



Preamble

Welcome to Business Information Systems 2003, the State of Colorado, and the University of Colorado in Colorado Springs (UCCS). I wish to thank all of you for bringing your curiosity and wealth of knowledge to share in this vigorous forum. The program committee has worked hard to encourage and develop a diversity of topics and venues to stimulate your participation. The main tracks and special sessions represent a breadth of interest from a number of traditional disciplines that blend together to form new and unique areas.

Our main tracks are all multidisciplinary. Technology transfer requires a comprehensive view of how technology and people interact in order to move products to the marketplace, transform society, promote economic development, or simply improve the competitive posture of an organization. Software engineering has technical aims, but employs science from business and psychology as well as engineering and computer science. Distance education requires an understanding of how we learn, as well as the technology that is best used to foster learning. These topics are of joint interest to researchers around the world, and to corporations applying information technologies.

Though this is the 6th occurrence of BIS, it is the first in the United States. The College of Business and Graduate School of Business Administration at UCCS is pleased to be the host of the 2003 Business Information Systems (BIS) Conference. The College's mission includes the creation and dissemination of knowledge, cultivation of strong partnerships, promotion of lifelong learning opportunities, collaborative work to promote the economic climate in the southern Colorado region, and an understanding of the college's expertise throughout the nation and the world.

Our primary sponsor for BIS2003 is the Colorado Institute of Technology Transfer and Implementation (CITTI). CITTI exists to promote an understanding of technology transfer, to promote economic development in the technology arena, and to support journals and conferences that serve to disseminate knowledge on technology transfer. CITTI does this in partnership with the El Pomar Foundation, many corporate friends, and through several outreach projects, including the publication of Comparative Technology Transfer and Society.

Among our other sponsors and supporters listed in this program is the Global Advisory Council of Colorado Springs. The City of Colorado Springs benefits from a healthy environment, a pleasant climate, glorious vistas, and an economy based heavily on technology and national security. It is our sincere hopes that you have the opportunity to enjoy some of what „the Springs” and Colorado have to offer in the way of recreation and entertainment.

Well, time to be off to share in the papers, panels, tutorials, and colleagues of BIS 2003.

Best,

Gary Klein

Ben Martz

Daedra Studniarz

BIS local organizing team

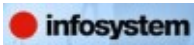
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Tracks

Technology Transfer

Technology transfer, as the term is commonly used, describes the process of moving high-tech innovations from laboratories to markets. Activities encompassed by the term include innovation and research; patents, licenses, and copyrights; product engineering; entrepreneurship (venture capital, start-ups, etc.); and manufacturing and marketing. But while technology transfer is all this, it also involves much more. Technology transfer encompasses at least three dimensions - the product, the people, and the institutions within which those people work and the products emerge and are adapted. "Product" spans the spectrum from concept through realization, dissemination and adoption. And it includes the "hard" technologies (things) as well as "soft" technologies such as information systems, industrial processes and management reforms. "People" includes the spectrum of human endeavor, ranging from engineers, designers, and scientists to managers, consultants, team members, entrepreneurs, and organizational employees. But the term also encompasses those individuals on the receiving end of transfers - often in nations outside the western cultures where most technologies emerge. One of our starting assumptions is that the people matter every bit as much, if not more, than the product. Attention to "Institutions" broadens the perspective to include not only the business corporations and universities where technology transfers originate, but also government entities at various levels, non-governmental organizations such as the World Bank or International Monetary Fund, and other groups, such as labor and social organizations that are involved in the process of moving or receiving technology.

Distance Education

Distance education is emerging as a significant web technology, sought by core educational institutes, organizational training, skill development centers as well as the diverse life-long learning communities of today. "Distance education" has become a major buzz word said to make education and training more efficient in business. Many distance education products have been developed and deployed, which focus on specific aspects of learning.

Employers put stronger and stronger impact on employee education. Corporations focus on enhancing employee effectiveness and lowering human costs. This situation creates a strong demand on improving existing distance education technologies. Researchers and practitioners from all over the world should communicate in order to provide answer to the increasing demand. By creating new and facilitating existing technologies, we can speed up the technological advance, not only in the field of distance education.

The Distance Education Track is an international forum which aims to facilitate the cooperation in the field of distance education both for academia and commercial purposes. The target is to help to exchange information and ideas on the research, planning, development and deployment of topics related to distance education.

The Distance Education Track is mainly a participatory event. This means that all attendees play important role, by presenting their own views, providing feedback, and exchange of their experiences.

Software Engineering

The software employed by an organization is directed at meeting objectives often tied to achievement of e-business strategies. Deployment of e-business in today's environment is crucial to success, whether as a provider or consumer of goods. Development of cutting edge software in an efficient and effective manner is the underpinning of this success. Success requires a much deeper understanding of the elements and practice of e-business, the engineering of appropriate software, and the integration of the two.

The objective of the Track on Software Engineering and e-business Engineering is to provide new ideas on delivering software engineering theory and methods into practice. We wish to provide useful, cutting-edge software development information to the community of those conducting e-business engineering so that they may keep abreast of rapidly changing requirements and development technology. We are interested in theory and practice that have potential impact on the construction and management of software.

Special sessions

Information Retrieval and Filtering

Nowadays, one of the most important and challenging problems in management information systems science is the proper choose of technologies which are effective in providing access to unstructured or weakly structured information resources. Along with the expansion effective technologies for finding relevant information are urgently needed. This special session will be focusing on effective solutions to the described problem.

The area of information retrieval is mainly concerned with modeling, designing and implementing systems that are able to provide access to vast information and knowledge resources. The main challenge of such systems is to estimate relevance of each knowledge or information item to user's needs. This is not a trivial task, and contemporary researches show, that there is still much to be done in this area. There are a lot of promising and challenging projects, which contribute to the area of information retrieval and filtering. We expect that papers presented during the IRaF special session will show both already successful solutions and new directions in developing information retrieval and filtering systems.

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Ontologies for Business Information Systems

Ontologies are developed to provide a machine-processable semantics of information that is exchanged between different agents, both humans and software. They started in the Philosophy, evolved in Artificial Intelligence but nowadays other research communities adopt them very quickly. Ontologies face strong expectations, especially in the business area: Knowledge Management and Electronic Commerce. Ontologies are heavily exploited by Semantic Web - a vision to link data on the Web in a way that it can be used by machines not just for display purposes, but for automation, integration and reuse of data across various applications.

There are a lot of interesting and promising projects that make use of ontologies. Many different standards emerge. Many groups develop own tools to facilitate use of languages. No one is able to track all activities. Often we are unsure, which proposal will become a standard, which solution is most widely used. It will be advantageous to compare different solutions, proposals, tools, services.

The goal of this special session is to share experiences about aforementioned systems, exchange ideas about improvements of existing standards and tools and creation of new systems, principles and applications.

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Yannis Zorgios, Applied Information Engineering, Croydon, UK

Panel sessions

Distance education

coordinated by Dr. Beate Baltes

Panel Discussion on Thursday, June 5, 2003 from 9 am until 11 am

The Significance of Virtual Communication in Distance Learning



Beate Baltes

Edward Ladon

Benjamin Martz

Venkateshwar
Reddy

Grzegorz
Waligorski

and Maria Ortega

With the exponentially increasing number of daily emails between students and professors and the growing use of virtual discussions in online courses, there is a distinct need to investigate how to structure and facilitate virtual communication. This interactive panel discussion will explore issues such as

- the importance and learning value of virtual communication for students and instructors,
- successful tools and techniques for generating effective discussion threads,
- successful facilitation of virtual communication,
- assessment of student learning through the threaded discussion.

General BIS

coordinated by Dr. Gary Klein

Panel Discussion on Wednesday, June 4, 2003 from 2 pm until 4 pm

Responsible Computing

Organizations thrive on employing information technology to achieve an edge over, or distinction from, competition. It is often easy to be caught-up in the latest trends to achieve these organizational goals. Successful organizations make sound fiscal decisions to achieve these goals employing technology that is on the leading edge without being needlessly risky. The panel is composed of representatives from different organizations that have been strategically successful in their development and/or marketing of technology. Their views on fiscal responsibility and technology will be shared.

Panel:

Arnie Greenfield - Vice President, Supplyworks
Scott McIntyre - CIO, Quantum Corp.

Arnie Greenfield is Vice President of Software Engineering at SupplyWorks, the leader in Supplier Relationship Management solutions. Arnie is responsible for managing SupplyWorks' product development activities as well as setting the company's technical direction. He has compiled an impressive record of delivering quality products on time and under budget with a number of leading software innovators. Arnie is a graduate of The Wharton School, University of Pennsylvania, where he received a Doctorate in Decision Sciences.

Scott McIntyre is VP/CIO of Quantum Corporation,(NYSE: DSS), a leading provider of data protection systems headquartered in Milpitas, CA. Dr. McIntyre holds a PhD in IT from the University of Arizona and was a faculty member at the University of Colorado. His career includes extensive Fortune 500 consulting, employment at MCI and other major firms.

Keynote Speakers



Valerie J. McNevin

Chief Information Security and Privacy Officer for the State of Colorado

The Global State of CyberSecurity

Description: Cybersecurity is viewed from the standpoint of the impact made on economic, technical and political agendas. In particular, the framework that is needed to create a safe and sound global cyber environment receives center attention.

Valerie J. McNevin, Esq., is a public policy and international legal consultant in electronic commerce. She is the Chief Information Security and Privacy Officer for the State of Colorado. She is an advisor to the U.S. Treasury International Technical Assistance Office and a consultant with the World Bank. She lectures, trains and consults with public, private and non-profit entities on critical thinking skills in architecting change in the telecommunications and financial services industries. She is a co-founder of the Center for Global Leadership in Trust, also known as the Center for Public Trust, headquartered in Colorado. A Fellow of the W. K. Kellogg Foundation, Ms. McNevin's research focuses on how technology impacts public trust in democracies and their financial systems. She has an LL.M. in European Community Law from the University of Leicester in Leicester, England, an LL.M. in International Banking Law from Boston University School of Law, Boston, Massachusetts, and a Diploma in Mainland Chinese Law from the University of East Asia in Macao. Her J.D. was obtained from Gonzaga School of Law in Spokane, Washington. She also holds a B.S. in Telecommunications.



Heinrich Mayr

Gesellschaft für Informatik, Germany

Will Information Systems ever be perfect?

O. Univ.Prof. Dr.Dr.h.c. Heinrich C. Mayr received his doctorate in applied mathematics from the University of Grenoble (France) in 1975. Between 1975 and 1983 he was an assistant professor at the University of Karlsruhe (Germany) and a lecturer and visiting professor at several other German universities in the domain of database technology and information sys-

tems. From 1984-1990 he was CEO of a German software company, responsible for the section 'Business Information Systems'. Since 1990 he is full professor of informatics at the Institute of Business Informatics and Application Systems at the University of Klagenfurt, Austria, and actually heads the eBusiness Institute, an Industry funded institution (www.biztec.org). He was the founding dean of the Faculty of Economics, Business Administration and Business Informatics at that University from 1994-2000. His current research includes information systems design methodologies, natural language processing in requirements analysis, knowledge management and case based reasoning in the context of service systems, software project management and distance education. He is a member of ACM, GI, IEEE, OCG and others. Currently he is the president of the Gesellschaft für Informatik (GI), a member of the board of the Austrian Computer society (OCG), chairman of the eBoard of the Austrian Ministry of Economic Affairs and Vice president of the Software Internet Cluster SIC, Carinthia.

Wednesday

Award session

10 am – University Center 302

Session Chairs: Witold Abramowicz & Gary Klein

K. Garg, R. B. Patel, Department of Electronics & Computer Engg., India

Providing Security and Robustness to Mobile Agents on Open Networks

The behavior of mobile agents is often prescribed by a set of tasks represented in an itinerary. The design and implementation of an itinerary can be a complex, time intensive task, particularly in mobile agent architectures, where resources and task execution occur in a distributed network. Further, an autonomous agent running on a host may suffer attacks, if the host is malicious. The attacks may be on the agent's static data, its collected information (dynamic data) and its itinerary. Hence itineraries must be made secure, in order to get secure agent behavior. In this paper, we report on the development of three protocols, which provide security and robustness to different kinds of agent itineraries. We also present a comparison of the performance of these protocols with some existing ones.

Joachim Schelp, Alexander Schwinn, University of St. Gallen, Switzerland

Data Integration Patterns

The application landscapes of major companies all have their own complex structure. Data has to be exchanged between or distributed to the various applications. In this paper different types of data integration are identified and categorized. Advantages and disadvantages as well as usage scenarios are discussed for each identified integration type. This paper also tries to answer the question "Where does redundancy make sense?", not "How to avoid redundancy?".

Jerzy Kisielnicki, The Warsaw University of Technology, Poland

The Impact of Information Technology (IT) on Economic Development of Small and Medium Size Enterprises (SMEs) in the Global Market

The paper is devoted to the subject the transformation of SMEs due the application of Information Technology (IT). These enterprises, despite their significant position in local economies, had limited possibilities while competing with large scale enterprises (LSE) on the global market. Consequently, their role more and more often was reduced to the role of satellites. The use of IT has allowed SMEs to transform into virtual organizations and in this form succeed in the global market.

The Author has focused on the analysis of the following problems: virtualisation as a direction of the development of SME, analysis of its strengths and weaknesses, and new opportunities and risks faced by virtual SMES. As a case study, the Author presents an example of small construction enterprise that, by using information technology and creating a virtual organization was able to defeat a large scale enterprise (LSE) in an international tender for construction of a hotel complex.

General BIS - Panel

2 pm – University Center 302

Panel Moderator: Gary Klein

Information Retrieval and Filtering (IRaF-1)

2 pm – University Center 303A

Session Chair: Jerzy Kisielnicki

Pavel Moravec, VSB Technical University, Jaroslav Pokorny, Department of Software Engineering, Vaclav Snasel, VSB Technical University, Czech Republic

Vector Query With Signature Filtering

In recent years, many approaches to filter documents before query evaluation were adopted for optimising query processing over a text data collection. We investigate a mixture of signatures and vector querying in our approach. We present a number of approaches of filtration before the vector query execution. We use the concept of weight-partitioned signature files and propose an efficient method for signature file traversal by S-trees. We verified experimentally that usage of S-trees leads to the decreased number of signature comparisons. The experiments have been done on real text collections.

Jörg Becker, Dominik Kuroпка, University of Münster, Germany

Topic-based Vector Space Model

This paper motivates and presents the Topic-based Vector Space Model (TVSM), a new vector-based approach for document comparison. The approach does not assume independence between terms and it is flexible regarding the specification of term-similarities. Stopword-list, stemming and thesaurus can be fully integrated into the model. This paper shows further how the TVSM can be fully implemented within the context of relational databases. This facilitates the use of this approach by generic applications. At the end short comparisons with other vector-based approaches namely the Vector Space Model (VSM) and the Generalized Vector Space Model (GVSM) are presented.

Jaroslav Pokorny, Department of Software Engineering, Czech Republic

Approximate Treatment of XML Collections

New-generation database systems need to deal with XML data collections. Matching of data collections is required during query processing and integrity constraint checking. Usual approaches through XML query languages do not well support these processes, since they require full match of XML structures and their contents. We discuss possibilities of approximate XML data matching, which can be applied to join and semijoin operations over XML data collections on the data level. Then we study logical relationships between such collections. Six different approaches to XML-referential integrity are analyzed. We focus on a novel approach based on usage views on XML data in detail. The notion of view-based XML-referential integrity is defined and

applied in the environment of XML data warehouses. It enables XML collections to be joined on the schema level. Finally, we define XML-dimension hierarchies that are a core structure for native XML data warehouses based on an XML-star schema.

Wojciech Cellary, Willy Picard, The Poznań University of Economics, Poland

Knowledge Extraction in Mass e-Negotiations

In the context of economy globalization, the need for globally distributed negotiations involving a high number of negotiators communicating through the Internet becomes an important business issue. In such negotiations, the amount of information describing the negotiation process is too high to be easily understood by humans. In this paper, a negotiation support model adapted to mass e-negotiations is presented. The proposed model consists of a multi-facet analysis mechanism which provides synthesized views of the negotiation process, allowing to extract knowledge concerning various aspects of the negotiation process.

General BIS (GB-1)

4 pm – University Center 302

Session Chair: Debbie Tesch

Johnson Kinyua, Deshendran Moodley, University of Natal Durban, South Africa

A Multi-agent System for Electronic Job Markets

The electronic job market provides an online environment within which job seekers and employers interact. A problem in the job market is the difficulty for job seekers to locate all suitable job openings and for employers to locate job seekers that match their needs. Online job sites have addressed this issue to some extent, though they have a number of limitations. We outline some deficiencies in the electronic job market and propose a multi-agent system to address these deficiencies. We focus on the semantic matching mechanism, based on a shared ontology for the job market domain and the service discovery aspect that allows job seekers and employers to easily locate each other. The general design of the multi-agent system and an implementation using the Java Agent Development Framework (JADE) is described. The agents within our system communicate using FIPA ACL.

K. Garg, R. B. Patel, Department of Electronics & Computer Engg., India

A Security Framework for Mobile Agent Systems

Mobile Agent technology raises significant security concerns and requires a thorough security framework, with a wide range of strategies and mechanisms for the protection of both agents and agent platforms against possibly malicious reciprocal behavior. The security infrastructure should have the ability to flexibly and dynamically offer different solutions, to achieve different qualities of security service depending on application requirements. There are several security attacks, which have been identified by researchers. These are mainly from host to host, from agent to host, from host to agent and from agent to agent. In this paper, we report on the analysis of security risks existing in mobile agent systems, based on which we have defined security measures for both safe transport and safe execution of agents. Cryptographic tools are used to generate sealed objects with digital signatures to ensure the safe transport of agents

between hosts. Three levels of security have been developed for safe execution of concurrent agents depending on the need of the application. While most earlier work has reported on host protection, we have addressed host to host and agent to host security also and developed a common security framework usable on any mobile agent system. For implementation purposes, however, we have used PMADE, the mobile agent system developed of IIT Roorkee.

Arturo Concepcion, Chunyan Ma, California State University San Bernardino, USA

A Probabilistic Security Model for Multi-Agent Distributed Systems

In this paper, we propose a probabilistic model for evaluating the security of multi-agent distributed systems. This approach uses the privilege graph to model the system's vulnerabilities. Based on the analysis of the security threats faced by the agents and the hosts, we can calculate the characteristic measure of the system security - Mean Effort To Failure (METF). We also provide a set of theories for analyzing the security and simplifying the generated privilege graph.

Antonio Boccalatte, Ernesto Montaldo, Roberto Sacile, University of Genova, Italy

A Decision Support System for Customer Relationship Management Strategies: an agent-based negotiation approach

In the last few years new computer-based applications have been increased in complexity, and one of the main efforts is the research of computational systems that are able to work autonomously in distributed and dynamic environments. Software agents can be included in this research area, and because their features they are applied in several fields also including e-business applications. Among the activities of an enterprise there is the necessity to customize products and information in relation to the different needs of the customers. Customer Relationship Management is used to tackle this kind of problem. The proposed approach concern with the need of an enterprise to evaluate and rank several customers in relation to the behavior that they have toward the enterprise, delegating autonomous self-motivated agents, which are able to negotiate to each other, to manage customers' information in order to mediate between customer and enterprise requirements.

Information Retrieval and Filtering (IRaF-2)

4 pm – University Center 303A

Session Chair: Jerzy Kisielnicki

Czesław Daniłowicz, Huy Cuong Nguyen, Ngoc Thanh Nguyen, The Wrocław University of Technology, Poland

User Modeling in Intelligent Information Retrieval Systems

One of the main issues in the field of modern information retrieval is to personalize the systems to satisfy the information needs of individual users. An intelligent system should store information about user interests and utilize this information to deliver to the user documents he really needs. In such a system the information needs of a user should be represented by means of so called user profile. User profiles, on the other

hand, should be used together with queries to sort retrieved information in such order that is adequate to user preferences. In this paper a vector-based information system model is presented, in which the user information needs and preferences (profiles) are defined and the methods for updating user profiles and automatic learning about user preferences are worked out.

Tomasz Kaczmarek, Marek Kowalkiewicz, The Poznań University of Economics, Poland

Document structure discovery

A variety of methods exists to construct documents using markup languages. These methods are based on markup templates that are filled with information. We argue that information retrieval may benefit from knowledge about these structures. It is possible to retrieve specific information assuming that it is embedded in a known template. This paper describes a tool for extracting text structure (templates) from documents written in any markup language. The tool utilizes automata theory and can be part of a larger information retrieval system.

Thursday

Ontologies

9 am – University Center 303A

Session Chair: Krzysztof Węcel

Joao Rocha, Nuno Silva, Instituto Superior de Engenharia do Porto, Portugal

MAFRA – An Ontology Mapping FRAMework for the Semantic Web

Ontology mapping intends to define how data specified according to an ontology (source ontology) may be transformed into data specified according to another ontology (target ontology). MAFRA framework aims to cover all phases of the ontology mapping process, including discovery of similarities between elements in ontologies and selection and specification of required transformations. MAFRA implementation adopts a mapping declarative strategy in the sense that no procedural implementation is required. Its implementation adopts an open architecture in order to maximize and answer Semantic Web requirements.

MAFRA is being developed in the context of KAON and is being applied in the European project Harmonise, which aims to provide solutions for (semi-) automatic interoperability between major operators in tourism e-business.

Pekka Isto, Jarmo Korhonen, Helsinki University of Technology, Finland

Practical Experiences in Developing Ontology-Based Multi-Agent System

We have developed a prototype software system which uses software agents, an ontology and a pre-existing database from other software. This paper presents the system, and experiences in developing it. The main purpose was to find how to develop an ontology-based system in a real-world like case where the new software has to co-exist with existing software and database.

Takuya Nishimura, Massimo Paolucci, Naveen Srinivasan, Katia Sycara, Carnegie Mellon University, USA

Toward a Semantic Web e-commerce

The Web is moving from being a collection of pages toward a collection of services that interoperate through the Internet. In this paper we show how ontological information improves on the growing Web services infrastructure by adding capability matching and a high degree of autonomy to web services so that they can automatically adapt to changing situations.

Software Engineering

9 am – University Center 302

Session Chair: Peggy Beranek

Panos Kardasis, Deloitte & Touche Consulting, Peri Loucopoulos, Department of Computation, UMIST, Greece

Managing Business Rules during the Requirements Engineering Process in Rule-Intensive IT Projects

The enhanced role of Business Information Systems in the functioning of contemporary organisations has highlighted the need for appropriate techniques for the efficient elicitation, reconciliation and operationalisation of business rules during the lifetime of IT projects. Given the multifarious nature of business rules and the difficulties in gaining a deep understanding of them in the context of potential conflicts, overlaps and inconsistencies in the views of multiple stakeholders, the paper argues that there is a need for a systematic way of managing such rules during the requirements engineering process. To this end, the paper presents a road map with the aim to identifying the business goals and their context, relating the business goals to business processes, relating them to different stakeholders and implementing them in either information systems concepts or business procedures. In the discussion of the details of the road map the paper makes use of examples from an industrial case study involving inter-organisational business process integration.

Arkadiusz Januszewski, University of Technology and Agriculture, Poland

The model and tools for creating a Decision Support System with the application of Activity Based Costing (ABC-DSS)

The article presents Activity Based Costing (ABC) and Activity Based Management (ABM) and software for supporting these methods. General model and action of Decision Support System with the application of Activity Based Costing (ABC-DSS) were presented. Various possibilities for using information technology supporting ABC/AM method were discussed: from using spreadsheets, through modules of ERP systems, stand alone ABC specialised packages to full integrated solutions including also OLAP tools.

Tom Daggett, Margie Price, Tom Rando, Electric Boat, Inc., General Dynamics, S. A. Demurjian Sr., The University of Connecticut, Donald M. Needham, Computer Science Dept., US Naval Academy, USA

Analyzing the Reusability of XML Components

Developing reusable components in an objected-oriented system typically centers on identifying and evaluating couplings between data abstractions such the data members and member functions of Java or C++ classes, and then, if possible, refactoring the design to remove coupling that negatively impacts reuse. Likewise, designing reusable XML components requires an understanding of the role of the XML Schema Language in defining the structure of documents, as well as the dependencies introduced by various design approaches. This paper examines the issue of reusability regarding XML documents, and focuses on schema design decisions that impact reuse with a focus on reusability within the shipbuilding domain. We explore three

different schema design techniques, with a focus on reusability and extensibility. We present empirical results based upon ongoing XML schema development at the Electric Boat, Inc., and discuss schema design guidelines for developing reusable XML components.

Distance Education - Panel

1 pm – University Center 302

Panel Moderator: Beate Baltes

Benjamin Martz, Jr., Venkateshwar K. Reddy, Karen Sangermano, The University of Colorado, Colorado Springs, USA

Factors Affecting Satisfaction with Distance MBA

The purpose of this research is to identify key components of distance education satisfaction. The distance education environment is an expanding market driven by several market forces. A working list of potential variables for satisfaction can be developed from the previous research done to compare the traditional to the distance education environments. A questionnaire was developed using these variables and administered to 341 distance students in a successful, top twenty-six, MBA, distance education program. The results of the questionnaire are factored into five constructs that ultimately correlate well with the satisfaction ratings of the subjects. Using these factors as guidance, some operational and administrative implications of those findings are discussed.

Benjamin Martz, Jr., The University of Colorado, Colorado Springs, Morgan M. Shepherd, USA

Lower Perceived Performance in Internet Testing

This paper provides the results of a comparison between two sections of a graduate programming class, where one was an on-campus class and the other a distance class. The course content, instructor, syllabus, lecture materials, notes, assessments and semester (time of year) were the same. Both groups were surveyed to test their satisfaction with the testing procedure and with their perception of certain aspects of the social environment. The results showed differences in perceived test performance. Two conjectures about possible causes underlying the difference and suggestions for possible future research end the discussion.

Technology Transfer (TT-1)

1 pm – University Center 303A

Session Chair: Jaroslav Pokorny

Thomas Hanke, Markus Stallkamp, University of Duisburg-Essen, Germany

Knowledge Sharing: Identifying the Best Practice by Benchmarking

This paper shows how researchers and practitioners in the field of applied knowledge management can use a reference process model to identify best practice for knowledge sharing. The described process model is based on a well proved benchmarking process model: the Xerox-Method developed by Camp. Users can identify the best practice in knowledge sharing following the process step by step, thus, their knowledge management is based on facts.

Tomasz Jakubowski, Krzysztof Węcel, Wojciech Zalech, The Poznań University of Economics, Poland

Knowledge Supply Chain Management to Support Technology Transfer

In this paper we present the solution to enable and support the transfer of technology from universities to industry. This transfer bases on knowledge, so we propose the Knowledge Supply Chain Management (KSCM) that is modeled accordingly to Supply Chain Management. The main purpose of this paper is to explore the possibilities of Supply Chain Operations Reference-model (SCOR), the well known standard from Supply Chain Management, to model the knowledge chain. We analyze the processes in SCOR in order to create mappings between SCOR and KSCM. This analysis is conducted in the context of tools, which we propose to implement KSCM.

Karen Newell, University of Colorado in Colorado Springs, Marion Sobol, Cox School of Business, USA

Barriers to the Diffusion of Technology from the University to Industry

"The physicist, who having completed a research no matter how attenuated, on reaching the street can not explain his findings and its usefulness to the first man he meets, should return to the laboratory - his research is not complete." [Lord Kelvin, 1824-1907]

Distance Education (DE-1)

3 pm – University Center 302

Session Chair: Benjamin Martz

Svenja Hagenhoff, University of Göttingen, Michaela Knust, Institute of Information Systems, Germany

Changing our Educational Institutions to Meet the Needs of the Future: Benefits of Education Networks

Discussions about virtual universities, teleteaching or internet-based learning usually concentrate on pedagogical or technical topics. Ideas and concepts about management, organization or profitability of internet-based co-operations between universi-

ties are missing. This is remarkable due to the ongoing discussion about the efficiency of universities especially in Germany. This paper gives an example of an inter-university education network and presents the expected effects of co-operational activities. Furthermore, it deals with some open questions regarding this subject.

Yair Levy, Florida International University, Michelle Ramim, MIS Consultant, USA

Building Successful Self-Funding Online Learning Program: Think Big... Start Small... and Build Fast...

The great Greek philosopher Aristotle wrote that "learning is the outcome of both teaching and practice". Clearly, learning is not confined to classroom lectures exclusively. In the past several decades educators explore the possibilities of providing learning experience to remote students. With improvement in technology and the growing popularity of Internet use, online learning caught the attention of both corporations and educational institutions. In this paper, we will discuss the two common approaches higher education institutions pursue when implementing online learning programs and provide rational for their success or failure. Following, we will propose, define, and categorize a set of eight key elements of a successful online learning program implementation in an era of decreased funding. A case study about development of successful self-funding online learning program in the college of business administration at a state university in the Southeast US is presented followed by a summary and discussion.

Kathryn A. Marold, Metropolitan State College of Denver, USA

Early Identification of Online Students at Risk: A Qualitative Analysis of a Pilot Study Aimed at Improving Attrition Rates in Web-Delivered Programming Courses

Web-delivered courses for information systems programming requirements are well-established at most institutions. It is well-documented that attrition and failure rates in these courses are higher than their classroom counterparts. Web-delivered courses in general have a higher attrition rate than classroom courses, and upper level, analytical problem solving courses such as programming and statistics courses sometimes reach fifty per cent or more. This is an account of an exploratory pilot study aimed at early identification of those students more likely to drop or fail a required Visual Basic programming course. The objective was to initiate some individual early intervention. A brief questionnaire that students complete the first week of class aims to assess self-efficacy, locus of control, and resultant risk level of students. Based on the results of attempts at early intervention for one class for one semester, the risk assessment instrument was administered in five classes in the Spring, '03 semester in the Computer Information Systems Department at Metropolitan State College of Denver.

Svenja Hagenhoff, Oliver Kamin, University of Göttingen, Germany

Considerations for the Conceptual Design of modular Web Based Teaching and Learning Environments - Avoiding existing Deficits of E-Learning

This article can be assigned to the topics new and innovative educational paradigms and learning models, innovative modes of teaching and learning based on technological capabilities and strengths and weaknesses of technologies as effective

teaching tools. It covers the construction of e-learning materials using a modular design approach in order to meet the technical and didactical requirements for the optimum operation of distance learning scenarios. The substantial deficits of conventional e-learning materials will be addressed.

After the introduction, section 2 gives an overview of the requirements the supplier thinks necessary to develop high quality and state-of-the-art e-learning materials. In the following, the customer's needs with regard to the e-learning materials will be addressed. Accommodating both parties and securing high quality requires a high flexibility for configuration of the learning environment. This is achieved by the modular construction of the product. We introduce the respective concept based on modular structures in section 3. Section 4 focuses on content-related design of study modules with the support of an example taken from the education network Winfoline. The last section summarizes the main insights and critically examines them.

Technology Transfer (TT-2)

3 pm – University Center 303A

Session Chair: Jaroslav Pokorny

Janos Fustos, Metropolitan State College, Susan Helms, Metropolitan State College of Denver, USA

Linux – Teaching Real Technology with True Transfer Capabilities

Microsoft's dominance in the PC operating system market has resulted in increasing control of the PC-based software market, especially in business and general non-technical areas. Linux has shown itself to be a viable minor competitor in some sectors of this market. This paper presents the idea that instruction in and use of the Linux operating system in computer information systems (CIS) curricula is both entirely appropriate in light of the emerging importance of Linux in the business world, and a positive move to support technology transfer.

Huinan Xu, University of Surrey, United Kingdom

A Composite Model of Semantic Grid Services Provisioning

With the rise in the availability of scalable network technologies and resources, Service Providers of all kinds (xSPs) are given possibilities to deliver services through Internet in order for all stakeholders to conduct collaborative online e-business. New trend of e-business features increased interoperability among corporations and individuals in highly dynamic homogeneous and heterogeneous computing environments and therefore, the needs to streamline the e-business activities, decrease costs, increase productivity, and service new revenue opportunities will all demand xSPs to considerably re-define and re-design their applications integration strategy and integration solution. To reach this new paradigm, technologies notably Grid Computing, Semantic Web and the composition of these two, namely Semantic Grid as building blocks for the alternative integration approach are considered by both business practitioners and academia. This paper reveals the great potential of Semantic Grid Web Services in cross-organizational Application Integration practice. Integration Service Providers will also be able to maintain their competing advantages by employing Composite Semantic Grid which initiated as a result for e-science collaboration, now is used to serve business computing market. This paper also leads to a new vision of

Internet Application Integration that imposes extended implication on current understanding of EAI and B2BI, through the presentation of a novel integration model.

John Grosskopf, ISO Network, John Milliman, University of Colorado at Colorado Springs, USA

An Assessment on the Exchange of New Technology Between Environmental Agencies and Business with the Pronoia Technology Transfer Framework

Recently a new paradigm has emerged in the U.S. and many other countries which calls for a more collaborative approach between industry and government, such as the use of environmental management systems (EMSs) in supplement environmental projects (SEPs). EMSs are seen as a promising new way to achieve higher corporate environmental performance. However, it has been difficult for many companies and regulatory agencies to work out mutually beneficial SEP agreements. In this paper we assess the ability of business and environmental agencies to successfully negotiate the use of EMSs in SEP agreements with the pronoia framework of technology transfer. The interview data from business and governmental managers indicates that all 3 dimensions of the pronoia framework are useful in predicting the ability of the two parties to achieve SEP agreements. Implications for research and practice are presented, including the need to recognize the greater challenges involved in technology transfer in regulated industries.

Friday

General BIS (GB-2)

8 am – University Center 302

Session Chair: Lew Ireland

Minor Gordon, Marcin Paprzycki, Steve Williams, Jimmy Wright, Oklahoma State University, Patrick Harrington, Northeastern State University, USA

Using the ebXML Registry Repository to Manage Information in an Internet Travel Support System

An Internet-based travel support system requires an efficient means of managing travel-related information both inside and outside the confines of the system, in order to present the most accurate and relevant travel choices to the end user. In this note, we describe a configuration for achieving this goal by employing an ebXML Registry/Repository system for cataloguing travel information from the Internet.

Lewis R. Ireland, Omega Group, Gary Klein, The University of Colorado at Colorado Springs, Debbie Tesch, Xavier University, USA

IS/IT Project Management: Recent Practitioner And Academic Experience

The Information Systems/Information Technology industry is challenged to improve its ability to conceptualize, design, develop, and field systems that meet customer requirements. Project management is the method of choice to bring forth solutions that work while meeting customer needs. An IS/IT annotated bibliography and survey of project management practitioners confirms that improvements are needed in the management of IS/IT projects.

Andrzej Barczak, Jacek Florek, University of Podlasie, Poland

Information technologies and the process of transformation of an organization's management

The paper presents basic problems that appear in the process of adapting an enterprise to operate under market competition in terms of IT use. Attention is called to the role of IT in the building of an organization's strategic position and its use in a 5-phase enterprise's transformation model, beginning with the use of single applications ending with changes in the work scope (network organization) of the corporation. These problems are grouped around the most significant areas, from the point of view of a successful IT enterprise, concerning the creation of the computerization strategy, as well as organizational and integration aspects.

Student Session I

8 am – University Center 303A

Session Chair: Benjamin Martz

María Agustina Cibrán, Maja D'Hondt, Viviane Jonckers, Vrije Universiteit Brussel, Belgium

Aspect-Oriented Programming for Connecting Business Rules

In object-oriented business support applications, separating business rules from core application functionality is crucial. Essential to business rules are their connectors to the core application, which existing approaches fail to support explicitly. Our paper presents requirements for encapsulating business rule connectors and shows that Aspect-Oriented Programming is necessary to fulfil them. All is illustrated with a small e-commerce example in Java™ and AspectJ.

Subhas Chandra Misra, Carleton University, Canada

Tips On Software Quality Management

It is cost-effective for software practitioners to monitor and control quality of software from the early phases of development. The paper presents the results of a study aimed at investigating the design and coding factors that affect quality of final products, so that by monitoring those factors from the early stages of development, one can have a final product of enhanced quality and reduced costs.

Andrzej Bassara, Agata Filipowska, Marek Wiśniewski, The Poznań University of Economics, Poland

eVEREst: The Document Library as the Information Store for the Purposes of the Real Estates' Assessment

eVEREst (enhanced value estimation of real estates) is a project whose aim is to support the governmental process of evaluating the real estates with additional information retrieved from external sources.

Tomasz Kaczmarek, Marek Kowalkiewicz, The Poznań University of Economics, Poland

Price Assessment in Electronic Knowledge Marketplaces

The article discusses implementation of electronic marketplace for exchanging knowledge within organizations and beyond. First, knowledge management systems (KMS) types are presented. Then the article describes extension of KMS to knowledge e-marketplace. Knowledge asset pricing model is proposed, based on the division of knowledge assets to digital documents, expert advices and expert arrangements. The measures to be taken to enable knowledge asset trading within and beyond organizations are also pointed out.

General BIS (GB-3)

10 am – University Center 302

Session Chair: Lew Ireland

Ellen Goldenok, Krasnoyarsk Institute for Trade and Economics, Russia

Statistical Interdependence of Random Events Generates a Ranging Its Probabilities in Conjoint Analysis*Eventological analysis of conjoint analysis is considered. The key of conjoint analysis is a ranging of market features of product and its configurations in decreasing order of the utilities. Utilities can be connected with probabilities of corresponding events. The paper studies a connection between an order of probabilities of events and a structure of its statistical interdependences.*

Anne Honkaranta, Virpi Lyytikäinen, University of Jyväskylä, Finland

Operationalizing a Genre-based Method for Content Analysis: A Case of a Church*In the paper a genre-based, participatory method for content analysis is described. The method was elaborated in the case study conducted for a church where analysis of content units within a set of genres was needed. The experiences imply that the genre-based method could be applied for scrutinizing the content within small and medium sized enterprises. Benefits of the method include user participation techniques, and the use of genre theory. The theory allows the study of the content without using technological jargon or without focusing on existing technologies.***Student Session II**

10 am – University Center 303A

Session Chair: Benjamin Martz

Jakub Rozwadowski, The Poznan University of Economics, Poland

Uniform, Internal Knowledge Source for Mobile Information Filtering System*This paper describes our vision of Mobile Information Filtering system. Mobile Information Filtering system is designed to support mobile users with their access to information. The system exploits concept of context and context-awareness and takes into account the current situation the user is in. This paper sketches also our internal knowledge source architecture proposal. We have also mentioned some difficulties and challenges connected with information filtering and retrieval in highly dynamic mobile environments.*

Krzysztof Banaskiewicz, The Poznań University of Economics, Poland

The Ontology Enhancing Mobile Information Filtering*The amount of Web information sources and mobile devices gain more and more importance. The mobile information filtering may be supported by semantics bringing*

by ontology technology. That will help overcome all of the bottlenecks of traditional information retrieval. In this paper, I present the idea of using the domain ontology for the purposes of mobileIF System.

Dariusz Rutkowski, The Poznań University of Economics, Poland

Internet Sources Categorization According to an Enterprise Mission – A System Proposal

Information overload becomes a challenge in business decision processes. In this paper a system is presented that takes advantage of text categorization. Its main goal is to provide an enterprise with information relevant to conducted business activities. The paper describes system architecture and how it adapts to changing enterprise and its environment. At the end system applications are proposed.

Karol Wieloch, The Poznań University of Economics, Poland

Concepts of General Architecture for Knowledge Exchange

This article is an early work in progress paper. It outlines major assumptions for a system whose goal is to integrate existing document repositories with extendible and heavily structured knowledge pools. Proposed solution to problems stated in knowledge management and e-learning literature is based on a topic map technology and results in field of document engineering.

Tutorials



Dr. Morgan Shepherd

The University of Colorado, Colorado Springs, USA
Group Systems

Morgan Shepherd is an Associate Professor of Information Systems at the University of Colorado at Colorado Springs. His research focuses on improving the performance of distributed groups. His teaching interests are in telecommunications, decision support for virtual teams, and e-commerce. Morgan helped develop the distance MBA program at the University of Colorado, and teaches several sections each year. He received his B.S. in Mechanical Engineering from the University of Virginia and his Ph.D. in MIS from the University of Arizona. He worked for ten years in industry prior to returning for his Ph.D., spending most of that time with IBM as a staff level network engineer.

The tutorial begins with an introduction to meetings, problems with meetings, various meeting processes, and techniques for holding better meetings. Group Systems - a University of Arizona and IBM software partnership is demonstrated and employed for the remainder of the tutorial. The tutorial will include a hands-on use of the tools. The tutorial will be broken into the tools that are used to gather data, the tools that are used to consolidate data, the tools that are used to vote, decide and reach consensus, and the tools that are used to disseminate the results. Differences in the structures of central and distributed meetings will be stressed.



Dr. Willy Picard

The Poznań University of Economics, Poznań, Poland
e-Negotiations of Contracts

Willy Picard received the M.Sc. and Ph.D. from the E.N.S.T Telecom-Paris, in 1998 and 2002, respectively. Since 1998 he has been with the Poznań University of Economics, working in the Department of Information Technology, where he participated in several research projects, such as the ESPRIT project COSMOS, or the 5FP project PISTE. His research interests concern human negotiation support, analysis of multiversion datasets, negotiating agents, use of ontologies in negotiation processes, distributed and heterogeneous databases for e-commerce applications, and XML databases. He studied in details the case of mass e-negotiations in which the number of negotiators is high (>50) of complex contracts. He present-

ted techniques for mass negotiations of multi-items, multi-attributes both qualitative and quantitative contracts.

This tutorial is focusing on technical approaches to e-negotiations of contracts. The aim of this tutorial is to introduce participants to the technologies associated with e-negotiations of contracts as well as provide a brief overview of key research issues in this new and fast growing area. In the era of delocalization and globalization of economy, companies need to negotiate at a global scale. The high costs related to face-to-face meetings can be reduced by the use of the Internet as a communication medium. New tools are, however, needed to allow contractors, both from multinational enterprises and from SMEs, to negotiate efficiently in this highly concurrent environment that Internet is.