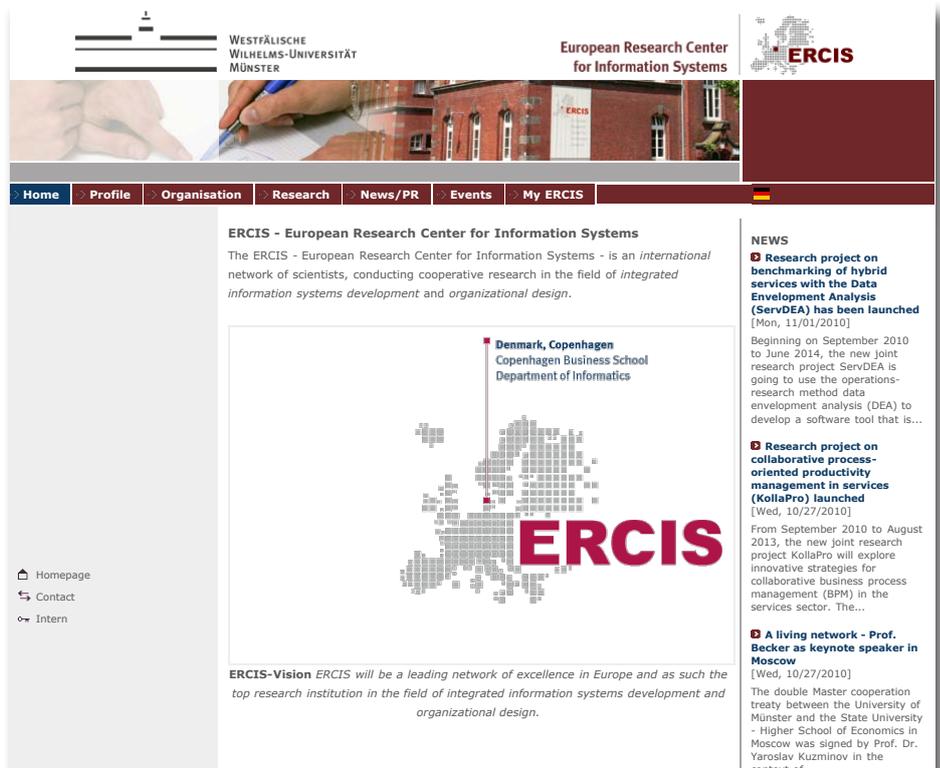
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To date:

Format: 2010

Project Website Title:

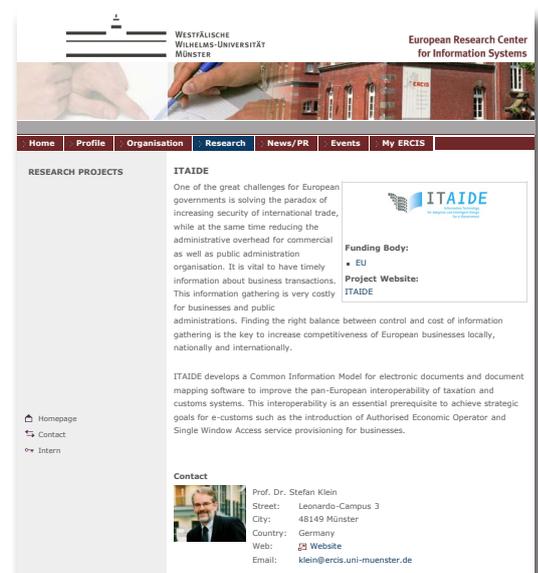
Create a new project in just a minute!



<http://www.ercis.org>

- **Present yourself!** Create and edit your institution's and your own profile.
- **Events:** Some relevant IS conference? An interesting congress? Inform the community about it!
- **Projects:** You won a new project? Let others know!
- **Publications:** Provide us with your findings!
- **Competence Center:** You would like to establish an ERCIS Competence Center? We'll provide you with the platform!
- **Corporate Design:** We would like to see you promoting ERCIS. You'll find every logo, the map, flyer, and our presentation template on the website!
- **Codesharing:** Once finished, the ERCIS website will be hosting the codesharing platform, supporting our students to easily study at our partner universities!

If you've got any further suggestions, don't hesitate contacting ercis-team@ercis.uni-muenster.de!



Register, and add your projects, publications, ideas, ...
Get in touch with each other!

Third ERCIS Launch Pad – IT Business Challenge on ‘Internet Business’

And the winner is...

3rd ERCIS Entrepreneurs Award “Launchpad” in Münster

The 3rd ERCIS Launchpad, a competition for young founders of a company, took place in Münster on the 27th of October 2010. This year, the topic of the Award was Home Automation and Integration, Smart Home as well as Apps and the Internet. The six competing teams, who had made it through the pre-selection, had 10 minutes to convince the jury, led by Prof. Dr. Gottfried Vossen, Prof. Dr. Stefan Stieglitz, and PD Dr. Axel Winkelmann, as well as the audience of their idea. All teams had introduced innovative and novel ideas and gave



The Winning team “Filee” and the Organizers of the Competition

Net @pp home

professional presentations on topics like “Green Online Places”, “Personal Document Management” or “Virtual 3D-show rooms”.

„The Launchpad is very important for us since we provide young dynamic founders with a stepping stone for further activities” says Dr. Winkelmann, one of the creators of the ERCIS Launchpad. Hence, alongside the competition, the organizers invited several speakers with practical experience to give the audience background information concerning the foundation of a company.

At the end, after a good deal of thought, the jury declared the winning team: Filee – a young team from Münster that engages in the digital administration of files and bills of

private persons. They received cash prizes and non-cash prizes, donated by regional companies, and are now equipped with a solid base for the further development of their idea.



The Winning Team “Filee”

A sound mind in a sound body

On the 10th of October 2010, two student assistants, four research assistants and two senior researchers from Münster made their way to Essen in the Ruhr region for a sportive Sunday activity.

They took advantage of the great sunny autumn weather and ran the relay marathon around the Baldeneylake. Each of the runners had to cover a distance of approximately 11 km and the routing led them twice around the lake. The team of four assistants from the chair of Professor Hellingrath finished their marathon in three hours and twenty-four minutes while the four assistants from the chair of Professor Becker took slightly longer (three hours and fifty-one minutes).

“Regarding the average age of the respective team members, the result is more than acceptable.” says Daniel Beverungen from team “Beckers Beste”, honouring the victorious team “Raketenlehrstuhl Logistik.”

After the run, they celebrated their performance and enjoyed the good weather and agreeable location at the lake.



Milan Karow from Team “Beckers Beste” after finishing his leg

URKUNDE 48. RWE MARATHON

Mit Allbau-Staffelmarathon
Rund um den Baldeneysee in Essen
10. Oktober 2010

Raketenlehrstuhl Logistik
Pfeiffer, Dominik (DEU)
Küppers, Peer (DEU)
Schaschek, Daniel (DEU)
Müller, Marc (DEU)

belegten mit der Marathon-Staffel Männer
in einer Zeit von 03:24:14
den 29. Platz in der Gesamtwertung

Stefan Losch
TUSEM Essen
Ulrich Gailjmayer (Präsident)

VORWEG GEHEN **Allbau**
Nein, Zahrad in Essen.

URKUNDE 48. RWE MARATHON

Mit Allbau-Staffelmarathon
Rund um den Baldeneysee in Essen
10. Oktober 2010

Beckers Beste
Stein, Armin (DEU)
Karow, Milan (DEU)
Bergener, Philipp (DEU)
Beverungen, Daniel (DEU)

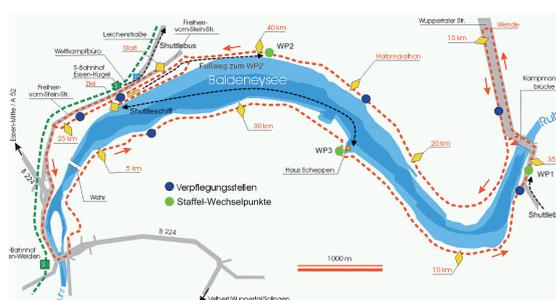
belegten mit der Marathon-Staffel Männer
in einer Zeit von 03:51:00
den 60. Platz in der Gesamtwertung

Stefan Losch
TUSEM Essen
Ulrich Gailjmayer (Präsident)

VORWEG GEHEN **Allbau**
Nein, Zahrad in Essen.



From left to right: Marc Müller, Dominik Pfeiffer, Peer Küppers, Daniel Schaschek, Milan Karow, Armin Stein, Philipp Bergener, and Daniel Beverungen

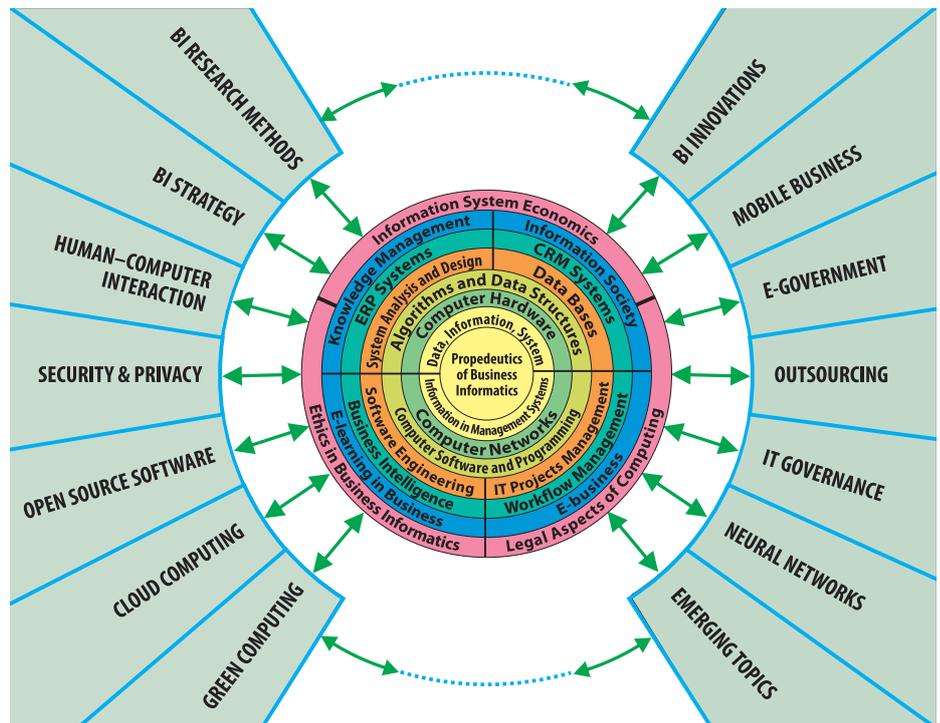


Polish Textbook on Business Informatics

ERCIS researchers cooperated on a handbook on business informatics, which was released by the Polish Economic Publishing House (PWE) in April 2010. Until then, a contemporary and comprehensive textbook on business informatics had been missing on the Polish market.

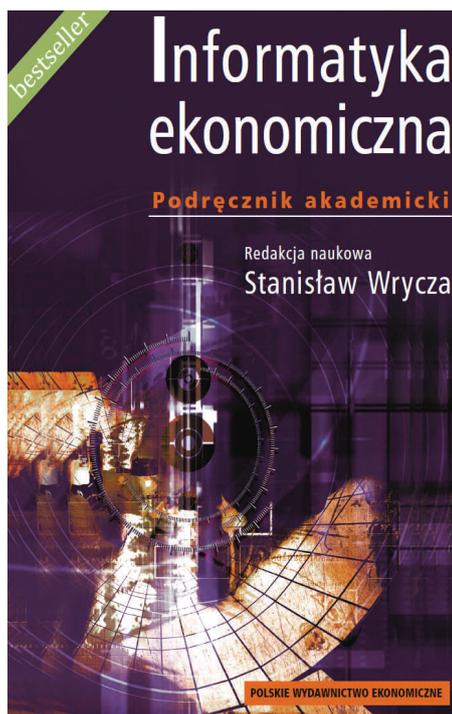
The book is intended to be used as a textbook in academic courses on business informatics, information systems, information technology etc. as well as to be a handbook for practitioners. It addresses a broad spectrum of topics related to business informatics such as information systems development, management information systems, and knowledge economy.

The new book was edited by Stanisław Wrycza, the associated member of ERCIS at the University of Gdansk, Poland. Stanisław invited Jörg Becker and Łukasz Lis to contribute by writing the introductory chapter on the propedeu-



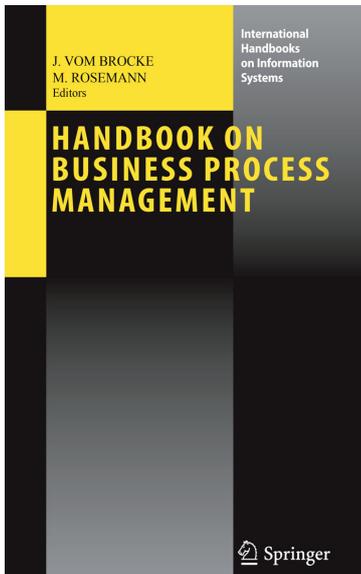
tics of business informatics. Thanks to Jörg's academic and professional expertise as well as Łukasz's linguistic skills, their chapter provides an insight into the domain of business informatics, its goals, methods, and challenges. For both of them, it was a pleasure to

support Stanisław and work on this important project. The authors hope that the new book will help to strengthen business informatics in Poland as an academic discipline and be a valuable textbook useful for both teaching and practice.



"I would like to emphasize that – having accepted to review the textbook on business informatics – I was very happy and satisfied to hear the news on its appearance. The lack of a modern and comprehensive academic textbook on business informatics on the Polish publishing market has been a serious gap. Despite of the complexity of its domain, the book is written in a clear and transparent way. The chapters are elaborated with much care for formal correctness. The book is likely to be a valuable position for both students and practitioners seeking for well-founded information on business informatics."

Prof. Dr. Mirosława Lasek, University of Warsaw



Handbook on Business Process Management

Business Process Management (BPM) has become one of the most widely appreciated approaches for the design of contemporary organizational and information systems. The explicit treatment of business processes as significant corporate assets has facilitated substantial improvements in the organizational performance but is also seen as an essential view for guaranteeing the conformance of corporate activities. While previous approaches such as Workflow Management, Lean Management or Six Sigma were concentrating on specific aspects of a process-centered management approach only, BPM is seen as the consolidation of these and further concepts. This book is a reflection of the comprehensiveness and maturity of BPM.

Objective and Scope of the Book

Springer's Handbook on Business Process Management presents a comprehensive picture of the contemporary state-of-the-art in BPM. It brings together global BPM thought leaders from both academia and practice, who have come together to describe and discuss the main components of BPM along the

factors strategic alignment, governance, methods, information technology, people and culture.

In each chapter, theoretical work is replenished with practical cases, demonstrating experiences of world leading companies.

This book incorporates a rich set of viewpoints, all contributing to the entire picture of BPM. Compiling this piece, we did not intend to force all contributions to go under one unique doctrine. On the contrary, we felt that it is rather the richness of approaches and viewpoints covered that makes this book a unique contribution. While keeping the original nature of the contributions, we provide support in navigating through the various chapters.

Testimonials

"This handbook represents the most comprehensive collection of material on BPM available and is a must for everyone working in the field or wanting to know how to implement BPM."

Rob Davis, IDS Scheer AG

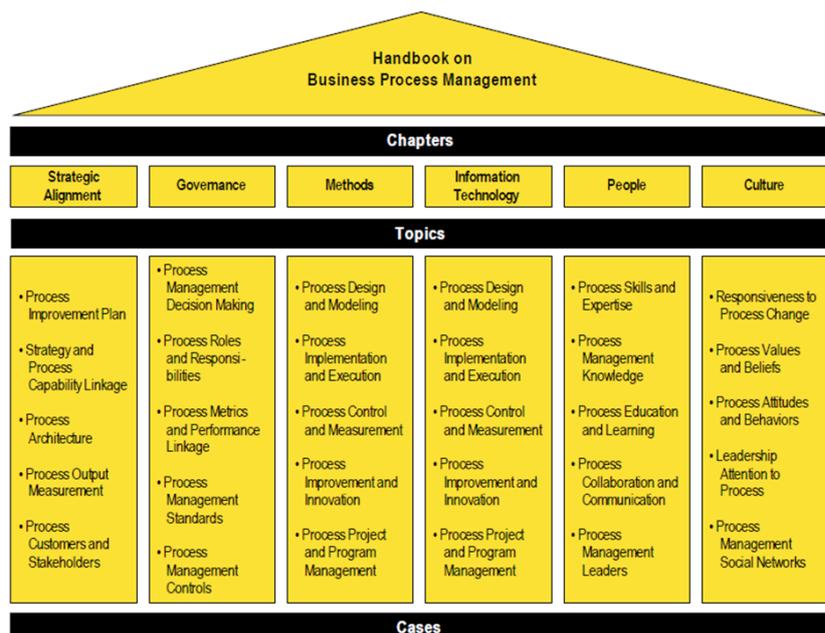
"The practice of Business Process Management has progressed significantly since Michael Hammer and I wrote the Reengineering book. This handbook presents the most complete description of the competencies required for BPM and exhaustively describes what we have learned about process management in the last 20 years."

Jim Champy, Perot Systems Corporation's

"The BPM handbook is instrumental for any business leader to innovate and optimize their companies' business processes. The holistic BPM approach outlined is furthermore an essential management discipline to successfully transform business models. It integrates perfect with the strategic alignment, governance, IT and people aspects which complete any companies' best-in-class approach for business transformation management."

Lars Gollenia, SAP Business Transformation Services

vom Brocke, J. & Rosemann, M. (Eds.) (2010). *Handbook on Business Process Management (Vol. 1 & 2)*. Berlin: Springer.





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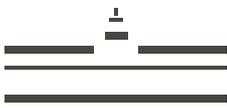
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What is the ERCIS?

The European Research Center for Information Systems is a research network that links world-class Information Systems departments (faculties, chairs) and industry partners from around the world with a focus on Europe. We use our combined expertise to promote interdisciplinary research that enables organizations to gain competitive advantages in quickly changing environments. Our goal is to continuously improve our position of excellence and to establish ourselves as pivotal point for European Information Systems research.





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Annual Report 2010
