



**e-Business Research Forum  
eBRF 2002**

ABSTRACTS

*November 14-16, 2002  
Tampere, Finland*

**November 14-16, 2002 Tampere, Finland**

**Abstract Review Board**

Professor Anne-Mari Järvelin, University of Tampere  
Chairman of eBRF 2002

Doctor Marko Seppä, Co-Chair of eBRF 2002, Tampere University of Technology  
Professor Mika Hannula, Co-Chair of eBRF 2002, Abstract Review Board Chairman,  
Tampere University of Technology

Professor Klaus Brunnstein, University of Hamburg  
Professor Reiner Creutzburg, Brandenburg University of Applied Sciences  
Professor Richard Harrison, University of Edinburgh  
Professor Risto Nuolimaa, University of Tampere  
Professor Juha Näsi, Tampere University of Technology  
Professor Arun Pillutla, St. Ambrose University  
Professor Mikko Ruohonen, University of Tampere  
Professor Veikko Seppänen, University of Oulu  
Professor Tore Strandvik, Swedish School of Economics and Business Administration  
Doctor Ram Tarneja, Bombay School of Business  
Professor Erkki Uusi-Rauva, Tampere University of Technology

## Program Schedule

### FRIDAY, November 15th, 09:00AM - 09:15AM

Opening Remarks: Professor Anne-Mari Järvelin, *University of Tampere*

### FRIDAY, November 15th, 09:15AM - 10:45AM

#### SESSION: Efficiency 1

EBXML REGISTRY/REPOSITORY IMPLEMENTATION IN AGRI-FOOD INDUSTRY

Michal Zaremba, Brian Wall, Jimmie Browne, *CIMRU, National University of Ireland, Galway, Ireland*.....6

E-PROCUREMENT IN SME - STRATEGY - PRAXIS - TRENDS

Alexander Stendal, *Thales Information Systems GmbH, Germany*.....7

CONVERTING BUSINESS STRATEGY INTO A USER REQUIREMENTS DEFINITION FOR AN E-BUSINESS IMPLEMENTATION IN A SMALL MEDIUM ENTERPRISE

Brian Wall, Michal Zaremba, *National University of Ireland, Galway, Ireland*; Hui Shen, *Tsinghua University, Beijing, China*; Jim Browne, *National University of Ireland, Galway, Ireland*; Yuliu Chen, *Tsinghua University, Beijing, China* .....8

#### SESSION: Engagement 1

THE CONTRIBUTION OF ROSETTANET E-BUSINESS STANDARD

Mika Hannula, Tuomas Vasama, *Tampere University of Technology, Finland* .....9

INTERNET BASED TECHNOLOGIES (IBTS) INTEGRATION IN B2B MODELS – THE IMPACT ON COMPETITIVE ADVANTAGE OF FIRMS

Rui Patrício, *Universidade do Porto, Portugal* .....10

SUPPLY REORGANISATION APPLYING E-BUSINESS PRACTICE: THE CASE OF POWER INDUSTRY IN POLAND.

Maria Nowicka-Skowron, Iwona Otola, *Technical University of Czêstochowa, Poland*.....11

#### SESSION: Entrepreneurship 1

TOWARDS AN E-BUSINESS DESIGN FRAMEWORK

Sébastien Caisse, Benoit Montreuil, *Université Laval, Canada* .....12

GAINING STRATEGIC ADVANTAGE THROUGH EBUSINESS FOR INSURANCE COMPANIES

Aki Ahonen, Raija Järvinen, *University of Tampere, Finland* .....13

ELECTRONIC CONSUMER FOCUSED AUCTIONS IN FINLAND - WHY SUPPLY AND DEMAND DO NOT MEET

Jussi Puhakainen, *Turku School of Economics and Business Administration, Finland*; Virpi Kristiina Tuunainen, Matti Rossi, *Helsinki School of Economics, Finland*.....14

#### SESSION: Ethics 1

ON QUANTIFYING THE IMPACT OF ICT IN CREATION OF THE "NEW ECONOMY"

Arun Saxena, *The Bombay School of Business, India*.....15

A COMPANY'S RISK PERCEPTIONS IN E-COMMERCE – CASE HIGH-TECH WHOLESALER

Tuula Mittilä, Jaakko Leinonen, *University of Tampere, Finland* .....16

EXPLORING THE TACIT DIMENSION: TOWARDS COLLABORATIVE WORKING AT CONSIGNIA SECURITY

Mikko Arevuo, *Delta Strategies, United Kingdom*; John Spong, *Consignia Security and Investigation Services, United Kingdom* .....17

**FRIDAY, November 15th, 10:45AM - 11:30AM**

**SESSION: Poster Presentations**

HOW SMS ACCELERATES THE INTERACTIVE TV BUSINESS Seppo Kalli, Jens Spieker, <i>Tampere University of Technology, Finland</i> .....	18
COLLABORATION IN THE VIRTUAL ENTERPRISE Reiner Breite, Hannu Vanharanta, <i>Tampere University of Technology/ Pori, Finland</i> .....	19
FROM IT OUTSOURCING TOWARDS PARTNERSHIP Marja Rask, <i>Tietoanator Corporation, Finland</i> ; Tuija Helokunnas, <i>Tampere University of Technology, Finland</i> .....	20
INVESTIGATING BUSINESS INFORMATION MANAGEMENT PRACTICES Mika Hannula, Virpi Pirttimäki, <i>Tampere University of Technology, Finland</i> .....	21
E-BUSINESS IN LITHUANIA'S COMPANIES FOR THE DEVELOPMENT OF COMPETITIVE ADVANTAGES Rimantas Gatautis, <i>Economics and Management Faculty, Kaunas University of Technology, Lithuania</i> .....	22
E-MARKETING IN INDIA: A SYNERGISTIC MODEL Ashish Sadh, Sibani Mahapatra, <i>Indian Institute of Management, India</i> .....	23
TECHNOLOGY CENTRE'S STRATEGY Marko Lehtimäki, <i>Tampere University of Technology, Finland</i> .....	25
APPLICATION OF EXPAND-AND-TRUNCATE LEARNING (ETL) IN DATA MINING Xu Yi, <i>Nanyang Technological University, Singapore</i> ; Narendra S. Chaudhari, <i>Nanyang Technological University (NTU), Singapore</i> .....	26
APPLICATION OF COMPUTATIONAL LEARNING TO CLASSIFICATION PROBLEMS Wang Xiangrui, Narendra S. Chaudhari, <i>Nanyang Technological University, Singapore</i> .....	27
TRADITIONAL AND EMERGING VENTURE-TO-CAPITAL BUSINESS MODELS Tommi Rasila, Jussi Okkonen, <i>Tampere University of Technology, Finland</i> .....	28
DESIGNING A PERFORMANCE MEASUREMENT SYSTEM: A CASE STUDY IN THE TELECOM BUSINESS Jarkko Tenhunen, Juhani Ukko, Tapio Markus, Hannu Rantanen, <i>Lappeenranta University of Technology / Lahti Unit, Finland</i> .....	29
THE CONCEPT OF A KNOWLEDGE FUND: PROPOSITION FOR A STRUCTURAL SOLUTION FOR THE EMERGING V2C INDUSTRY AND THE BUSINESS OF A VENTURE KNOWLEDGIST? Marko Seppä, <i>Tampere University of Technology, Finland</i> .....	30

**FRIDAY, November 15th, 11:30AM - 12:30PM**

**SESSION: Efficiency 2**

TECHNOLOGY AND HUMAN RESOURCE BASED ENABLERS FOR SUCCESSFUL KNOWLEDGE TRANSFER IN ORGANISATIONS Mikko Arevuo, <i>Delta Strategies, United Kingdom</i> .....	31
BUSINESS KNOWLEDGE LOGISTICS: KSNET-APPROACH AND ITS IMPLEMENTATION Alexander Smirnov, Mikhail Paskin, Nikolai Chilov, Tatiana Lavashova, <i>SPIIRAS, Russia</i> ..	32

<b>SESSION: Engagement 2</b>	
FROM E-COMMERCE TO SPEECH COMMERCE	
Thibault de Swarte, <i>ENST Brittany, France</i> .....	33
CLASSIFICATION OF ONLINE COMMUNITIES	
Maria Mäntymäki, Tuula Mittilä, <i>University of Tampere, Finland</i> .....	34
<b>SESSION: Entrepreneurship 2</b>	
LOCAL APPROACH TO V2C ACTIVITY: CASE TAMPERE	
Hannu Jungman, Marko Seppä, <i>Tampere University of Tampere, Finland</i> .....	35
THE NEW VENTURE DEVELOPMENT AND THE CHANGING ROLE OF BOARD OF DIRECTORS IN HIGH TECHNOLOGY FIRMS	
Jukka Ala-Mutka, <i>CAA Consulting Oy, Finland</i> .....	36
<b>SESSION: Ethics 2</b>	
ENHANCING CONTENT PRODUCTION BY PUBLIC-PRIVATE PARTNERSHIPS IN E-LEARNING	
Anna Kilpiö, Jussi-Pekka Partanen, <i>Helsinki University of Technology, Finland</i> .....	37
„EDUCATION PORTAL THURINGIA“ – NETWORKING AND BUNDLING OF RESOURCES AMONG THURINGIAN UNIVERSITIES TO PROVIDE NEW AND EFFICIENT EEDUCATION FOR THE FUTURE	
Patrick Schilde, <i>Technical University Chemnitz, Germany</i> ; Thomas Köhler, <i>University of Jena, Germany</i> .....	38
<b>FRIDAY, November 15th, 13:30PM - 14:30PM</b>	
<b>SESSION: Efficiency 3</b>	
THE FINNISH TOP 50'S OUTLOOKS AND USE OF KNOWLEDGE MANAGEMENT IN HUMAN RESOURCES CONTEXT	
Jussi Okkonen, Terhi Laukkanen, Mika Hannula, <i>Tampere University of Technology, Finland</i> .....	39
BA, COMMUNICATION AND TIME AS ENABLERS OF LEADING	
Rauno Kuusisto, <i>Finnish Defense Forces, Finland</i> ; Tuija Helokunnas, <i>Tampere University of Technology, Finland</i> .....	40
<b>SESSION: Engagement</b>	
VALUE AND LOYALTY CREATION FOR CUSTOMERS THROUGH E-CHANNELS IN RETAILING NETWORKS	
Richard Windischhofer, Janne Ruola, <i>University of Tampere, Finland</i> .....	41
ANALYSIS OF A SOFTWARE COMPANY'S BUSINESS NETWORK: PRODUCT VENDOR, SYSTEM INTEGRATOR OR SERVICE PROVIDER?	
Sari Juntunen, <i>University Of Oulu, Finland</i> .....	42
<b>SESSION: Entrepreneurship 3</b>	
THE STATE OF THE FINNISH MOBILE CLUSTER	
Ilkka Leppävuori, Juha Näsi, <i>Tampere University of Technology, Finland</i> .....	43
FROM GORDIAN KNOTS TO GROWTH NODES: REORIENTATION OF A GEOGRAPHICAL CLUSTER OF FIRMS AND INNOVATION IN TAMPERE	
Antti Ainamo, <i>JPC Research, Jaakko Pöyry Group, Finland</i> .....	44
<b>SESSION: Ethics 3</b>	
THE MCP TERMINAL - A FUTURE PLATFORM FOR MOBILE SERVICES	
Ulrich Schiek, Frank Klingenberg, <i>Technische Universität Braunschweig, Germany</i> .....	45
STATE OF ART IN MOBILE PAYMENT SOLUTIONS	
Jari Pentti, <i>EPStar Ltd., Finland</i> .....	46

**FRIDAY, November 15th, 15:00PM - 16:30PM**

**SESSION: Efficiency 4**

MEASUREMENT OF INTANGIBLES: LITERATURE REVIEW AND ANALYSIS OF KEY CONCEPTS

Antti Lönnqvist, *Tampere University of Technology, Finland* .....47

IT AND RE-ORGANISATION OF WORK IN THE SUPPLY CHAIN

Marko Seppanen, Petri Suomala, Tommi Lahikainen, *Tampere University of Technology, Finland* .....48

FROM THEORY TO PRACTICE - ELECTRONIC COMMUNICATION AND INTERNET OPPORTUNITIES IN THE DANISH HEALTH SERVICE

Claus Duedal Pedersen, *MedCom, Denmark*; Lars Hulbaeg Fog, *Medcom, Denmark* .....49

**SESSION: Engagement 4**

THE EARLY DEVELOPMENT STAGES OF STRATEGIC INTER-FIRM PARTNERSHIPS

Tommi Kaasalainen, *Tampere University of Technology, Finland*; Saku Mäkinen, *National University of Singapore, Singapore*; Juha Näsi, *Tampere University of Technology, Finland*.....51

FROM E-BUSINESS TO KNOWLEDGE BUSINESS IN METAL AND ELECTRONICS INDUSTRIES

Mikko Ruohonen, *University of Tampere, Finland*; Jaakko Riihimaa, *Seinäjoki Polytechnic, Finland*; Marko Mäkipää, *University of Tampere, Finland* .....52

A VALUE NET BASED APPROACH TO SOURCING IN SOFTWARE BUSINESS

Tuija Helokunnas, Kalle Viitanen, *Tampere University of Technology, Finland* .....53

**SESSION: Entrepreneurship 4**

BUSINESS MODELS FOR CONTENT DISTRIBUTION IN MOBILE PEER-TO-PEER NETWORKS

Tommo Reti, Yki Kortnesniemi, Mikko Välimäki, *Helsinki Institute for Information Technology, Finland* .....54

A BUSINESS MODEL FOR A MODEL EENTERPRISE

Jonne Karvonen, Reijo Tuokko, *Tampere University of Technology, Finland* .....55

EMERGING BUSINESS MODELS FOR SMES IN FINNISH DIGITAL TELEVISION BUSINESS

Tommi Pelkonen, *Helsinki School of Economics, Finland*; Marko Seppä, Seppo Kalli, *Tampere University of Technology, Finland* .....56

**SESSION: Ethics 4**

THE TRADITIONAL MEDIA AND THE NEW MEDIA: CONVERGENCE OR COALITIONS?

Niina Helminen, Eila Järvenpää, Stina Immonen, *Helsinki University of Technology, Finland*.....57

WHO OWNS TRADITIONAL KNOWLEDGE ?

Ajeet Mathur, *University of Tampere, Finland* .....59

CONSUMER RESPONSIVENESS TO MARKETING COMMUNICATION IN DIGITAL CHANNELS

Kristina Heinonen, Tore Strandvik, *Hanken Swedish School of Economics and Business Administration, Finland* .....60

**FRIDAY, November 15th, 09:15AM - 10:45AM**

**Session: Efficiency 1**

**EBXML REGISTRY/REPOSITORY IMPLEMENTATION IN AGRI-FOOD INDUSTRY**

Michal Zaremba, *CIMRU, National University of Ireland, Galway, Ireland*; Brian Wall, *CIMRU, National University of Ireland, Galway, Ireland* and Jimmie Browne, *CIMRU, National University of Ireland, Galway, Ireland*

ebXML (Electronic Business that is using eXtensible Markup Language), sponsored by UN/CEFACT and OASIS, is a modular suite of specifications that enables enterprises to conduct business over the Internet. Researchers from around the world are working towards implementation of those specifications into electronic business software products. In their mission ebXML partners state that Small and Medium Sized Enterprises (SMEs) need an affordable, integrated set of tools to support integration of their supply chains and to take advantage of the new ways of doing business in the e-business environment.

This paper presents a registry/repository information model and a registry services interface. The format of documents stored in the repository is based on the XML standard, which allows keeping any type of business data but is not limited to XML documents and schemas. The practical purpose of the research presented in this paper is the use of ebXML specifications for implementation of the ebXML registry/repository model for the purpose of the agri-food industry. A large amount of development has been already done in the area of the implementation of registry/repository ebXML specifications through the ebxmlrr project. The alpha version of software is already available and the next step of the ebxmlrr project is the development of a functionally complete reference implementation for version 3.0 of the registry/repository specifications. The researcher is going to implement ebXML specifications with the help of ebxmlrr software for the discovery and harmonisation of terms for the agri-food sector. The researcher also plans to use ebxmlrr registry/repository for the exchange of business electronic artefacts for automation of transaction processing in agri-food industry in Ireland. Ebxmlrr already offers itself a storage system implemented in the form of web services for such meta objects as organisations' details, classifications' instances, services' descriptions, extrinsic objects etc. This paper uses links to the European Union funded projects such as Smartisan and Aforo to exemplify the adaptation of general-purpose registry/repository software for agri-food industry (the research is particularly focused on SMEs). Finally the software should allow agri-food companies to prepare and view documents for various business activities, e.g. quotations, purchase orders, and invoices in a procurement process. It should communicate with the ebXML Registry to load, save and manage XML-based business documents and components for business documents preparation. Part of this research is also the implementation of different agri-food ontologies within ebXML repository and exploitation them for the Irish agri-food companies.

The paper aims to present theoretical models for registry/repository system, describe the generic implementation of those models for e-business system and finally present how the generic implementation can be applied for agri-food industry. Although the research plans to conclude in September 2003, some working parts of the designed system are already finished and can be presented in a working stage.

## **E-PROCUREMENT IN SME - STRATEGY - PRAXIS - TRENDS**

Alexander Stendal, *Thales Information Systems GmbH, Germany*

Based on experiences made with a wide range of companies in Germany and other European countries the bow will be drawn from the present situation in the field in ebusiness usage, tendencies and way's to support the development into an information society.

The companies perception regarding the procurement and internal logistic has changed over the last few years dramatically. Triggered by cost cutting policies, the software industry reacted and offered within a short range of time a big pile of products designed to support e.g. procurement departments. Experience shows, that procurement controlling and process optimisation is in most companies more than necessary. But how can the still existing resentments against this new development, especially within the small and medium sized companies (SME) community be explained and overcome?

The obvious difference between companies and branches in the development level regarding ebusiness usage can easily be understood by comparing resources and qualifications. This difference, which is an obstacle for ebusiness prepared companies to gain a fast ROI, and the ongoing unification of the EU market results in the necessity for SME's to implement new IT - technologies and standards.

Under the above premise different software supported procurement technologies and possibilities of implementation will be presented and evaluated from a SME perspective. The necessity of standardisation and presently used standards will be explained and tendencies in this specific area of ebusiness processes are shown. Finally way's of promoting the idea of an 'information society' based on digitised business data within the SME community by networking and associational work will be introduced.



## **CONVERTING BUSINESS STRATEGY INTO A USER REQUIREMENTS DEFINITION FOR AN E-BUSINESS IMPLEMENTATION IN A SMALL MEDIUM ENTERPRISE**

Brian Wall, *National University of Ireland, Galway, Ireland*; Michal Zaremba, *National University of Ireland, Galway, Ireland*; Hui Shen, *Tsinghua University, Beijing, China*; Jim Browne, *National University of Ireland, Galway, Ireland* and Yuliu Chen, *Tsinghua University, Beijing, China*

The recent e-phenomenon has led to new ways of viewing business. It has created new opportunities and threats, which force many companies to review their strategies and put in place mechanisms to implement these strategies. To fully implement a strategy it must firstly be understood in operational terms through the generation of correct user requirements. The authors recognise the lack of relevant studies in the area of converting e-business strategies into user requirement definitions. The purpose of this paper is to propose a solution to this problem through the application of a structured methodology. The methodology focuses particularly on the area of e-business strategy implementation at Small and Medium Enterprises (SMEs).

In this paper the subject of business strategy is examined with particular emphasis on electronic business strategies. The role of Small Medium Enterprises (SMEs) in the worldwide economy is presented along with some of the common issues that they encounter with regard to implementing strategic initiatives.

In the main part of the paper the authors present a framework used to generate the components of requirements based on business objectives. The methodology includes an examination of the concepts of enterprise engineering and recent technological innovations before presenting a step-by-step guide as to how a user requirements definition process can be enhanced through the application of these ideas.

Many companies find it difficult to establish a means of converting high-level goals and objectives into actions that strengthen the competitiveness of the company. The uncertainty brought about by e-Business has contributed to this difficulty. The methodology is based loosely on the application of some of the principles of the quality function deployment (QFD) approach. This approach was originally used to correlate customers' requirements against product or service features. In this paper the authors apply some aspects of the approach to the generation of modular user requirements from business objectives. The approach also presents a means by which the appropriate performance indicators can be chose to measure the success of a chosen e-Business module.

A case study is presented which illustrates how the methodology has been used successfully and demonstrates its validity. Conclusions and recommendations for future development are then presented.

## **Session: Engagement 1**

### **THE CONTRIBUTION OF ROSETTANET E-BUSINESS STANDARD**

Mika Hannula, *Tampere University of Technology, Finland* and Tuomas Vasama, *Tampere University of Technology, Finland*

Efficient management of the supply chain, its actors and operations, is one of the most critical success factors in today's competitive industrial environment. To mention some examples of possibly gained benefits; more efficient material flows and operations, better change management, smaller inventories, reduced error related costs, better quality of work and information may be achieved by successful supply chain management. The development of supply chain activities shall combine both human related and technical factors in the form of business process design and standardization. This justifies the development of e-business standards.

Several b-to-b e-business applications, portals, standards, etc. exist. The general purpose of these solutions is to automate business processes and offer efficient tools for co-operation and co-ordination between different trade partners. In addition, the cost efficiency of the processes is supposed to improve. Many companies have developed their own e-business solutions along with the late e-trend, e.g. purchase portals for customers, to improve their performance and customer service. A portion of the developments has failed to meet the expectations. Companies are unwilling to use a wide number of different e-solutions requiring a variation of different e-business processes.

A clear need to develop globally uniform e-business processes has arisen in the jungle of e-business solutions. Technology centred standards have proved to be inadequate and the need of standardized process activities has entered the picture. RosettaNet is an e-business standard, which sets common policies between trade partners both in process and technical means. It documents and standardizes public processes between companies. RosettaNet leaves companies' private processes to be developed on their own. The standardizing organization and its RosettaNet partners are primarily representatives of electronic components (EC), information technology (IT) and semiconductor manufacturing (SM) supply chains.

In the final paper RosettaNet e-business standard will be introduced more thoroughly. Its background, organization, main thriving forces, technical and process related issues will be discussed in detail. The aim is to consider its contribution to supply chain management and its ability to solve problems in supply chains' e-business environment. RosettaNet introduces a way of standardizing partner interface processes (PIP), which formalizes activities between the trade partners. Discussion about this PIP based e-business standardization will be also in focus in the paper. In addition, possibly emerging problems in RosettaNet implementation will be considered.

## **INTERNET BASED TECHNOLOGIES (IBTS) INTEGRATION IN B2B MODELS – THE IMPACT ON COMPETITIVE ADVANTAGE OF FIRMS**

Rui Patrício, *Universidade do Porto, Portugal*

The increase in the number of firms that use Internet based technologies (IBTs) is a global phenomenon and is continually transforming the rules of competition for established businesses in unprecedented ways. These firms need to transform and adapt their old business models to the new environment. In this new context, a question arises: how can a firm use IBTs to create and sustain competitive advantages?

This paper investigates how established firms are developing innovative business models that integrate IBTs. Furthermore it aims to assess the firms' ability to develop and sustain the competitive advantages through IBTs.

The empirical ground of this study was based on data that was originally collected in a research project conducted in Portugal, between September 2001 and January 2002 [1]. 32 in-depth interviews were made to 20 firms (IBTs users) and 12 vendors of IBTs solutions, along with 2 focus groups with current and potential customers of IBTs solutions. The selection of the sample of firms was made with the following criteria: reasonable wide range of B2B sectors and good potential of demonstration effect (financial services firms were excluded). The information captured covered the type of organisation, its motivations and perceptions about the impact of IBTs in their businesses.

Based on contributions from previous research and grounded in observations (data collected in the above research project), a systematic framework was developed to understand what drives competitive advantage in this new context and how it can be sustained. This framework is composed by the following four categories:

1. Description of a firm business model as well as IBTs (solutions and tech platforms)
2. Analysis of the effects of IBTs deployment in a firm value chain;
3. Identification and classification of IBTs potential competitive advantages;
4. Evaluation of key success factors for the development of sustainable competitive advantages.

This framework will be used to examine a sub-sample of ten firms (selected amongst the most dynamic ones that correspond to the best demonstration effect). Besides the assessment of the firm's ability to develop and sustain the competitive advantages through IBTs, the study will also aim at producing a set of recommendations about the firm's business strategy.

[1] Rui PATRÍCIO; Aires Duarte SILVA; José Miguel MAGÃLHAES; Peter HIGGS, "E-marketplaces - Estratégias de selecção de portais B2B", Escola de Gestão do Porto / Digital Partners, 2002.

## **SUPPLY REORGANISATION APPLYING E-BUSINESS PRACTICE: THE CASE OF POWER INDUSTRY IN POLAND**

Maria Nowicka-Skowron, *Technical University of Cz stochowa, Poland* and Iwona Otola, *Technical University of Cz stochowa, Poland*

The main aim of the researches is preparation of directions for supply reorganisation in The Southern Power Concern (SPC). In 2001, The Southern Power Concern was formed of seven independent power plants. Now the power plants are departments of SPC, but they have still their own supply policies. In order of uniformity procedures and expenses control, SPC authorities have planned supply reorganisation connected with purchasing centralisation. Carried out analysis of supply and whole logistics system shown that:

- Entities of SPC have their own supply procedures
- Different suppliers supply them. The effects of that are various prices for the same product, various supply and payment conditions
- Some of them have no procedures of supplier choice
- Purchasing separately small orders, plants have to bear high transportation costs per unit
- They have larger inventory than their needs. It is especially visible in case of spare parts inventory. Some spare parts have been stored for many years, they are remains of previous centralised economy where enormous quantities of spare parts were stored in case of damage but now they are crucial share of total inventory value with a little hope for usage in the nearest future.

The distances between power plants make unable direct supply management, so because of it, it is considered to apply some solution brought from e-business practice.

E-business is the execution of business transaction over the Internet. Companies conducting e-business can perform some or all of the following transactions over the Internet:

- Providing information
- Negotiating prices and contracts with customers and suppliers
- Allowing customers to place orders
- Allowing customers to track orders
- Filling and delivering orders to customers
- Receiving payment form customers

Some of the transactions are especially important for aim of the researches. Providing information to all power plants of SPC over the Internet about actual stored materials and spare parts allows for inventory movement according to needs and for inventory decrease, in effect.

Great save can bring orders centralisation over Web-based system where particular power plant supply service will be able to order necessary materials, spare parts and products on-line, then orders of all power plants will be aggregated and realised. Thanks to this SPC will be able to negotiate prices and payment conditions more successfully based on large purchasing scale. It will help to decrease transportation cost per unit, control all power plant expenditures and decrease number of workers employed in all power plants. SPC will be able to choose the best suppliers using clear procedures.

Developing the system, SPC will be able to negotiate prices and contracts with its suppliers and make payment over the Internet.

All considered solution will be able to realise together with structural and organisational changes in every SPC plant.

## **Session: Entrepreneurship 1**

### **TOWARDS AN E-BUSINESS DESIGN FRAMEWORK**

Sébastien Caisse, *Université Laval, Canada* and Benoit Montreuil, *Université Laval, Canada*

Perhaps one of the more interesting aspects of the digital age is how the changes it brings prompt us to ask what is the nature of these things that are being transformed. The nature of business itself is being re-examined under the light of these changes, as business becomes e-business, and e-business gradually becomes business-as-usual.

This paper seeks to integrate the essential elements of e-Business into a coherent conceptual framework. These elements are to be found in the professional and academic literatures of various business-related disciplines. Business model theory is the most recent attempt at explaining the nature of e-Businesses. However, where most models have focused on parts rather than the whole of e-Business, this framework aims for a broader view.

The main objective is to help entrepreneurs and researchers achieve higher levels of abstraction and enlightenment. The framework helps to locate critical issues that need to be addressed. By knowing what the essentials are and how they relate to one another, entrepreneurs gain a better understanding of business trends and solutions, such as m-commerce, CRM, collaborative workspaces, e-logistics, and etcetera, as well as their own role as e-Business stakeholders. For researchers, the framework helps to put concepts and ideas in perspective and locate areas which may benefit from further study.

The framework is built around four poles linked by twelve flows: Character, Offers, Stakeholders, and Transformation linked by Delivery, Engagement, Gain, Goals, Identity, Information, Networks, Orchestration, Profit, Resources, Self-Realization, and Value. How business is conducted in the digital age is reflected in the intensity of both flows and poles. It turns out that e-Business is not a business essential, but rather the new space-time, or reach-speed of business, shifting the whole framework into higher gear and leaving no element untouched.

This paper is structured as follows: First, the literature is reviewed in order to uncover business elements that are deemed essential by peers. Second, these are combined in a framework which sheds new light on their interdependencies. Third, the effects of e-Business as an increase in reach and speed of business are examined for each element and for the framework as a whole. The fourth section concludes by explaining how the framework can help future research and business endeavours.

## **GAINING STRATEGIC ADVANTAGE THROUGH EBUSINESS FOR INSURANCE COMPANIES**

Aki Ahonen, *University of Tampere, Finland* and Raija Järvinen, *University of Tampere, Finland*

Background: Nowadays eBusiness is reality on every line of business. On Insurance business the use of eBusiness solutions has been more conservative and moderate than on many other areas. This is partly a result of strict legislative control and public regulation. Since 1996 when the first Finnish insurance company opened its www-sites, the development has, however, been continuous.

At first the focus of Internet services provided by insurance companies was on information-based services. Since then the focus has changed. Insurance companies have concentrated to create and provide also interactive services in the Internet. Cutting costs, speeding up transactions and service, better accessibility and other benefits of utilising eBusiness have already been notified in Finnish insurance industry (see Ahonen 2002). At the moment it is possible to buy some simple insurance services, such as travel insurance, via Internet (See Järvinen-Järvelin 2001; Ahonen 2002). Business-to-business Web-facilities of Insurance companies enable client companies to take care of their insurance or damage cases and to get information via Internet.

The insurance industry has faced considerable problems as the complexity of identifier system has hindered the increase of electronic transactions. This concerns especially large companies (Ahonen 2002). From the consumers' perspective, electronic insurance services are not yet as far developed as business-to-business services. Järvinen and Järvelin (2001) have shown that consumers perceive electronic services of insurance companies difficult to handle and sometimes obscure too. The small and medium sized companies are facing the same problems. Therefore, one of the main challenges for the future will be the simplification of systems and getting consumers and smaller companies as eCustomers.

Objectives: One of the main objectives of the research and the whole eInsurance project is to increase both scientific and practical knowledge and competence how to utilise new business model in insurance business on national as well as international level. When taking a more specific look at the goals and objectives of the study they can be brought out as a form of research questions presented below:

- How the efficiency of insurance companies can be increased by the means of eBusiness?
- How the electronic transactions within the insurance industry can be facilitated?
- What are the competitive effects of eBusiness from the both insurance companies' and consumers' points of views?
- What kind of differences in needs concerning eBusiness can be perceived between different user groups?
- What kind of electronic infrastructure can be constructed for different user groups?

This study as well as the whole eInsurance project has raised the interest of the Finnish insurance industry. For example the Federation of Finnish Insurance Companies and Finnish insurance company Pohjola, among others, have shown their interest by participating in eInsurance project as co-workers and supporters.

Methodology: Theoretical background of the study will be mainly based on strategic literature, especially books concerning the aspects of competitive strategies and competitive advantage. For example, the views of Michael Porter (1980, 1985, 1990) and Hamel&Prahalad (1994) will be used, such as the books written about networking. In addition, the books concerning directly eBusiness strategies (see the books of Ravi Kalakota; 2000 and 2001) give valuable theoretical base for the study. In addition, scientific articles will be utilized.

The empirical research will partly be started during this autumn. Empirical data will be collected by interviewing the management of co-operative insurance companies and specialists representing different lines of insurance business.

## **ELECTRONIC CONSUMER FOCUSED AUCTIONS IN FINLAND - WHY SUPPLY AND DEMAND DO NOT MEET**

Jussi Puhakainen, *Turku School of Economics and Business Administration, Finland*; Virpi Kristiina Tuunainen, *Helsinki School of Economics, Finland* and Matti Rossi, *Helsinki School of Economics, Finland*

Electronic auctions have received considerable publicity during the heyday of "Internet-boom". However, the majority of consumer focused auctions have proved to be short-lived, some due to not reaching critical mass of users and some due to not finding a sustainable business model.

In our research, we report on two rounds of empirical research, one on the supply and the other on the demand side of the electronic auctions targeted at the consumer market. Our aim is to explore the reasons for why the sellers and buyers do not seem to find each other in the Finnish virtual market space.

The research is focused on Finnish electronic auctions. 21 such auctions were found, of which 11 participated in the study. The study was conducted through interviews of the management of auction sites. All of these were either business-to-consumer or consumer-to-consumer auctions. Researched areas included: 1) business models, 2) used technologies, 3) products, 4) pricing mechanisms, 5) customers and 6) marketing.

The studied auctions were classified under four categories:

- general auction, where the auction is either the main business or has high role for the main business
- marketing magnets, where the role of auction is to draw customers to the main business
- additional service, where the role of the auction is to support main business
- "window" to traditional auction, where the eAuction offers an interface to the traditional (physical) auction.

On the demand side, we collected two sets of data through questionnaires. The subjects were students enrolled in three different courses at Helsinki and Turku Schools of Economics. The preliminary findings indicate that although people have access to auctions (i.e. Internet-connection and/or mobile phone), the usage remains low.

## Session: Ethics 1

### ON QUANTIFYING THE IMPACT OF ICT IN CREATION OF THE "NEW ECONOMY"

Arun Saxena, *The Bombay School of Business, India*

During the last decade, the so-called "New Economy" has swept many countries of the world. This new economy is characterized by globalization, unprecedented growth in entrepreneurship & competition and drastic change in industrial order. The rapid advances in information & communication technology (ICT) have accelerated all these changes. These changes have affected different countries of the world to different extent.

This paper endeavors to provide an approach to quantify these changes for the purpose of easy comparison of the 'state of new economy' across the world. A number of studies have been done on this issue and most base their approach on just one phenomenon i.e., productivity. The findings of these authors are not quiet in tune with the findings of the United Nations Economic and Social Council, 2000 (UNESC) which carried out their own study during the mid 90's. Finally, The United Nations Economic and Social Council (2000) defines this new economic environment as the fusing of three simultaneous phenomena: the rapid technological progress ensuing from ICT, the internationalization of the economy and changes in the international financial environment.

This paper builds further on UNESC findings and attempts to answer the questions - "How do we measure "new economy"?" and "How do we compare its impact in different countries?" This paper looks at various phenomenon that occur in the "new economy", classify these under different categories and assign suitable weight for the purpose of overall evaluation.

The phenomenons considered are

- 1) Infrastructure - Technology - ICT & Internet, Human Resources, Education - schools & universities, Investment
- 2) Innovation - Generation of fresh ideas - inventions, patents, Entrepreneurship, Business innovation Commercialization of technology - licensing, royalty,
- 3) Economic & Social Impact
  - a) Effects on - business organizations, industrial processes, markets
  - b) Impact on - Sales, Productivity, Prices, penetration

Based on the above three basic types of indicators a composite indicator will be derived. The composite indicator would meet the criteria of being objective, methodical and logical. It would permit reasonably accurate comparison of the real world situations. The paper will enumerate the difficulties encountered in the process of measurement and quantification of the above phenomenon

Based on the quantization of the different variables, the paper will try to specify the quantitative impact of ICT in the context of economics.

The paper will be based on the data available from the web-sites of different countries and the data provided by IDC & Forrester on Internet & Ecommerce domain. The official statistics available today are insufficient to conclusively prove the relationship between ICT and the "new economy". This paper offers a list of indicators that will furnish certain relevant data on the details of the phenomenon.

It is to be hoped that, in the near future, reliable statistics will become available that will make international comparisons possible and facilitate the co-ordination of public initiatives in this new economic environment.



## **A COMPANY'S RISK PERCEPTIONS IN E-COMMERCE – CASE HIGH-TECH WHOLESALE**

Tuula Mittilä, *University of Tampere, Finland* and Jaakko Leinonen, *University of Tampere, Finland*

Knowledge about the risks in e-commerce is still in its infancy, especially about the observing of all types of risks. Many wholesalers utilize more and more electronic channels as a marketing and communication channel. To manage the short term and long term risks of this new media, it is essential to study how aware the suppliers are of potential uncertainties of e-business.

The purpose of the paper is to report an empirical case study concerned with one of the leading Finnish wholesalers of computers and other high tech products. The company is an importer of e.g. Japanese products and its marketing and selling operations occur in Finland and in Baltic countries.

The development of e-commerce is regarded as an extensive strategic area in the company. Today, about half of the company's customer orders are intermediated through the Internet.

The research question of the study is which risks in e-business, more specifically in e-commerce, are perceived by the company's employees at different levels. The study is theoretically based on the total risk model by Mittilä (2001). Total risk includes social, political, spatial, technological and economic risks at organisational, industry, societal and global levels. This research studies risks mainly on organisational and industry levels.

The methodology of collecting the data is interviews guided by a semi-structured interview guide on different employee levels of the case company. The interviews will be recorded and transcribed. Thereafter, the analysis will be conducted and the conclusions drawn.

As a contribution of this study we expect to gain more understanding of the practical reality in risk perception and the management of recognised risks in e-commerce. Furthermore, we 'test' the total risk model to better understand its usefulness. Finally, we look for the correspondence of risk perception theory and empirical evidence.

Reference: Mittilä (2001): Perceived Risks in Electronic Business-to-Business in Hannula, M., Järvelin, A-M. and Seppä, M. (eds.) Proceedings of the FeBR 2001. Frontiers of e-Business Research. Tampere: Tampere University of Technology and University of Tampere.

## **EXPLORING THE TACIT DIMENSION: TOWARDS COLLABORATIVE WORKING AT CONSIGNIA SECURITY**

Mikko Arevuo, *Delta Strategies, United Kingdom* and John Spong, *Consignia Security and Investigation Services, United Kingdom*

When the Post Office Group re-branded under the Consignia moniker, the Security and Investigation Service was determined to shrug off any remaining bureaucratic barriers to knowledge sharing. Research was undertaken to establish Consignia Security's approach to knowledge management and whether the new structures and processes following the decentralisation were sufficient for the knowledge needs of its people. It needed to determine how effective this approach was and, in particular, how the culture and structure of the organisation impacted on its success and how the organisation was going about the task of motivating people to share knowledge.

In order to answer these questions, a literature review was conducted which examined the concept of knowledge management and focused on theories on knowledge sharing and knowledge sharing motivation. Three methods of evidence gathering were carried out: questionnaires, semi-structured one-to-one interviews and discussion groups.

The research found that no clear knowledge management strategy was being pursued, but the organisation had adopted a form of knowledge codification approach through the deployment of a central database as a knowledge repository. The results of the research showed that the motivational needs for knowledge sharing appeared to be dictated by a culture of 'knowledge hoarding', with people wanting to keep control of any released knowledge, or at least knowing how it was being used. As motivational needs for knowledge sharing were not being addressed, the existing people-to-documents approach required for a codification strategy was deemed not to be effective.

The results of the research showed that the codification approach looked suitable for the current position of the organisation, even if this were to create a cultural conflict. In order to manage this conflict, the research indicated that a major change programme, driven from the top, would need to be implemented throughout Consignia Security in order to begin changing behaviours around knowledge sharing in order to enable successful implementation of the codification approach of tacit knowledge.

**FRIDAY, November 15th, 10:45AM - 11:30AM**

**Session: Poster Presentations**

**HOW SMS ACCELERATES THE INTERACTIVE TV BUSINESS**

Seppo Kalli, *Tampere University of Technology, Finland* and Jens Spieker, *Tampere University of Technology, Finland*

Interactivity among all participants is an essential issue in any value generating system. It will still take some time before the consumer frequently participates actively in digiTV. Both, the technology will still need some time to become ready for the mass market and the consumer needs climb up the learning curve.

However, looking at an estimate of 10 billion € revenues in the SMS business for Western Europe in the year 2001, it shows clearly a good evidence of profitable interactivity. Consequently, first successful business models in digiTV will most likely be designed around the well-known SMS. The consumer already knows how to use SMS and is willing to pay for its use. This is inevitably a good and promising example of a profitable cross media application leading towards media convergence.

This paper will introduce some successful cases, linking interactive television content and SMS technology. Potential business models utilising SMS for voting, feedback on TV programs, merchandising (like ringing tones and logos) or Teletext chats, as we do have already now on the analogue TV. A closer look at selected cases will outline success stories.

Finally, different types of television content and potential consumer are classified in order to uncover the most promising SMS business models.

## **COLLABORATION IN THE VIRTUAL ENTERPRISE**

Reiner Breite, *Tampere University of Technology / Pori, Finland* and Hannu Vanharanta, *Tampere University of Technology/ Pori, Finland*

Companies' business environment has changed dramatically: the variety and complexity of products has increased, the products' life cycles have shortened, repeat orders have decreased, and batch sizes have become smaller. This all means that companies have been forced to create concepts that react and respond to future demand fluctuations, such as flexibility, quality, customized products, complexity and future market changes more rapidly. A new construct that covers and supports many of the concepts above is agility manufacturing focusing to three fundamental elements, i.e. organization, people, and technology. In practice this means that companies are forced to form extended enterprises and even more to create networking virtual enterprises. The main requirement for a virtual enterprise in this network is that it has core competence, which supports the extended virtual enterprise holistically. Moreover, every company in the network has to have the needed adaptive organization, creative people, and especially supporting technology. Thus, different companies' organizations are first forced to adapt the virtual enterprise's organization and then the different companies' personnel have to be capable of working in teams crossing the companies' boundaries with new applied technology. The content and nature of the collaboration and added-value contribution of the member companies become in this way very important for the performance of the whole supply and value net. This is why it is essential for the companies to evaluate all their supply and value chain activities and also to evaluate how do they understand the contribution of the new modern technology, i.e. in our case Internet and its applications. Our research is using this a new virtual working environment with Internet based applications and applies the hyperknowledge environment with its definitions as a theoretical framework.

Our research is based on three different laboratory experiments, where group of the master students formed several different virtual enterprises. In our study these decision-makers are working through several www addresses in order to create a virtual company. Many of the found www addresses are clicked away, while others are brought up for more thorough inspections. The main interest in our research is to find how collaboration and virtuality are created on the Internet. The main research question can be divided into the following sub questions:

Is it possible to find necessary suppliers on the Internet?

Is it possible to evaluate different suppliers on the Internet?

Is it possible to create a virtual enterprise on the Internet?

Does the Internet environment give enough support for the decision-maker?

We assume that the fourth question forms an essential part of the other three questions, as the decision makers need more support for his/her decision making process.

By using the hyperknowledge environment as research framework, we assume that we can deal with structuring and processing of decision problems, which involve creating the virtual enterprise. We start from the idea that the created virtual furniture enterprise is an object in the environment and has to be formed in the knowledge base. The decision makers need support for their decision making process when forming the virtual enterprise with its relations and interrelationships. During the tests the test subjects have to evaluate the ability to make the contracts solely by using the information that they get from the graphical user interface (GUI).

The present research focuses on the two most critical components of the hyperknowledge environment: the user and the contents of the Internet applications. We try to find out if the Internet applications used are a plausible system for evaluating the decision support activities of business contracts, and what are the advantages and disadvantages of Internet applications from the user's point of view. The validation methods are partially the same that which have been used in expert systems and in the hyperknowledge system evaluations, i.e. a form of performance validation combined with a questionnaire.

## **FROM IT OUTSOURCING TOWARDS PARTNERSHIP**

Marja Rask, *Tietoentor Corporation, Finland* and Tuija Helokunnas, *Tampere University of Technology, Finland*

This paper describes a prospective doctoral thesis study, which title at this preliminary stage is: From IT Outsourcing towards Partnership. Information Technology (IT) outsourcing means the practice of subcontracting IT service to outside and especially foreign or non-union companies. Partnership is one form of networking. Networking defined on a common level means that the relationships between organisations have become more long-standing, closer, and deeper (Vesalainen 2002, p. 10). The target of this research is to study the relationship between two organisations called also a dyadic relationship that can be held as the basic unit of networks.

The purpose of this study is to research how partnerships have been established, how they are deepened, and developed after an IT outsourcing between two organisations. The aim is to research and clarify the nature of the business activity relationship between two organisations. >From the theoretical aspect this means that a framework for analysing and understanding the relationship between two organisations should be created. As an empirical aspect information about partnerships will be gathered, analysed, and explained. Based on this real life information a framework for business activities that should be implemented to improve current partnerships will form.

The reason for making this study has arisen from problems caused by the lack of proper knowledge about building partnerships after IT outsourcing. The requirement for this kind of research in this case has arisen from working closely in a business environment dealing with relationships between different organisations. Through observations and experience several problems and same issues have to be dealt with regardless of the parties in the relationship. Many common problems faced in real life partnerships like risk taking, sharing information, trust, expectations, and organisational differences have been clearly stated in the business literature and previous research too.

Partnerships can and should be divided into different types depending on the nature of the relationship. Stähle and Laento divide partnerships into operative, tactical, and strategic partnerships. Vesalainen is using different names in his division: market-based partnerships, dependency based partnerships, interactive partnerships, systems supplier partnerships, and partnerships. Maybe the most essential thing in building and maintaining partnership between two organisations is that both parties share the same vision of what type of partnership they have. Without that it is very difficult to determine the framework for the partnership.

The study will be carried out by using the action analytical research method. In this case the target is to make concrete procedures and implement them in the case partnerships. The literature and previous research on the subject will give a good picture of previous and present findings in this area. The empirical research will be executed by gathering information from case partnerships by using a tool called Partnership Monitor. That is a tool for determining the present and future state of the partnership between two organisations. The contribution in this study is the improvements in the case networks. Also the improvements to Partnership Monitor tool can be seen as some kind of contribution for IT-field.

This study will be beneficial at least to the case companies in the sense of clarifying their partnerships. At the moment many relationships between different organisations are called partnerships, but the actions can not be seen as characteristics of a deep partnership. In many cases organisations still make suppliers compete by asking offers from many different suppliers even though they might have a partnership contract with another organisation. When this kind of actions diminish and the trust and risk sharing rule the relationship, the true partnership is there and can be developed further.

### Reference

Stähle, P. & Laento, K. (2000). Strateginen kumppanuus - avain uudistumiskykyyn ja ylivoimaan. WSOY. 165 p.

Vesalainen, J. (2002). Kaupankäynnistä kumppanuuteen. Yritystenvälisten suhteiden elementit, analysoiminen ja kehittäminen. MET-julkaisu nro 9/2002. 220 p.

## **INVESTIGATING BUSINESS INFORMATION MANAGEMENT PRACTICES**

Mika Hannula, *Tampere University of Technology, Finland* and Virpi Pirttimäki, *Tampere University of Technology, Finland*

Traditionally, information systems and processes in companies have focused on selected information within a certain context. However, what decision makers need is a comprehensive set of up-to-date information on various contexts. Information on both internal and external sources is important in order to enable sophisticated decision-making.

In a time of fast change and intense competition, companies aiming to succeed in this demanding business environment are restlessly seeking effective business information management practices. Term Business Intelligence (BI) refers to business information management processes and systems and the business knowledge itself, although the terminology is far from consistent; other terms instead of BI are also used. Besides, in the real world BI is often used to refer to both the information technology based systems and the actual business information management processes.

In this study, the business information management practices of large Finnish companies are explored. The aim is to find out - to mention a few topics - what terminology is used, how BI functions are organized and how important this area is seen for the future competitiveness.

The top 50 Finnish companies were interviewed by telephone in July 2002. The sampling plan of the study required that the business intelligence experts representing the TOP 50 companies in Finland answer a multi-page questionnaire. An expert interviewer navigated the respondents through the questionnaire, and assisted when found necessary.

In the final paper, the research process is described and the main results of the study are presented. In addition, conclusions based on the results are withdrawn to contribute to the research and development of business information management, and to set guidelines for further academic research of this emerging topic.

## **E-BUSINESS IN LITHUANIA'S COMPANIES FOR THE DEVELOPMENT OF COMPETITIVE ADVANTAGES**

Rimantas Gatautis, *Kaunas University of Technology, Lithuania*

The dynamics of information technologies and their adjustment stimulate enterprise to look at the business anew. Information technologies make preconditions for creation both: for intranet and extranet and effective activity development. E-business allows for the enterprise not only to increase the size of market and reach new consumers, but also to lower expenses of work, inventory, logistic, communication and others. The introduction of e-business in the activity of the firm is not a simple process, it is related with the existing models of business and systems reorganization.

Development of information technologies and their adjustment to business increase competition. The competitive advantages take the greater part because of intensive competition. Their peculiarities and development mechanism is the essence of the competitiveness.

In order to introduce electronic trade in the process the enterprise has to reorganize separate parts of the whole chain of its business process and with the partners as well. The development of electronic trade is very important for the enterprise creating competitive advantages for successful market.

The opportunities of using e-business trade in the process of economic subjects activity give a chance for competition among them. Various resolutions accompanied with the required information play an important role in now day's business. The usage of e-business for the development of competitive advantages requires systematic and methodological approach.

Article analyzes different authors' (M.Porter, M.Parson, B.Ives and P.Learmonth, L.McFarlan, Y.Bakos, E.Brynjolfsson, J. P.Bailey, M.Sarkar, J. Rockart and M. Scott Morton, T. Malone, Yates ir R.Benjamin) attitudes towards e-business for the development of competitive advantages. Basing on these theoretical research the new model for the development of competitive advantages of economic subjects, making use of opportunities of e-business integrating three standpoints toward the use of e-business trade for the development of competitive advantages- the value added chain, the optimization of interorganizational relations, M.Porter's competition model is presented.

Prepared theoretical model the development of competitive advantages empirically surveyed between Lithuania's companies providing e-business solutions for Lithuania's enterprises. Basing on this research, the main areas of e-business' use for the development of competitive advantages between Lithuania's companies are identified.

## **E-MARKETING IN INDIA: A SYNERGISTIC MODEL**

Ashish Sadh, *Indian Institute of Management, India* and Sibani Mahapatra, *Indian Institute of Management, India*

The application of IT in management has made E-business prolific and effective. Marketing aided by Internet christened, as E-marketing is a new approach not only to buying and selling but also to the whole set of activities. The E-way of marketing is a great leap forward to make the system effective and end consumer happy. E-marketing enables the performance of activities through the electronic medium in a way that the whole process becomes easier, faster and more transparent, transcending the borders of geography and boundaries of time.

It's an emerging field in India also. A country with a billion plus population, a vast pool of English speaking, computer literate manpower at competitive costs has much more to say in the E-business periphery. Increasing IT and Internet awareness and liberalization move taken by the government have made the E-marketing environment supportive. Currently 600 million people are attached to Internet and the number is doubling every 10 months. India recorded the highest rate in 1999 in Asia Pacific region for the net user growth. Prediction has been made by NASSCOM that by end March 2003 the number of net subscribers and users will become 8.0mn and 18 mn. respectively. Indian Internet market space has been witnessing phenomenal growth rate since November, 98. McKinsey has projected that the B2B and B2C transactions will be at \$1100 mn – \$3500mn and \$ 225 mn - \$ 475 mn respectively by 2004. The size of E-business by the year 2008 has been forecasted by McKinsey and NASSCOM to be of \$ 10. Billion The cost savings of running a business in India is the greatest business potential of E marketing venture. Further, the huge pool of good quality, techno-savvy high skilled labor is other advantage.

However, the downsides of this alluring venture are also many: such as low PC penetration, poor infrastructure, low bandwidth, slow down loads and high consumer inertia. All these challenge the success of absolute and independent E marketing in India and are also the reasons for insipid performance.

It's felt that if a symbiotic relationship can be established between the physical marketing system and Internet marketing system then it may lead to great success in India. With this idea we propose a model "SYNERGY" to tackle the situation.

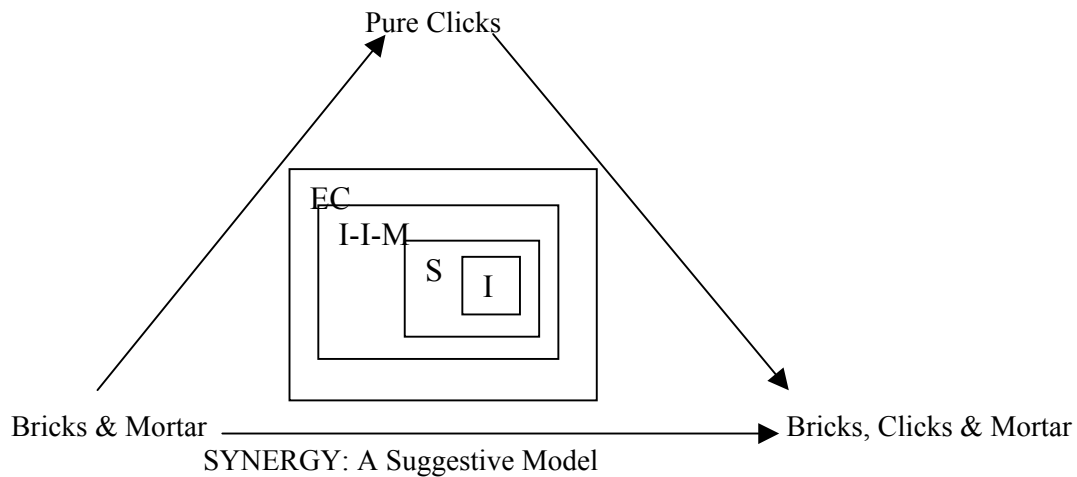
It requires the strategists, entrepreneur, and executives to reweigh their course of action and do over again their system so as to transform the way they interact with their environment, both, internal & external and end consumer. With the evolution of Internet and World Wide Web omnipresence and getting connected have become essential. Given the potential and downsides in Indian environment, the "Synergist" would try to develop a Bricks, Clicks and Mortar system from Bricks & Mortar and Pure Clicks systems. The underlying philosophy is that any B&M system can have its analogue on the Internet and benefit from the E marketing.

Pure click models suffer from many pitfalls like attracting attention, building brand awareness, making a good customer relationship etc. besides the critical operational issues. Bricks and Mortar systems are not fully able to address the call of the time. As competition magnifies consumer are getting demanding day on day with plenty of opportunities and providers to choose from. These force the marketers to be able to capture, store and track all interactions with consumers across all possible touch points, all the time.

Therefore the idea is to enable the marketers to build an effective E-marketing system based on BCM system.



**The conceptual diagrammatic representation of the model could be as follows:**



**Initiator:** Owner of a firm/ businessman /executive/anybody who wants to design a BCM System

**Synergist:** The wizard, whose mastermind would combine the Bricks & Mortar and Pure Clicks Systems.

**Inter-Info-Mediaries:** The middlemen who would work between Synergists and end-consumers.

**End-Consumers:** The ultimate “Lord” of the system.

The proposed model calls for a Synergist, who'll be responsible for the success of the whole system. The important thing for SYNERGY is that the Synergist would be highly flexible. Although s/he has 3 important and distinctive roles, s/he may not always be necessarily the three different persons. S/he could be a single mind performing three different roles: Initiator, Synergist, and Inter-Info-Mediaries. Synergist would try to serve the end consumer with a BCM approach.

The success of SYNERGY depends on these Initiators, Synergist and the I-I-M individually or any combination of them.

The mathematical representation would be as follows:

$$S = a1X+a2Y+a3Z+a4XY+a5YZ+a6ZX+a7XYZ$$

Often the SYNERGY is evenly associated and grows cumulatively, as a7 is the predominant one above. There can be situation where one or two but not all factors are dominant for Synergy.

The paper tries to explore the current status of E-business activities in India and test the conceptual significance of the model in an Indian context.

## **TECHNOLOGY CENTRE'S STRATEGY**

Marko Lehtimäki, *Tampere University of Technology, Finland*

**Background.** Social, economical and technological development is in the middle of the radical change. The boundaries of traditional national-states are blurring, the mobility of the capital markets, labour forces and even production facilities is ever increasing. It is stated that knowledge has become the most important source of competitive advantage. In many occasions, the modern information and communications technology is the major enabler to this kind of development, it provides the infrastructure for the global business transactions. Also new kind business models are emerging in this environment, for example network enterprises (Castells). As a conclusion, it is clear that radically changed environment needs new radical actions from all actors who want to be or become competitive. In this context the importance of regional elements is highlighted by many researches. Michael E. Porter has stated that paradoxically the enduring competitive advantages in a global economy lie increasingly in local things - knowledge, relationships, and motivation that distant rivals cannot match. AnnaLee Saxenian has reached the same conclusion in her studies concerning the Silicon Valley and reasons behind area's success.

**Objectives.** The main purpose of this study is to generate knowledge about how to create competitive advantages in global economy based on local factors. In order to do that, I have chosen one regional player, technology centre and its' strategy process, under my examination. I have gathered data about Technology Centre Hermia in Tampere from years 1986-2002. Objective is to study Hermia's development in three levels: Important events, key players related to these events and what was the chosen logic of action in different phases of development. Another objective is to contribute the art of the strategic management, and bring together traditional approaches in this field, classical (Ansoff etc.), processual (Pettigrew etc.), game theory (Branbenburger & Nalebuff), etc., and finally generate new knowledge and build new theory in this area.

**Methodology.** Data concerning Hermia is gathered from annual reports and other records from meetings. Next step is to organize interviews focused on key players in technology centre's development. The method here will be structured interviews. As the objective in this study is to understand, not to explain (von Wright), it is clearly a qualitative research. In defining the nature of this study, three aspects, ontological, epistemological and methodological point of view must be taken into account when we are choosing between the basic beliefs of alternative inquiry paradigms (Guba&Lincoln), positivism, postpositivism, critical theory and constructivism. Within this framework, this study is clearly classified as a constructivist research.

**Results.** The results from this study will be twofold. Firstly, the objective is to inspect technology centre's strategy process as described, and generate understanding concerning this process and its' environment, regional field of competition and co-operation, or co-opetition, as it is stated by Brandenburger and Nalebuff. Practical contribution will be knowledge and ability to reconstruct successful strategies in regional, and more specific, in technology centre's point of view. Secondly, the objective is to benefit the field of strategic management. In order to do that, I will collect and inspect traditional approaches of strategy and then build new theory related to the ideas such as strategic play, strategy logic and play thinking, which are recently highlighted by Näsi.

## **APPLICATION OF EXPAND-AND-TRUNCATE LEARNING (ETL) IN DATA MINING**

Xu Yi, *Nanyang Technological University, Singapore* and Narendra S. Chaudhari, *Nanyang Technological University (NTU), Singapore*

With an enormous amount of data stored in databases and data warehouses, it is increasingly important to develop powerful tools for analysis of such data and mining interesting knowledge from it. Data mining is a process of inferring knowledge from such huge data. Data Mining has three major components: clustering or classification, association rules, and discovery of sequential patterns.

In classification/clustering, we analyze a set of data and generate a set of grouping rules, which can be used to classify future data. One of the important problems in data mining is the classification-rule learning; this involves finding rules that partition given data into predefined classes. Some of the machine-learning algorithms that have been successfully applied in the initial stages of this field, such as statistical algorithms, neural networks, genetic algorithms, nearest neighbor method and rule induction. In this research, we investigate the approach based on neural networks.

Learning problem for neural networks has widely been investigated in last two decades or so. A survey of results about learning of Boolean functions on neural networks is given in [1]. One of the approaches proposed for this problem is due to Kim and Park [2], where they used a technique, called "Expand and Truncate Learning (ETL)". ETL is proposed to train a three-layer binary neural network (BNN) for training a Boolean function of  $n$  (Boolean) variables. This technique is based on suitable modification of some of the well-known method(s) for designing electronic circuits using threshold logic elements. It is claimed in [2] that, neural networks constructed according to this technique are much smaller.

In this research, application of ETL to data mining shall be investigated. We will discuss building a classifier based on ETL.

### References:

1. M. Xiomin, Yang Yixian, and Z.Zhang, "Research on the learning algorithm of binary neural network". Chinese Journal of Computers, Vol:22, No.9. China, pp931-935 (Sept.1999).
2. J.H. Kim and S.K.Park, "The geometrical learning of binary neural networks", IEEE Trans. Neural Networks, pp.237-247, (Jan. 1995).

## **APPLICATION OF COMPUTATIONAL LEARNING TO CLASSIFICATION PROBLEMS**

Wang Xiangrui, *Nanyang Technological University, Singapore* and Narendra S. Chaudhari, *Nanyang Technological University, Singapore*

In the last three decades, considerable research has been done in the area of computational learning. Classification of huge data is one of the important problems in knowledge extraction. It is proposed to investigate application of some methods in computational learning for classification problems.

These days, huge data about net logs, transaction data, stock prices, genome databases, medical databases, etc., is increasingly posted on the web. As amount of data on net increases dramatically, using machine to exact knowledge becomes necessary. To extract such knowledge, standard techniques about classification, sequence data processing, behavior analysis, movement prediction, etc., are currently used. Collection of these techniques is grouped in the area of "data mining". Although data mining is an approach to solve this problem, it has a lot of limitations and is sometimes not useful for getting the knowledge we really want.

The learning models that have been studied are abstractions from real life problems. Thus, close connections with experimentalists are useful to help validate or modify these abstractions so that the results help to explain or predict empirical performance.

A learning problem needs to acquire a new knowledge and problem-solving abilities, but knowledge and problem solving are topics still under intensive study. Building machines that learn from experience is an important research goal of artificial intelligence and has therefore been an area of research. Most of the work in machine learning is empirical research. In such research, learning algorithms typically are judged by their performance on sample data sets. This performance is therefore summarized in terms of learning, converging, and sometimes testing. Although these ad hoc methods may provide some insight, it is difficult to compare two learning algorithms carefully and rigorously, or to understand in what in what situations a given algorithm might perform well.

Computational learning theory is a branch of computer engineering that studies how to design computer programs that are capable of learning, and identifies the computational limits of learning by machines [1]. The theories of learning languages such as context free language (CFL) and regular languages from sample data and query may help us to get an insight into the structural (or, knowledge) aspects of the data.

Specifically, we shall focus on two approaches. The first approach is due to Sakakibara [2], who has given a technique for efficient learning of context free grammars from positive structural examples. The second approach is again a well-known approach by Dana Angluin, for inferring regular languages [3]. It is proposed to investigate application of these (and similar techniques) for classification phase of data mining.

Some investigations/extensions/applications related to multi-agent technologies, web-based computing in e-commerce shall also be reported.

### References

- [1] Goldman. S. A. (1999), *Computational Learning Theory, Algorithms and Theory of Computation Handbook*, CRC Press, 1999.
- [2] Sakakibara, Y. (1992), Efficient learning of context free grammars from positive structural examples, *Information and Computation* 97 pp. 23-60.
- [3] Dana Angluin, (1982), Inference of Reversible Languages, *Journal of the Association for Computing Machinery*, Vol. 29 No. 3, July 1982, pp. 741-765

## TRADITIONAL AND EMERGING VENTURE-TO-CAPITAL BUSINESS MODELS

Tommi Rasila, *Tampere University of Technology, Finland* and Jussi Okkonen, *Tampere University of Technology, Finland*

The importance of small and growing enterprises in creation of jobs, innovations and wealth is unquestionable. Studies about New Technology-Based Firms (NTBF) and Venture Capital show that both the supply of good start-up companies and supply of capital to fund these ventures is vital to success. Still, despite the general availability of funding and several principal models for aiding these fledgling companies, many promising ventures fail to make it and sink into oblivion before crossing the hurdle to success.

There are various reasons for this, and of course, not all companies are fit for success in the first place. But if we define that receiving venture capital funding (so-called "first round") would be a measure for success, we can reflect the challenge facing these new, usually fast-growing companies against the investment criteria of VC companies. We call this area starting from birth of the company and ending to the point when it arrives to the operating environment of VC companies the Venture-to-Capital (V2C) area.

When reaching a status which fulfill the investment criteria we can call the company "investable" or "investment-ready". Still, many promising or "prospective" companies fail to become "investable", even though they seemingly have got all the parts needed of success. Is there something wrong Our hypothesis is that the V2C area works deficiently and that the current operating models can be improved to improve target start-up's chances for success.

Recently, scarcity of seed funding and existence of capital gap have become a major obstacle in growth of start-up companies. At the same time, venture capitalists would need more ventures to soak the capital from their funds profitably. This mismatch inevitably has impact on economics of the nations if not dealt with. Surely, something can be done, and in free economy it is evident that new business models will arise, if existing ones are not operating perfectly.

The purpose of this paper is first to briefly explain the key elements in operating models of the existing V2C operatives: Incubators, Business Angels, Advisors and Seed Capital VC's. After this, a variety of of new operating models will be presented: Virtual CEO, which is almost an archetypical V2C operative; LINC Trial Marriage, which brought new incentives to Business Angels; Business Angel Networks, which try to organize match-making; and eAccelerator, which is an elaborated model of traditional incubator.

	<i>Compensation</i>	<i>Attitude</i>	<i>Working model</i>	<i>Time span</i>
Incubators	Paid for	Professional	Bureaucratic	Long
Adviser	Paid for	Professional	Entrepreneurial	Short
Business Angel	Owner	Hobbyist	Entrepreneurial	Long
Venture Capital	Owner	Professional	Bureaucratic	Long
"V2C Operative"	Owner	Professional	Entrepreneurial	Long

Picture 1: Brief Summary of V2C Operatives

Finally, these new and traditional business models will be summarized and their strategy logic compared to each other, trying to build understanding of system logic of V2C area. An effort will also be made to sketch the normative operating model of a new kind of V2C operative.

## **DESIGNING A PERFORMANCE MEASUREMENT SYSTEM: A CASE STUDY IN THE TELECOM BUSINESS**

Jarkko Tenhunen, *Lappeenranta University of Technology / Lahti Unit, Finland*; Juhani Ukko, *Lappeenranta University of Technology / Lahti Unit, Finland*; Tapio Markus, *Lappeenranta University of Technology / Lahti Unit, Finland* and Hannu Rantanen, *Lappeenranta University of Technology / Lahti Unit, Finland*

This paper presents a case study related to a two-year research project the aim of which was to develop a performance measurement (PM) system for small- and medium-sized enterprises. During the research project a PM system was developed and tested in pilot companies. These pilot companies represented more of traditional industry. This case study is the first attempt to apply the system to service industries.

The study was carried out by using action research approach. One of the researchers was working in the company during the research project and gathered empirical data from inside the case company. A construction - the PM system - was designed although its final usefulness is not possible to evaluate at this stage of the research.

The objective of the case study was to find out how the company should measure its performance. Before this development project the case company did not apply any PM system. The challenge was also to clarify what are the operative targets that should be measured and how these targets should be defined so that they support long-run strategic goals. In this research project the PM system was developed for one department of the company. Findings in this project will be crucial when adopting performance measurement in other departments and at the company level.

The results of this study show that the design group should consist of motivated people. The resources must be assessed carefully and the assistance of an external designer may be needed. Communication between designing teams at the department and company level is essential. One person should be responsible for the inter-project coordination.

## **THE CONCEPT OF A KNOWLEDGE FUND: PROPOSITION FOR A STRUCTURAL SOLUTION FOR THE EMERGING V2C INDUSTRY AND THE BUSINESS OF A VENTURE KNOWLEDGIST?**

Marko Seppä, *Tampere University of Technology, Finland*

Thanks to the collapse of communism - and anti-entrepreneurship in general - and the rapid development of ICT enabled business concepts, barriers to plan and start new ventures are lower than ever. From the perspective of the VC industry, venture supply has soared. As a response to the increased demand for venture financing, also capital supply has soared. The paradox is that the gap between the two ends has only widened.

Due to the transformation of the venture capital process into venture capital spiral, successful venture capitalists typically suffer from a physical inability to make small investments. There is no lack of capital, per se, but of small enough doses of it. In fact, the classic concept of a capital gap has transformed into knowledge gap. Accordingly, a new industry is in making between venture and capital, one that pushes ventures to capital, the V2C industry. After an era centred around venture capitalists, venture knowledgists are emerging as the newest rain maker or enabler of economy.

The V2C arena is still fragmented and undefined. It is also unorganised and immensely heterogeneous - just as was the case with the VC industry 20-30 years ago. This conceptual study contributes to the emerging field of V2C research by constructing a proposition for an industry structure: The concept of a Knowledge Fund. The study dives deep into the structural development of the limited-life limited-partnership based fund vehicle of the VC industry in its search for a killer application for the V2C industry

Based on existing wisdom on strategy logic of the venture capitalist, the study seeks to design and propose a business structure for the venture knowledgist. The concept of a knowledge fund is introduced from four stakeholder perspectives: (1) venture knowledgists themselves, (2) their investors - the knowledge investors, (3) the target entrepreneurs, and (4) venture capitalists. The primary objective is to present a research-based social innovation for the emerging V2C industry, define core concepts, and propose directions for further research.

Ventures faced with the knowledge gap have the problem that the wisdom they need cannot be bought on the market in the classic meaning of the word. In the acquisition of such knowledge, expansion of owner base may be a working solution. Creative, professionally managed structures that encourage interim ownership participation by relevant representatives of different the sectors of the society - business, university, and government - could be the missing link between venture and capital. Needless to say, completion of the value chain between venture and capital would have a significant impact on the economy. Naturally, such a crossing of borders and boundaries would require a wide discussion and acceptance - and appreciation - across the society.

**FRIDAY, November 15th, 11:30AM - 12:30PM**

**Session: Efficiency 2**

**TECHNOLOGY AND HUMAN RESOURCE BASED ENABLERS FOR  
SUCCESSFUL KNOWLEDGE TRANSFER IN ORGANISATIONS**

*Mikko Arevuo, Delta Strategies, United Kingdom*

It has been argued that knowledge management has discrete components: knowledge creation, capture and distribution, but at what point do the two component systems generate the greatest impact to the organisation's competitive advantage? To capitalise on intellectual resources, organisations must balance their knowledge management activities across the entire spectrum from knowledge creation to utilisation. Much of the focus has been on technological solutions using IT infrastructures. The focus on IT systems has generated scepticism about the validity of knowledge management as a strategic orientation, which is compounded by the limited opportunity for intangible assets to create value or return that can be quantified.

As knowledge management is still in an embryonic stage, this has meant a constrained opportunity to reflect on past practices and analysis of the successes and failures in knowledge management implementation. This report looks to the current literature and thinking on the future direction of knowledge management. Fundamental to this report is the analysis of case history and the changing views within the knowledge management literature of a 'best fit' implementation of knowledge management initiatives.

Organisations either focus on technology or people to manage knowledge. Finding the appropriate balance is dependant of the context in which knowledge management is being implemented and what 'best fit' is appropriate to the organisation. There is no right or wrong implementation; the results can be achieved in many ways. The focus of the organisation is key: if it is the delivery of a product that can be standardised, then a more technology focused strategy may be appropriate, if the product is more innovative or customised, then a people focused strategy is possible. What neither of these actions can do is run in isolation. This report emphasises that the two orientations, technological and human, are interdependent. It is the interaction between people, technologies and techniques that enable organisations to manage knowledge to maximum competitive advantage.



## **BUSINESS KNOWLEDGE LOGISTICS: KSNET-APPROACH AND ITS IMPLEMENTATION**

Alexander Smirnov, *SPIIRAS, Russia*; Mikhail Paskin, *SPIIRAS, Russia*; Nikolai Chilov, *SPIIRAS, Russia* and Tatiana Lavashova, *SPIIRAS, Russia*

Current trends in the area of e-business require (i) an intensive use of knowledge of global awareness and dynamic planning, and (ii) cooperation and open standard-based information / knowledge exchange between all the market participants in a real-time. In addition, there are a large amount of distributed knowledge sources (knowledge bases, repositories, etc.) that represent knowledge in various formats.

Current trends of decision making in a wide range of applications require using a global business information environment. This leads to an expansion of e-applications dealing with knowledge storage in the Internet based on intensive use of WWW-technologies, and such standards as XML, RDF, DAML, OIL, etc. As a result it is possible to speak about an evolution of the information environment, including end-users and loosely coupled knowledge sources (experts, knowledge bases, repositories, etc.), from "regular" (with fixed interactions between knowledge sources) to "intelligent" (with flexible configuration of knowledge sources network in which humans are involved). Along with a large number of distributed knowledge sources (KSSs) representing knowledge in various formats this has led to the formulation of new scientific area in knowledge management called Knowledge Logistics (KL). KL stands for acquisition of the right knowledge from distributed sources, its integration and transfer to the right person within the right context, at the right time, for the right business purpose.

The paper describes an approach to KL, which called "Knowledge Source Network" (KSNet-approach). The approach is based on the propositions that knowledge as a resource is characterized by cost, location, access time and lifetime, and a knowledge worker is an owner of knowledge. It utilizes principles of Ambient Intelligence implying synergistic use of knowledge from different sources in order to complement insufficient knowledge and to obtain new knowledge. This approach is based on such advanced technologies as ontology management, knowledge fusion, constraint programming, intelligent agents, user profiling, VRML-based user interface, and knowledge mapping.

The KL system scenario is based on individual user requirements, available knowledge sources, and context analysis in the e-business information environment. The structure, major features and examples proving applicability of the KL system are presented via a complex configuration example for a vehicle with customer-defined features and a supply network for its production.

The KL can be a very powerful concept to enable collaboration between members of joint actions and operations. This concept can be applied in many other industrial applications featuring large-scale dynamic enterprises with distributed operations, logistics operations addressing end-to-end rapid supply, markets via partnerships, etc.

This research was partially funded by the European Office of Aerospace Research and Development (USAF), the research program "Mathematical Modeling and Intelligent Systems" of the Russian Academy of Sciences, and by a grant from the Russian Foundation for Basic Research. Major industry-oriented components of the above approach have been developed for research supported by grants from Ford Motor Company

## Session: Engagement 2

### FROM E-COMMERCE TO SPEECH COMMERCE

Thibault de Swarte, *ENST Brittany, France*

E-commerce, the hype goes, follows a different set of rules than the brick-and-mortar world: it allows opening a self-sufficient sales channel, where human intervention has little or no room when conducting sales.

#### Theoretical background

1. Speech commerce is the traditional way to sell products or services by exchanging formal information but also informal information related with the quality of the shop, the quality of the dialog between a customer and a seller.
2. In a first approach, E-commerce can be described as a form of commerce where "nobody speaks to nobody". The fact is that the major economical interest of e-commerce is to industrialise the expensive human processes linked with traditional commerce.
3. Human/machine interactions are poor means of dialog from a sociological and psychological point of view. Real dialog allows building inter-subjective links between subjects, and provides a common ground to represent images. On the contrary, with information systems, data is exchanged and processed, but never interpreted or imagined.
4. We use the term 'dialog' in this paper more or less indifferently of the dialog-method : internet chat, phone call, physical interaction, i.e. any real-time communications method. In the course of the research, we have tried to find concrete examples of dialog-enabled sites to illustrate and confront these hypotheses. We mainly focused on the first point; the second can be viewed as a consequence of the lacking of human dialog.

#### Data collection

We split the data collection in two steps: Firstly, we suggested possible cases where dialog could become preferable, if not necessary. We came up with a set of hypothesis, which eventually led us to dialog-enabled sites. Secondly, we conducted a qualitative study to confront some of our hypothesis. We tried a few dialog-enhanced sites and called their owners in order to collect qualitative feedback; we also contacted dialog-software editors.

In this paper, after we briefly introduce co-browsing, we present our qualitative findings. We then discuss a few more hypotheses, and conclude on recommendations to build speech-commerce websites.

In this paper, we discuss the relevance and impact of adding dialog-methods on websites. In particular, we describe cases where end-user anxiety (from lack of trust, expertise and from a latent lust for speech) makes dialog preferable ; we also discuss how websites can be viewed as an extension to existing sales channels, rather than a completely separate one in which people are inexistent.

#### Main conclusions

Our conclusions are that websites are more efficient when dialog-enhanced. As such, we recommend website managers to :

- Add dialog features on websites, intranets, and other document-sharing networks and view these as interactive showrooms, rather than standalone elements.
- - Adopt a bi-dimensional data collection approach. We believe technical data on site usability is as important, if not more, than marketing data on customers.

Allow the website's visitors to co-browse the site with each other. We identify a latent lust for conversation. Websites can take advantage from this by allowing users to dialog with each other rather than with web-operators. With ADSL Internet connections and UMTS mobile telephony, e-commerce could build a hybridising with speech commerce.

## **CLASSIFICATION OF ONLINE COMMUNITIES**

Maria Mäntymäki, *University of Tampere, Finland* and Tuula Mittilä, *University of Tampere, Finland*

This paper deals with a phenomenon called online community. The research problem of this study can be formulated as follows: "How can commercial online communities be classified?" This study will also be a part of the dissertation concerning "Attraction factors of online communities".

The rapid development of information technology has increased significantly people's interest towards online communities. When the first online communities emerged, they were mostly aimed for leisure time activities and were maintained by associations and non-profit organisations. Nowadays companies have also discovered the possibilities online communities can offer and there are already a wide variety of commercial online communities. Some examples of business-oriented online communities include a community of independent resellers sharing sales tips and ideas; buyers and sellers in an Internet marketplace, exchanging information related to purchases or sales; customers on an Internet commerce site, united by a common interest in topics related to the products offered on the site and people who subscribe to an online information service. To make it easier to understand the variety of online communities, it is necessary to classify them on some level. This can be done by many different criteria.

The term online community isn't hard to understand, yet it is slippery to define. In a multidisciplinary field such as this, some definitions reflect a disciplinary perspective (Preece 2000). According to Preece (2000), an online community consists of people, shared purpose, policies and computer systems. Rheingold (2000) has said that online communities are social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace.

The first step in this research has been to take a closer view of the literature concerning the research problem area. The second step is to observe and classify online communities concentrating on the objectives and the business logic of maintaining communities to give more information and deeper understanding of the phenomenon. This method has its background in ethnography and anthropology adapted for use on the Internet. To be able to reach the saturation point, no less than 30 companies will be selected for the pilot study. The selection was made by using different methods: conscious selection, search engines and references of authors who have researched online communities. The reason for this kind of selection was the difficulty to find a relevant source, from which online communities could be chosen incidentally. By using different sources, it is more certain that different kinds of online communities are taken into the research. The contribution of this exploratory study is to create an early proposition for a new conceptual framework for classification of commercial online communities.

### References

- Preece, J. 2000. *Online Communities: Designing Usability, Supporting Sociability*. The United States of America: John Wiley & Sons, Inc.
- Rheingold, H. 2000. *The Virtual Community: Homesteading on the Electronic Frontier*. United States of America: MIT Press Edition. Originally published in 1993 by Addison Wesley.

## **Session: Entrepreneurship 2**

### **LOCAL APPROACH TO V2C ACTIVITY: CASE TAMPERE**

Hannu Jungman, *Tampere University of Technology, Finland* and Marko Seppä, *Tampere University of Technology, Finland*

Venture-to-Capital or V2C activity deals with pushing ventures to capital, i.e., from the dark to the radar scan of the venture capital or VC industry. This is activity to overcome the new capital gap and a concern on the EU level, the national level, as well as the regional level. Benefits of V2C activity include increase in the amount of ventures, increase in the amount of jobs and increase in the amount and quality of related research and education.

In regional level, the goal of eTampere program is to develop Tampere to one of the world's leading knowledge societies. One mean to achieve this target is creation of new businesses by providing help in set-up activities and in evaluation of business ideas, creating culture that encourages entrepreneurship, securing appropriate finance, helping to get required working premises, and promoting networks.

In this study the aim is to find out, who are the different actors in the V2C field, how do these players act and what is the volume of their activity, in Tampere region. The intention is to interview all the players in the V2C field. The study is restricted only to Tampere region. Further research will also be taken to develop a new operation model for V2C activity. The results of this current study will form the basis for further research.

To answer the challenges created by the new capital gap, the city of Tampere has been involved in developing incubators to emerging V2C field. The task of these new actors is to turn prospective ventures investable in the eyes of venture capitalists i.e. helping ventures to cross the capital and knowledge gaps. The concrete players in this V2C field in Tampere include at the moment at least Tampere Technology Centre Ltd, Finn-Medi Research Ltd, Oy Media Tampere Ltd and Professia Ltd. In addition to these public sector incubators, there are some business angels and venture capitalists that can also be considered to be V2C players. The city of Tampere is also committed to invest venture capital especially to seed companies. Anyhow the field is rather scattered, and it needs some clarification.

Economically V2C activity has a meaningful role as a provider of knowledge and capital for ventures and new investment targets for venture capitalists. Furthermore this activity will speed up the birth rate of new companies and therefore increase the amount of jobs in the Tampere region.

## **THE NEW VENTURE DEVELOPMENT AND THE CHANGING ROLE OF BOARD OF DIRECTORS IN HIGH TECHNOLOGY FIRMS**

Jukka Ala-Mutka, *CAA Consulting Oy, Finland*

New venture founders, managers and boards of directors often find themselves unprepared for managing growth-related transitions effectively. An understanding of the new venture development and the associated corporate governance imperatives could help entrepreneurial managers through the rapid growth. In general, sustained firm growth is significant to value creation, which is an essential part of the entrepreneurial process. There are some main characteristics of new high-growth ventures: (1) they are companies that experience a strong growth in their size (sales, number of personnel, etc.); (2) this strong growth occurs in a very short period of time; and (3) they do not have previous history as a firm.

Major part of the literature related to life-cycle suggests that organizations evolve in a consistent and predictable manner or through crises. Scholars have also argued how firms move through various phases of growth and how various problems must be addressed, resulting in the need for different management skills, priorities, and structural configurations. On the whole, life-cycle stage definitions remain vague and general, making applying specific cases difficult. As this paper focuses on entrepreneurship and growth, a proposed framework excludes the stages Maturity and Decline. According to the previous research, the suitable stages are Pre-start-up, Start-up and Expansion. Furthermore, transformations in rapid growth must be faced earlier and with greater rapidity than in less turbulent environments.

The in-depth case study of AtBusiness Communications Oyj shows that there are periods and their various states that are distinguished from each other by their characteristics of corporate governance. In this paper "stages" or "phases" are defined as periods, because these periods can possibly occur at the same time overlapping with each other making states even more complex for the management and the board of directors. This paper analyses new high-growth ventures from three theoretical points of view: (1) growth models; (2) entrepreneurship in high technology ventures; and (3) the role of the board of directors. The paper studies the volatile internal and external strategy context of rapid growth clearing up (1) the periods' characteristics (states) of development, (2) corporate governance imperatives in each period, (3) the actors (the board of directors), and (4) their roles in each period.

This study combines the proposed conceptual framework of new venture development, the empirical findings of the in-depth case study, and the industry survey among high technology start-ups, venture capitalists and medium-sized high technology firms in Finland in October 2002. The analysis will be based on Bayesian modelling, which is a high-level representation of a probability distribution over a set of variables. In this approach, all the related problems in building such models are solved within the same theoretical framework based on the probability theory. In order to be able to apply this theoretically elegant approach in practice, the set of possible models has to be constrained by some basic assumptions on the problem domain. The Bayesian network model is constructed by explicitly determining all the direct dependencies between the random variables of the problem domain. In a Bayesian network each node represents one of the observable features of the problem domain, and the arcs between the nodes represent the direct dependencies between the corresponding variables.

## Session: Ethics 2

### ENHANCING CONTENT PRODUCTION BY PUBLIC-PRIVATE PARTNERSHIPS IN E-LEARNING

Anna Kilpiö, *Helsinki University of Technology, Finland* and Jussi-Pekka Partanen, *Helsinki University of Technology, Finland*

The traditional, slowly changing educational industry is facing challenges from various sources. The business is opening for national and even for global competition. In the future - in the dynamic, fast paced economy - organisations are required to continuously adopt new technologies, and reorganise their business processes in order to stay competitive. This paper focuses on the partner networks between public institutions and private companies in the emerging e-learning industry in Finland.

Stability and conventionality has been typical for educational institutions. The western individualistic culture has strongly influenced the educational institutions and the school culture; teachers are expected to get through the challenges alone. For schools it can be difficult to get out of the established practices, and as a consequence, they cannot meet the requirements that the changes in society and business generate. Educational institutions and teachers need not to master all the areas of expertise required in e-learning. By partnering they can concentrate on their core competence, teaching.

The publishing industry in Finland has been very stable during the last decades. The business has been regulated by government and the customer needs have not changed dramatically. The e-learning business requires knowledge about the new customer needs and the publishers have to be able to adopt new technological innovations in order to stay competitive. By partnering the publisher can create a close relationship with the customer and increase the customer loyalty.

Partnering increases the possibilities to distribute knowledge and best practises within the network, which provides added value to all public and private partners. The vision is that this leads into a 'win-win' situation, which increases the total efficiency of the network and thus generates competitive advantage to all partners.

In this research we aim to study and enhance the change in the educational industry from isolated organisations to public-private partnerships and cross-organisational business processes. We shall inquire 1) what do organisations offer for other partners, 2) what do they expect from others, 3) do the expectations meet the offerings and 4) does partnering create a 'win-win'-situation?

The study is conducted as an action research focusing on one case study. The purpose is to develop new e-learning content (a study module) collaboratively within a network of public and private organisations. The active partners in the case are a publisher, a few educational institutions and numerous teachers. The research is part of Helmi-research project (Holistic Development of E-Learning and Business Models). The objective is to utilize the findings of the previous case studies in Helmi-research.

The data will be acquired through thematic interviews of the key players and by group simulation sessions arranged by the Helmi-team. The simulations are based on SimLab's enterprise simulation method at Helsinki University of Technology ([www.simlab.hut.fi](http://www.simlab.hut.fi)). The goal of the simulations is to help the project partners to explicate their needs and offerings and to create a common understanding of the cross-organisational business processes.

The practical utility of this research is advancing the partnering between public and private organisations in the content production in the e-learning industry. The theoretical utility is that it will provide information about the needs and offerings of different actors when participating in cross-organisational (public-private) business processes.

## **„EDUCATION PORTAL THURINGIA“ – NETWORKING AND BUNDLING OF RESOURCES AMONG THURINGIAN UNIVERSITIES TO PROVIDE NEW AND EFFICIENT EDUCATION FOR THE FUTURE**

Patrick Schilde, *Technical University Chemnitz, Germany* and Thomas Köhler, *University of Jena, Germany*

The Organisation concept of the des education portal Thuringia is based on the virtual type Organisation, that is consisting of independently existing partnering organisations at different locations. The intention of the education portal is to offer an integrated marketing of academic education programmes for continuous (postgraduate) education, mostly as online courses, that come from the partnering organisations. To do so a new centre was set up and a management structure is now surrounding that basis in a virtual manner. Main business processes are integrated by that internet portal to allow the handling of the very business of the education portal. In a next step this internet based management shall enable the bundling of the business process towards a joint business model that will become part of the partnering organisations' regular business.

The presentation is documenting the virtual Organisation at its current stage, relating its development to the 5-Phasen-Model of the evolution of a virtual organisation (cp. Arnold et al., 1995). Following that classification we can proof hat the education portal is already on stage 4, i.e. it meets the criteria of a virtual organisation. Consequently the virtual organisation may limit its effort to the coordination of the business and may act as an information Broker only.

The case study to be presented is furthermore focusing on recent demands on virtual Organisations that belong to the education sector. Here our concept of offering continuous academic education is based on an empirical analyses that was part of a market study conducted on behalf of the education portal Thuringia to outline our customers expectations. As a result the authors may define the demands more specifically. A further, internally conducted analysis shows which programmes and contents (subjects areas) are already available and on what technology (channels) these are based. This approach is useful as there is not enough applicable data available when researching the national German or the international literature for successful cases.

To sum up: The education portal Thuringia is an organisation that was already set up as a Virtual Organisation. If this approach is to be considered as independent model and moreover as a successful concept of the Evolution of a Virtual Organisation in the longer run will be found out later on. What is however important for a positive development is the effective integration of the business processes of the partnering organisations into a de-central but comparable model of the virtual organisation education portal Thuringia.

**FRIDAY, November 15th, 13:30PM - 14:30PM**

**Session: Efficiency 3:**

**THE FINNISH TOP 50'S OUTLOOKS AND USE OF KNOWLEDGE  
MANAGEMENT IN HUMAN RESOURCES CONTEXT**

*Jussi Okkonen, Tampere University of Technology, Finland; Terhi Laukkanen, Tampere University of Technology, Finland and Mika Hannula, Tampere University of Technology, Finland*

In order to survive, companies, and other organisations too, are in need of the competitive advantage of more efficient exploitation of human resources and intellectual capital. As the nature of organisations has become more knowledge-intensive, the importance of competencies, i.e. knowledge and skills, is emphasised. Intellectual capital management is one of rising functions in Finnish companies. Most important part of it is knowledge management.

This study is based on a survey conducted in autumn 2002. The sample was the TOP 50 Finnish companies and the informants were from HR. The aim of the study is to enlighten the use of knowledge management in Finnish companies in HR context. It was assumed that every Finnish TOP 50 company uses knowledge management in some extent. Earlier there has been only case studies, thus need for this study. The survey considers the background history and the content of knowledge management, how knowledge management function is organised in Finnish TOP 50 companies, and what are the near future aspects for knowledge management.

Contributions of this study are firstly to describe the history and the current state of knowledge management. Secondly, to describe how knowledge management is placed in the organisation and how the functions are organised. Thirdly, to see what are the rationales of using knowledge management. And fourthly, to analyse the current state contra future state of the function and outline the future state of Finnish knowledge management.



## **BA, COMMUNICATION AND TIME AS ENABLERS OF LEADING**

Rauno Kuusisto, *Finnish Defense Forces, Finland* and Tuija Helokunnas, *Tampere University of Technology, Finland*

This paper is part of ongoing research work concerning leading process in information and/or time critical situations. This work is part of doctoral thesis research. The aim of this paper is to introduce the meaning and implementation of ba [Krogh et al. 2000] referring to [Nishida 1921] in the context of communication in the leading process. Ba is a place where knowledge is shared, created and used [Krogh et al. 2000]. Ba is the place and moment in the time-space, where communication and other interaction are coming into their fruition. The base idea is that ba needs not to be real and real time. It does not necessitate physical meeting place. It does not expect immediate feedback. Ba can be virtual both in time and space as well, e.g. e-mail, intranet, videoconference, on-line meeting system. Another base idea is that ba is independent of the type of the organisation. But ba is a premise of interaction. Without that, information does not flow and leading becomes even more complicated.

People have different motives, knowledge and worldviews. They perceive the world through this mental filter and create their individual pictures of the courses of events [Merleau-Ponty 1979]. So, working together with different people can be rather challenging. Collaboration and knowledge sharing between people require that an enabling context, i.e. ba is created and developed. Ba is developed and strengthened by implementing the knowledge creation process presented in [Nokaka - Takeuchi 1995]. During the knowledge creation process mutual valuations, experiences, knowledge and emotions of members of the working group or an organisation are fortified. Strong ba acts as a platform, on which difficult problems can be solved with minimum efforts. Especially those efforts dealing with peoples' different perspectives are minimised by ba-creating dialogue-process before demanding leading acts. So, it could be thought that combining peoples' worldviews beforehand, communication needs can be minimised and focused to the essential.

Communication - or other interaction - is defined to be a process, where interacting entities are transferring information either uni-, bi- or multi-directionally. [Aula 2000] Stories of those actors are merged together during communication event. An actor manifests itself through this story. It adopts information via perception and joins it after processing as a part of long-term motives. This combination of present-day perceptions and long-term knowledge forms the story of this actor. Actors are interacting via these personal stories. Communication is somewhat important in leading. It has been estimated that 98 % of leading is communicating [Aula 2000]. Because communication needs in dissimilar leading situations are diverse, will different bas: real and virtual in time, place and space, support those leading processes divergently. In this conceptual article it is intended to point out that different bas have different value to the leading process in its different phases. Varied information (information as a concept of entity) is needed at divert moments during leading process. Some of this information can be produced beforehand in virtual and/or non-interactive ba and some of it needs concrete person-to-person real ba.

### REFERENCES:

- Aula, P. 2000. Johtamisen kaaos vai kaaoksen johtaminen. WSOY - Kirjapainoyksikkö, Juva.  
Krogh, G., Ichijo, K. & Nonaka, I. 2000. Enabling Knowledge Creation: How to Unlock the Mystery of Tacit Knowledge and Release the Power of Innovation. Oxford University Press.  
Merleau-Ponty, M. 1979. The Phenomenology of Perception. 10th ed. Suffolk.  
Nishida, K. 1921. An inquiry into the good. M. Abe and C. Ives. Reprint 1990. New Haven, Conn.; Yale University press.  
Nonaka, I. & Takeuchi, H. 1995. The Knowledge Creating Company. New York.

### **Session: Engagement 3:**

#### **VALUE AND LOYALTY CREATION FOR CUSTOMERS THROUGH E-CHANNELS IN RETAILING NETWORKS**

Richard Windischhofer, *University of Tampere, Finland* and Janne Ruola, *University of Tampere, Finland*

As a result of market saturation, food and nonfood retailers are looking for additional cost savings and revenue drivers. To take market share from competitors in a saturated market, two main strategies have emerged, meaning either to focus on a "no frills" strategy such as discounters do - or to focus on a customer centric strategy. Cost efficiency pursuers and customer centric retailers both create customer value through passing on cost savings that have been achieved through supply chain enhancement. But customer centric retailing also means to enhance the relationship between the retailer and the customer by using a portfolio of methods such as offering new services (diversification) or new distribution channels (e.g. online shopping). Customer centric retailers are moving therefore from offering core services (e.g. shopping in physical stores) to providing an array of services and deliver them through various channels. The result is a multi-channel retailer that seeks to create higher loyalty and customer spending through continuous service delivery to customers which are - preferably - known to the firm.

To achieve their goal, these new retailers need to connect their stakeholders such as suppliers, wholesalers, employees and customers with each other and create a business network. This also requires linking the retailer's virtual network (Internet Portal) with its off-line network. The goal of this business network is to create value to all its stakeholder relations - with the ultimate goal to improve the value of the customer relation.

This study is interested in what value this network can offer to customers and if it can affect their loyalty and how. We aim to approach this issue from the customer's point of view. Thus, we will evaluate the potential value-added and new services e-Channels (Online Shopping, Mobile Commerce, and Interactive Television) can offer in the light of the customer's value perception. As academic result, it is planned to create a theoretic model of network value creation in retailing which is built around the customer's value perception and needs. As practical result, we seek to evaluate the potential of the three e-Channels for creating more customer value and loyalty.

The first step of the research will be to build a theoretical background model about A) network value creation and relationship enhancement suitable for retail environment, B) customer value creation considering postmodern customer concept and customer expectations in e-Channels and C) e-Channels as tools for value creation and delivery. The second step concerns gathering empirical data. This will be performed by combining qualitative and quantitative methods. If possible, existing data about customer expectations and behavior will be used. In the third step, the data will be analyzed in order to identify the value and cost drivers and possible bottlenecks in e-Channels. We aim to find a comprehensive group of factors which affect the success of delivering value for customer and building customer loyalty in e-Channels. In step four the research will be evaluated and suggestions for customer value creation through e-Channels created. The fifth step will compare the findings of the research with the theoretical model built in the beginning. This will lead either to verifying the model or modifying it to better explain the phenomena at hand.

## **ANALYSIS OF A SOFTWARE COMPANY'S BUSINESS NETWORK: PRODUCT VENDOR, SYSTEM INTEGRATOR OR SERVICE PROVIDER?**

Sari Juntunen, *University Of Oulu, Finland*

Software companies live in complex business networks. It seems to be quite unclear what is the role or position of different players in such networks. What is the core business of a particular company? What is the product's or service's value for the end-customers? New mobile software and services are emerging despite of the bursting of the Internet bubble. However, there is still no certainty about the next generation "killer-applications". Re-consideration of inter-organisational networking and business models must be considered, when aiming at international markets recovering from the temporary slowdown.

The study to be presented and discussed in this paper concentrates on a particular case company, which produces end-user applications and business management tools for value-added services, offering them for mobile and web environments.

The study consists of three areas: 1. Analysis of the case company's network position and its development objectives, 2. Creation of a network-based and value-driven business strategy, and 3. Preparation of a development plan to implement that strategy. The goal of the study has been to find and apply existing practises and theories for new product and service development, marketing and sales, finance, and implementation of wireless services in an international context.

There are certain factors, which are common for the most software businesses. It is possible to define the core areas for a wireless software business model and analyse the strengths and weaknesses in particular company. What makes this particular case interesting is making the business networks visible and understanding the company's position in them using the concepts of value creating systems (VCS). These can be understood as a set of activities creating value for end-customers that consume the results of the activities. After a VCS has been defined, it is possible to go further and design a model to investigate it. The model is called the value net by Parolini (1999).

The analysis of the case discussed in the paper is thus presented in the form of a value net - a certain process map - where value-creating activities and business processes are made visible. On the basis of the process map it has been possible to define and improve the critical processes that deliver value for customers.

In this particular case the service is delivered to customer via customer interface partners. Supporting activities, such as software production, technical support, channel partners, content production, are essential but not relevant for the final customer. On the basis of the analysis an alternative channel and business model could be considered. The leap for more innovative forms of strategic networks could be taken. The development of new mobile and e-services in a larger scale could lead to partner e.g. with the suitable competitor, which operations in marketing, product development and customer service are completing the offering mutually. If more radical change is needed, the so called multidimensional value nets (Möller et al. 2001) could offer opportunities to even develop new business models.

In this case the customer value oriented way could lead to desired results. The nature of wireless services offered would encourage the establishment of a "virtual organisation" for e-business environments (www, wap, etc.) with suitable partners and a heavy push for branding. More open business models would allow end-customers to interact in the service development processes, too - something that Parolini (1999) considers but does not make explicit.

### References:

Parolini C. 1999. *The value net: a tool for competitive strategy*. West Sussex: John Wiley & Sons Ltd. ISBN 0-471-98719-0

Uusisuo M. (toim.), *Laatu verkostotaloudessa -teknologiaohjelma 1998 - 2001*. Tekes. *Teknologiaohjelmaraportti 14/2001*. Sipoo: Paino-Center Oy. 2002. ISBN 95-457-050-5

### **Session: Entrepreneurship 3**

#### **THE STATE OF THE FINNISH MOBILE CLUSTER**

Ilkka Leppävuori, *Tampere University of Technology, Finland* and Juha Näsi, *Tampere University of Technology, Finland*

The Finnish mobile cluster, dominated and made famous by Nokia, has recently been on focus in many studies. The background for the rapid growth in mobile communications has been analyzed and described in detail but - giving attention only to historical data - the current state of the cluster has remained unclear. This paper presents an empirical study that describes how the cluster actors themselves are feeling about the local conditions, focusing mainly on the development of mobile applications. The study is based on an enquiry conducted among people presenting teleoperators, software houses, consultancies, hardware providers, applying industries, and public sector organizations. Nearly 200 respondents were given a questionnaire that included essential questions about the current state of the mobile cluster from the perspective of mobile applications development. The factors perceived most positive for the development of mobile applications were Nokia's presence in Finland, the current communications policy of the Finnish government, and software houses' ability to turn their ideas into products. The issues perceived problematic for the development of mobile applications were the current pricing policy of Finnish mobile operators, the difficulties of software houses in getting venture capital, and the software houses' poor understanding about applying industries. The results suggest that there is potential for mobile applications development business in Finland, but the way incumbent teleoperators use their power in defining the rules of business is delaying the development.

## **FROM GORDIAN KNOTS TO GROWTH NODES: REORIENTATION OF A GEOGRAPHICAL CLUSTER OF FIRMS AND INNOVATION IN TAMPERE**

*Antti Ainamo, JPC Research, Jaakko Pöyry Group, Finland*

Models of fast-growing geographic clusters of innovative firms and their immediate surroundings have argued that these tend to experience an evolutionary pattern of rise and fall. Initially, economies of agglomeration, institutional forces, and cognitive frameworks of managers and their stakeholders create an innovative environment. Over time, those same forces create a homogeneous macro-culture that suppresses innovation, making clustered firms more susceptible than nonclustered firms to environmental jolts. This paper explores the benefits and costs of one way to cope with the dilemma. On the basis of a case study of an effort to reorient geographically clustered firms and their immediate industrial and regional surrounding in Finland's Tampere region with new information and communication technology (ICT) infrastructure, the paper concludes that new links to other firms and clusters, universities, and research laboratories around the world work against a homogenized macro-culture, fuel an innovative milieu, and manifest transformation. The paper describes and analyzes the case to identify caveats and opportunities in terms of agency. Implications for technology introduction, economies of agglomeration, social and institutional reform, and further research are given.

### **Session: Ethics 3**

#### **THE MCP TERMINAL - A FUTURE PLATFORM FOR MOBILE SERVICES**

Ulrich Schiek, *Technische Universität Braunschweig, Germany* and Frank Klingenberg, *Technische Universität Braunschweig, Germany*

The MCP (Multimedia Car Platform) project, which run from the beginning of 2000 until the end of 2001, has provided a powerful architecture for multimedia services in the car. The MCP project has designed a set of specifications, both for the car terminal and for integrated mobile communications and broadcast networks to support enhanced broadcasting, mobile communications and positioning services in the car.

The terminal architecture of the MCP is based on and compatible to the open software architecture of the "Multimedia Home Platform" (MHP), which was standardized in its initial version by ETSI in the middle of 2000. A second version of the MHP specification, version 1.1, was published in the middle of 2001 and is the basis for the MCP Terminal specification.

To fulfil the requirements of an in-car system, extensions have been defined for generalised IP-based access over different kinds of networks (DVB-T, DAB, GSM, ...), the support of location-based services, for the challenges caused by mobile communications, for in-car networking (e.g. MOST, IrDA, Bluetooth) and the car specific user interface with speech support.

All of these car related extensions are abstracted by software interfaces, so called APIs (Application Programming Interface). The MCP API is based on Sun's JAVA language which enables the creation of hardware-independent applications.

After the end of the MCP project we started to integrate the MCP APIs into the existing MHP Reference Implementation from IRT (Institut für Rundfunktechnik) to build our work on a fully MHP compliant software stack. This integration work enables us to evaluate the existing MCP Terminal specification and to find necessary modifications or extensions not only for the car but also for mobile terminals like e.g. PDAs. Further extensions could be for example seamless application transmission (during runtime!) between different terminal type, the improvement of the mobile application reception with the use of hybrid network approaches or support for high-end speech control.

Current work will also lead to a new MCP demonstrator, which could be shown at IFA 2003 in Berlin.

The work on extensions of the MHP for mobile appliances now lead to two international working groups. The MCP Forum group fosters the use of MHP in the car, and the new DVB ad-hoc group DVB MHP-A (MHP-Automotive) is searching for commercial requirements for MHP in the car.

A MHP Automotive Terminal specification would create a common platform for all companies and institutions interested in the creation and provision of mobile and location-based services for the car. It would enable a horizontal market for broadcasters, service and content providers, equipment and car manufactures, and would be completely based on open standards.

## STATE OF ART IN MOBILE PAYMENT SOLUTIONS

Jari Pentti, *EPStar Ltd., Finland*

As a telecommunications consultancy company EPStar Ltd. has recently executed a Mobile Payment Solutions' study<sup>1</sup> for the Finnish Ministry of Transport and Communications. The study compares three Public Key Infrastructure (PKI) based mobile payment methods. These methods use the following procedures for user authentication:

- Financial institution, e.g. a bank, delivers its own authentication card, Wireless Authentication Module (WIM) card, to customer, who inserts it into a dual-chip mobile phone besides operator's Subscriber Identification Module (SIM) card;
- Financial institution uses operator's SWIM-card (SIM+WIM) for authentication in parallel to its operator use, which means storing the institution's authentication data to the operators card;
- Financial institution subcontracts the SWIM-card based authentication service from operator, which means that the operator acts as a Certification Agency (CA) for the institution.

Mobile phone is actively being developed to become a Personal Trusted Device (PTD), which is also suitable for payments. De facto standard has not yet been born, but Finnish actors are quite active in Mobile Payment standardization and pilots.

The creation of payment habit is a slow process. It depends on both security of the used method and trust towards the payment service issuer. Besides them the solution has to be easy-to-use for the user and fast for the acquirer prior a new, universal habit is real.

The comparison of the three methods demonstrated that there are neither important technical nor economical differences in the methods themselves. The differences arise from the implementation processes, i.e. how the infrastructure may and will be used globally.

There are no dual-chip mobile phones in the markets today. Also the procedures of the parallel use of SWIM cards do not exist. These are the biggest problems in the development of the methods compared. Open-minded, co-operative development introducing small steps is needed for the market penetration. The creation of habit is looking for actions instead of the discussion of roles and business models.

<sup>1</sup> The study is published in Finnish by the Ministry of Transport and Communications, publication 31/2002.

**FRIDAY, November 15th, 15:00PM - 16:30PM**

**Session: Efficiency 4**

**MEASUREMENT OF INTANGIBLES: LITERATURE REVIEW AND ANALYSIS OF KEY CONCEPTS**

*Antti Lönnqvist, Tampere University of Technology, Finland*

The intangible factors related to organizations' business operations have emerged as a popular research topic during the 1990's. The rising importance of intellectual capital and intangible assets is commonly related to the increase of knowledge work and knowledge-intensive organizations. Intangibles (e.g. employee's competencies, network relationships, organization's culture and immaterial properties) are often considered more important than tangible factors (e.g. machines and financial capital) for knowledge-intensive organizations. Also many of the more traditional organizations have noticed the value of e.g. employees and customer relationships as important assets that should also be managed.

Knowledge management and intellectual capital management are the best-known management philosophies aimed at managing intangibles. The measurement of intangibles is one central issue related to these methods. In addition, the balanced performance measurement frameworks (e.g. the Balanced Scorecard) that also became popular management tools in the 1990's emphasize the use of non-financial, including intangible, performance measures. Altogether there are several different measurement systems and dozens of individual measures available for measuring intangibles. However, experiences regarding the use of these methods are quite limited because many of them are quite new. As an organizational practice, the measurement of intangibles is still only in the beginning and many companies are having problems in applying them. At a more general level, it has recently been stated that the research field of intellectual capital is in an embryonic state, and therefore there are many opportunities for making meaningful theoretical, empirical and methodological contributions.

This presentation is related to an ongoing doctoral research aiming to develop practical methods for measuring the intangibles of an organization. The full paper will be based on a literature review which has two main objectives. Firstly, the aim is to find out what kinds of measures and measurement frameworks are currently available for measuring intangibles. Since several different methods exist, they will be analysed in order to determine how and for which purposes they can be used. The second goal is to clarify the confusing use of concepts related to (the measurement of) intangibles. The terms intellectual capital, intangible assets and non-financial factors are commonly used in the literature to refer to the same phenomena. However, there are some differences in the concepts. Before further research on the measurement of intangibles is possible, the basic concepts must first be carefully defined. An additional goal for the literature review is to provide an important part of the theoretical framework of the author's dissertation.



## **IT AND RE-ORGANISATION OF WORK IN THE SUPPLY CHAIN**

Marko Seppanen, *Tampere University of Technology, Finland*; Petri Suomala, *Tampere University of Technology, Finland* and Tommi Lahikainen, *Tampere University of Technology, Finland*

The aim of this paper is to describe and clarify how the new innovations in companies' IT systems are changing the division of tasks in supply chains. In the analysis, the user organisation's point of view is adopted. A strive for better efficiency primarily motivates technological investments. However, these investments may also lead to re-organising work in the supply chain. For example in order processing, the responsibility of certain activities has shifted from supplier to customer with web-based forms. Thereby, internal efficiency of supplier has improved. The question is what has happened with the total efficiency of supply chain?

Empirical basis of the study consists of data collected from two companies, which employ modern IT systems to improve their processes. Companies are observed by using semi-structured questionnaires and interviews. Two cases represent two different types of supply chains and application areas of IT innovations, which provide fair theoretical representativeness. This also makes it possible to use replication logic to ensure validity.

In the first case, it is supposed that the focus of improvements and the major point of IT application development are in the client interface. Forward integration is more likely course of development because big, foreign suppliers prevent backward integration in supply chain. The implementation of modern IT has brought some new activities to customers - tasks that have traditionally belonged to supplier. Interestingly, the shift has also taken place to the other direction.

The second case company has invested to information technology software, which improves financial administration. This seems to have resulted a radical shift in concern's internal division of tasks. Subsidiary companies had outsourced activities considered traditionally internal and parent company's volume of activities has increased remarkably. As a whole, technological investment caused changes in the need of outside services.

## **FROM THEORY TO PRACTICE - ELECTRONIC COMMUNICATION AND INTERNET OPPORTUNITIES IN THE DANISH HEALTH SERVICE**

Claus Duedal Pedersen, *MedCom, Denmark* and Lars Hulbaeg Fog, *Medcom, Denmark*

This paper does not describe a research project, nor is it an article on technology, health science or social science. Rather, the article describes how earlier research and development results have now been implemented and are being used on a large scale in the Danish health service. As such, this is a presentation of an object which can be made the subject of either health or social science research.

Since 1994 MedCom has established and developed the Danish Health Care Data Network. MedCom is financed by the Ministry of Health, the Association of County Councils in Denmark, the National Board of Health, Copenhagen Hospital Corporation, Copenhagen and Frederiksberg Local Authorities, the Danish Pharmaceutical Association and DanNet A/S. MedCom activities are carried out as projects for defined periods of time, and each project period consists of particular projects, each having a specific purpose. The projects focus on Electronic Document Interchange (EDI) between the different IT systems in the Health Care Sector, whereby the relevant information, defined in the MedCom standards, is sent directly from one IT system and automatically stored in the correct place, for example in a electronic patient record, at the receiver.

About 80.000 EDI messages are commucated daily (or 2,3 mio. Per month) between all hospitals, pharmacies, emergency doctors on call, 88% of general practitioners, 98% of laboratories, 55% of private specialists, 30% of physiotherapists and 10% of municipalities. A total of more than 2.500 health care organisations with about 50 different IT systems use the health care net daily.

The general practitioners sends prescriptions, laboratory requisitions, referrals, reimbursements, clinical e-mail, and receives discharge letters, out patient notes, laboratory results, specialists notes, doctor on call notes, x-ray reports, causality notes, physiotherapists notes, clinical e-mail and booking results. Hospitals sends laboratory results, discharge letters, out patient notes, booking results, x-ray reports, causality notes, clinical e-mail and receive laboratory requisitions, referrals and clinical e-mail. Specialists send discharge letters (to GPs), prescriptions, laboratory requisitions, referrels, reimbursements, clinical e-mail, and receives discharge letters, laboratory results, referrels (from GPs), x-ray reports, clinical e-mail and booking results. Municipalities receive referral and discharge information. Doctors on Call sends doctor on call notes, prescriptions and reimbursements. Pharmacies receive prescriptions. The public health insurance receive reimbursements.

### Evaluation

MedComs philosophy has always been that evaluation took place in the marketplace; provided the parties (primarily hospital owners and GPs) in the health service purchased communication solutions, the value was greater than the costs (that the marginal economic cost < marginal benefit). Since the beginning of the project, it has involved considerable costs for a GP to begin communication. Costs for a GP to commence communication are estimated as being between 14,00 and 40,000 euro. Since GPs in Denmark are self-employed and all costs must therefore be paid from their own pockets, they cannot make investments that do not result in positive returns. Since more than 90% of the GPs have made this investment, it is reasonable to assume that the project has passed the market test.

## Transition to Internet technology

Internet technology contains facilities which, in addition to existing EDI communication, will be capable of meeting a large number of additional communication needs in the health sector.

Initially, the following areas:

- clinical e-mail with queries in connection with treatment and care. In many cases, this will replace time-consuming telephone contacts when sufficient e-mail security has been established.
- appointment making for examinations and treatment.
- WEB notices (pull) of X-ray results laboratory replies and patient information.
- Patient monitoring in the home.
- Telemedicine.
- Health information systems with information on illnesses or visitation portals can be made accessible for health professionals, as well as the public.

## **Session: Engagement 4**

### **THE EARLY DEVELOPMENT STAGES OF STRATEGIC INTER-FIRM PARTNERSHIPS**

*Tommi Kaasalainen, Tampere University of Technology, Finland; Saku Mäkinen, National University of Singapore, Singapore; Juha Näsi, Tampere University of Technology, Finland*

The number of inter-firm cooperation agreements has rapidly increased again during the past decade. In addition to a growing number of alliances, inter-firm cooperation has also deepened. Today, cooperation includes not only operational functions like manufacturing and logistics, but also activities that are more strategic in nature such as research and development. These strategic partnerships can provide numerous advantages beyond operational efficiencies and effectiveness when properly utilized.

The main objective of the present study was to describe the inception and early development stages of strategic inter-firm partnerships for small, technology-based Finnish companies. The study was conducted by first analyzing the strategic partnership literature for creating a conceptual framework that was then tested in the empirical part of the study.

Strategic partnership literature is based on thoughts presented by Oliver Williamson in the 1970s according to which neither free markets nor hierarchies can fully exploit the possibilities of inter-firm transactions. The gap between markets and hierarchies can be filled with different types of cooperation modes between individual firms, strategic partnerships being one of them. The rationale behind partnerships varies considerably according to industry and firm characteristics, as does the form in which the partnership takes place. Most stages models of partnerships base on the theory of life cycle, which depicts the evolution of a specific occurrence from birth to death. By examining the dynamics of partnership development a theoretical framework for the study was developed.

Case study research methodology was chosen because the main problems were explorative questions beginning with either “why” or “how”. The focus was on firms developing mobile services. This sector has been very active in Finland in the recent past due Nokia’s impact as an industry driver.

A central finding of the current study is related to the evolution of strategic partnership for small high-tech companies. Surprisingly, the development path does not follow the thoughts and evidence presented by academics concerning generic inter-firm partnerships. Evidently, small firms lack the financial resources and expertise to conduct thorough analysis about possible partner candidates so the internal research stage is not relevant here. Additionally, partnership initiative often originates from outside the company at various industry events or with the help of external stakeholders such as venture capital companies.

Although these results cannot be generalized due to the nature of the case study approach, they are nevertheless encouraging and function as a good basis for further research in the field of inter-firm cooperation.

## **FROM E-BUSINESS TO KNOWLEDGE BUSINESS IN METAL AND ELECTRONICS INDUSTRIES**

Mikko Ruohonen, *University of Tampere, Finland*; Jaakko Riihimaa, *Seinäjoki Polytechnic, Finland* and Marko Mäkipää, *University of Tampere, Finland*

Since 1995 as a start of commercial use of Internet network in Finland we have witnessed strong development in this area. This development trend has promoted e-business to an important subject of decision-making and business planning. One of the factors behind development has been the exploitation and management of information and knowledge. Next step, which is already there observable in some of the companies, is the development related to superior management of knowledge concerning customers, suppliers and business relationships in the e-business environment. In this paper we will argument and review our view on how the e-business will possible evolve to what we call knowledge business era (k-business), in companies.

This research outlines evolution paths using descriptions of state of e-business in selected companies in metal and electronics industries. During years 2000-2001 exactly forty (40) in-depth interviews with 50-60 managers responsible for e-business decisions were conducted in selected companies. Objective was to find out the state of art in e-business strategies in each company. Interview themes were selected according to analysis of development of business environment, development of ICT technology environment, organizational maturity to adopt e-business practices, and their potential to benefit from e-business opportunities determined by companies themselves.

The "Four evolutionary phases of e-business" is suggested as one of the results of the study. This phase model seems to describe the actions made for developing e-business in metal and electronics companies.

Four qualitatively different phase of development was discovered among the Finnish metal and electronics companies. These four phases seem to be also the order of development. Phases are:

- ERP-phase, e.g. putting the foundation on enterprise information systems in order
- SCM-phase, e.g. boosting the information systems of supply chain management
- CRM-phase, e.g. deepening and improving customer relations and knowledge
- KM-phase, e.g. taking advantage of business intelligence systems handling either customer, supplier or business relationship based knowledge in knowledge networks.

Roughly 20% of the companies were still building their foundation of Enterprise Information Systems. Most of the companies, approximately half of them, were focusing on improving the fluency of supply chain. Approximately 20% were already concentrating in collect and exploit of customer knowledge. Only few companies were very advanced in their e-Business initiatives. They focused on deepen their relationships with superior management of supplier, customer, and business partner based knowledge. This research outlines some development paths of e-Business in metal and electronics industries in the near future. It can be used as a guideline how to start the development of e-business blueprint or in positioning company's e-business state or in benchmarking where the company is going compared to other companies. This research outlines that companies must continuously learn from business partners, suppliers, and customers and deepen the cooperation with them to retain the competitiveness in the future.

## **A VALUE NET BASED APPROACH TO SOURCING IN SOFTWARE BUSINESS**

Tuija Helokunnas, *Tampere University of Technology, Finland* and Kalle Viitanen, *Tampere University of Technology, Finland*

The aim of this research is to identify the dimensions of embedded software sourcing. Embedded software sourcing decisions have traditionally been approached as make/buy questions. In-house software implementations have been preferred and sourcing activities have been focused on body shopping and software project subcontracting. A typical situation to make a buy decision has just been a software project with tight schedule and too few people to implement all the needed functionality. In addition, often the most demanding subsystems have been subcontracted or offered for implementation to hired personnel. The reason for this is that the company internal personnel typically avoid working with the most complicated systems when they are able to select their area of working.

Typically, the term software business is defined in the literature by classifying software markets. For example, Hoch et al (2000) defined that software market segments are professional software services, enterprise software solutions and mass-markets product software. However, Hoch et al (2000) did not cover embedded software integration business. This paper applies the market segment classification into the embedded software sourcing on the telecommunications field. Software services and software product providers are the source of embedded software. Software services include software project subcontracting and software people hiring. Software products include mass-markets products like operating systems and database management systems as well as enterprise software solutions for telecommunications' system integrators. On the other hand, the embedded software integrators are enterprise solution providers like telecommunication network system vendors and mass-market product providers like mobile equipment vendors.

Currently the concepts of value, value creation and value nets are widely discussed especially in the industrial marketing and management literature. In fact, value creation can be seen as the very basic aim of any business. According to a rather general view, the concept of value can be regarded as the trade-off between benefits and sacrifices (Parolini 1999). In this paper the concept of a value net is understood as a single actor view to network of organizations or actors that are interconnected with direct/indirect exchange relationships. The important issue in a value net is to understand that the concept include not only actors that compose the entity, but also different kinds of interrelated activities and resources, e.g., (Gadde et al 2001). The paper has a value net based approach to the identification of the dimensions of the sourcing decisions. The dimensions include not only the costs of sourcing but the value creating activities and resources such as the competence of the supplier, the competence of the company itself, organizational factors such as knowledge and management practices and appreciations of the end customer.

The research will follow qualitative research approach with literature study, several semi-structured interviews and outlining of managerial implications. The results of the research will be published as a diploma thesis at Tampere University of Technology. The research is a part of a Tekes funded Vertigo project performed at University of Oulu and Helsinki School of Economics.

### References

- Gadde, L-E., Håkansson, H. (2001): *Supply Network Strategies*. John Wiley&Sons Ltd,UK  
Hoch, D.J., Roeding, C.R., Purkert, G., Lindner, S.K., Mueller, R. (2000): *Secrets of Software Success: Management Insights from 100 Software Firms around the World*. Harvard Business School Press, Boston, MA.  
Parolini, C. (1999). *The Value Net.A Tool for Competitive Strategy*. John Wiley & Sons Ltd.

## **Session: Entrepreneurship 4:**

### **BUSINESS MODELS FOR CONTENT DISTRIBUTION IN MOBILE PEER-TO-PEER NETWORKS**

Tommo Reti, *Helsinki Institute for Information Technology, Finland*; Yki Kortensniemi, *Helsinki Institute for Information Technology, Finland* and Mikko Välimäki, *Helsinki Institute for Information Technology, Finland*

We assume a future scenario in which the number of mobile terminals will keep on growing and users rely on them more and more. This likely leads to users demanding similar applications and media content to their mobile devices as they are used to on their desktops. However, the cost of transmitting high volume content over infrastructure networks like GPRS and UMTS might prove prohibitive to consumers. Fortunately, the emergence of mobile terminals capable of communicating both with and with each other in a peer-to-peer fashion opens up new possibilities for content distribution.

In theory, when the peer-to-peer services on the fixed networks are expanded to the mobile networks they will create a fundamentally new distribution channel for media companies. Any entity could upload a file once and then see it hosted by thousands of potential consumers roaming all over the globe. Those consumers, by offering the file to other peers can subsidize the storage and bandwidth costs of the original distributor by sharing their personal computing resources. In exchange, the consumers might be compensated e.g. with a reduced service cost.

One fundamental problem in solutions like this, where consumers redistribute the content to each other, is how media companies should control the distribution of content they own and sell. Record companies are seeing their music distributed at unprecedented speeds, but they've lost control of the ability to control and profit from the system. Any company that hopes to make money legally from peer-to-peer networks must figure out a way to relinquish the right amount of control to its customers without giving away the business. How to allow free data spreading while still ensuring compensation to rights holders and service providers? So far, the economic reality is that hardly anyone has made money on peer-to-peer networking.

In this paper we look at business models for this new distribution channel and discuss how different factors such as content type and use situations affect the choice of business model. The paper draws on our ongoing research on digital economy at the Helsinki Institute for Information Technology. We have previously studied a mobile peer-to-peer news subscription service as a business and now aim to expand our experience to other business models. We expect to benefit especially from our interdisciplinary research team consisting of engineers, social scientists and humanists alike.

## **A BUSINESS MODEL FOR A MODEL EENTERPRISE**

Jonne Karvonen, *Tampere University of Technology, Finland* and Reijo Tuokko, *Tampere University of Technology, Finland*

As the markets keep on getting more and more global, the competition of attracting resources and investments gets harder. This makes it very important to develop regional competitiveness by finding new ways of connecting different interest groups and utilizing regional expertise. At the same time all businesses are going through critical transformation when changing their manual business and production processes into electronic.

It is obvious that the industry, universities and regional government must strengthen their co-operation in order to match with these challenges. It seems that a new kind of coordinator is needed to match the goals of these actors. A small-scale co-operation is no longer adequate and so investments in co-operation should be bigger in future to ensure deeper collaboration.

The goal of this study was to plan a business model for a model enterprise, which acts as a matchmaker between the industry, research institutes and the state. The outcome of the work is an eEnterprise, which concentrates on light automated assembly in an eBusiness environment. Business idea, which includes market segments, products and services and company's resources and daily operations, was the mainly used tool for planning the business model. The concept of business idea was used because it gives a possibility to analyze unique ways to do business. In most cases business idea offers a better way than most of the other concepts to understand the complexity of businesses.

In this study, the concepts of Finnish electronics training facilities and a Belgian electronics research center were explored. Also the specific needs of the regional industry and government were taken into account. Other research methods were interviews of experts, group discussions and examination of literature and previous studies.

In the final paper the business model of the eEnterprise is presented as a main result of this study. The business model combines manufacturing business, research and education under the same roof. Both customers, services and operations of the eEnterprise are discussed in the paper.



## **EMERGING BUSINESS MODELS FOR SMES IN FINNISH DIGITAL TELEVISION BUSINESS**

Tommi Pelkonen, *Helsinki School of Economics, Finland*; Marko Seppä, *Tampere University of Technology, Finland* and Seppo Kalli, *Tampere University of Technology, Finland*

Starting from August 2001, the Finnish government licenced twelve digital television (DTV) channels for television broadcasters. Now one year after the initial launch, three licensees have left the business due to major earnings-related challenges. Hence, the government re-opened the licence application negotiations for the three open channels and obtained for current negotiation twelve applications. Decisions on the new channels will be taken still this autumn.

The Finnish DTV solution is tied into open standards, mainly to MHP-platform. It being still in its development phase, households have been very careful in their purchase intentions. DTV terminal penetration in Finland has been very slow, only some 40 000 households (2 %) possess currently the required set-top box. These devices do not yet have MHP-capabilities, but the initial interactive terminals are expected to reach mass markets in early 2003. Finnish government's objective is the discontinue analogue television transmission by year 2006. This ambitious objective is under high pressures and strong critique. Yet, currently the objective is kept.

Several companies have started up new operations to create both technology and content solutions for the upcoming advanced broadcasting networks. Some of the Finnish companies have also attracted foreign venture capital investors to support their development. However, the Finnish domestic markets are very marginal in the European television industry environment. Thus, major challenges appear for Finnish growth-seeking companies. Creating a successful and sustainable business models and competitive edges becomes crucial. In television business there are very strong existing actors with deep interrelations. With no doubt, a start-up aiming to enter the business will face major obstacles in its business development.

This paper discusses the current and upcoming situation in digital television business in Finland. The paper aims to illustrate the dynamics of the industry by presenting a market model based on business network theories. The focus of the paper is to analyse the emerging market for digital television content and technology solutions from the earnings perspective. A special focus is put into evaluation of the new start-up small company (SME, small and medium-sized enterprise). The paper aims to describe the challenges of an entrepreneur to start operations in this business field.

### Research questions

The main objective of the paper is to illustrate the importance of business networks and relationships for a DTV-related start-up company. Furthermore, the paper aims to formulate a generic model for understanding the structure of the Finnish DTV industry. In practise, these objectives are met by answering the following research questions:

- 1) What kind of actors, activities and resources there are in the digital television markets and how are they related to each other?
- 2) What kind of earnings logic do companies operating in the industry apply?
- 3) What kind of opportunities and challenges do SMEs have in the Finnish DTV business?
- 4) What kind of actions can a Finnish DTV SME take to improve its market position?

The analysis is mainly based on a in-depth research project carried<sup>1</sup> out during spring 2002 for Ministry of Communication and Transport Finland. The research consisted of 1) 26 interviews among industry experts, 2) three half-day workshops and 3) an industry expert survey (N=155, n=99).

## Session: Ethics 4

### **THE TRADITIONAL MEDIA AND THE NEW MEDIA: CONVERGENCE OR COALITIONS?**

Niina Helminen, *Helsinki University of Technology*; Eila Järvenpää, *Helsinki University of Technology* and Stina Immonen, *Helsinki University of Technology, Finland*

TAI Research Centre, more specifically its Media Research Program, has examined several aspects of changes in media business due to digitalization. This abstract focuses on the project "The Lifecycle of Competencies", which was carried out in 2001 and 2002, and on the project "Changing Media Work" begun in September 2002. These projects address the digitalization of the Finnish media industry.

The emergence of digital communication has two starting points. Firstly, content production within the traditional media (radio, television and newspaper) has changed and will change due to transfer from analog to digital production technology, due to implementation of new digital media (such as Internet, mobile receivers, digital television and digital radio) and due to media convergence generated by digitalization (Lahenius 2002; Suolanen et al. 2002). Secondly, in the 1990's new forms of communication have emerged, which have generally been referred as 'new media' (Linturi & Wiio 2001). These two development trends, the transfer to digital production and the emergence of new media and new communication, have an efficacious impact on media industry and its professions.

The two projects, 'The Lifecycle of Competencies' and 'The Changing Media Work', examine, how digitalization of production technology, implementation of digital media, and media convergence change job-designs and competencies in traditional media industry and what kinds of job-designs and competencies are needed in new media industry. Moreover, the projects examine, how digitalization and digital media work are experienced from the viewpoint of work-related well-being. The projects and their comparison will provide an extensive description of both the present state of Finnish media industry as well as the future of media work. Will traditional and new media industries convergence into one or collide?

The efficiency of media companies is a vital competitive advantage in the rigorous financial business environment media companies are facing at the moment. In order to obtain more effective production, media companies have converged in many levels. Firstly, media companies have merged and formed large media enterprises (Heinonen 1998). Secondly, media companies have implemented digital production technology, which is easier and lighter to use than traditional analog technology (Huovila 1998). Thirdly, due to the financial situation, the mergers and the implementation of new technology, job-descriptions have converged (Hansén 2000). The transfer to digital communication and the emergence of new media bring closer the tasks of different professionals. It is possible, and even probable, that in the future journalists will produce text and illustration simultaneously to several media, such as the Internet, the newspaper, the radio, the television, and the mobile receivers. This work method is referred to as 'versification'.

The projects are carried out as qualitative case studies. 'The Lifecycle of Competencies' project contained three case studies from Finnish Broadcasting Company, one from radio production and two from television production. 'The Changing Media Work' will comprise of one case study from newspaper production and one case study from new media production. The data is gathered by theme interviews and is analyzed by using qualitative content analysis and phenomenography.

## References

- Hansén, A.-M. (2000) The Future Workers: The Development Trends, Professions, Competencies and Need for Workforce in Media Industry in 2000. Turku School of Economics, Research and Education Centre of Entrepreneurship. (In Finnish).
- Heinonen, A. (1998) Reports on Net Journalism. Rep. No C 25/1998. University of Tampere, Department of Journalism and Mass Communication, Research Centre for Journalism. (In Finnish).
- Huovila, T. (1998) Digitalization Blends in Different Media in News Broadcasting (In Finnish), In T. Perko & R. Salokangas (Eds.) Kymmenen kysymystä journalismista. Atena: Jyväskylä, 225-249.
- Lahenius, K. (2002) The Networks of Newspaper Editorials and the Journalistic Job. Helsinki University of Technology, Department of Industrial Engineering and Management. Licentiate Thesis. (In Finnish).
- Linturi, R. & Wiio, O.A. (2001) Does Mass Communication Transfer to New Media? (In Finnish), In K. Nordenstreng & O.A. Wiio (Eds.) Suomen Mediamaisema. Helsinki: WSOY, 265-276.
- Suolanen, S., Helminen, N., Järvenpää, E., Immonen, S. & Rahko, M. (2002) The Lifecycle of Competencies: The Impacts of Digitalization on Job-Descriptions, Competencies, Well-Being and Equality. Working Paper No 29. Helsinki University of Technology, TAI Research Centre. (In Finnish).

## **WHO OWNS TRADITIONAL KNOWLEDGE ?**

Ajeet Mathur, *University of Tampere, Finland*

Efficiency of pharmaceutical or bioinformatics firms cannot be the only criteria to evaluate the performance of healthcare systems. Cost, quality, equity, and the human uses of human beings have also to be considered. The search for ways to bridge discrepancies between responsibility for healthcare, the authority to design its value chains and the power and capacity to organise its delivery is not limited to allopathic medicine. Were the allopathic system of medicine the only healthcare alternative in the world, patient expiry could occur before patent expiry for many poor persons in helpless situations. There exist traditional medical systems like kampo, unani, ayurveda, homeopathy, acupuncture, yoga, to mention a few, capable of treating a number of diseases -not all- and are particularly effective for stress-related and lifestyle-related diseases, the fastest growing non-communicable diseases. The European Union's recent directive on herbal medicine is an indication of the growing interest in traditional medicine and the need to regulate.

Information and Communication technologies have bridged the world in many ways and enable information to be shared globally which raises prospects for more informed discussions and debates, particularly policy research on traditional medical systems. At the trijunction of information and communication technologies (IT), economics, and law, the need for intellectual property rights (IPR) protection poses a number of unsolved challenges for cross-border partnerships in the international trading system of the twentyfirst century. IPR protection of traditional knowledge, genetic resources, and folklore present particularly profound moral, legal, social and political dimensions because inter-generational equities could be irreversibly impacted depending on how solutions are structured . It has not been possible, to date, to develop an international system to protect human knowledge in these forms, despite a number of international treaties that partially address some of the issues that arise.

India recently launched the world's first Traditional Knowledge Digital Library (TKDL) in March 2002, an exciting development awaiting to be enmeshed with other international regimes. This paper examines the underlying motives behind this initiative and analyses alternative approaches and conceptual frameworks for dealing with the special nature and scope of traditional knowledge in its expressed and tacit forms. The paper discusses the prospects and limits of such digitalisation and identifies ways in which sui generis protection may be designed for traditional knowledge , with a view to develop, preserve, use and trade in such resources. The study specifically focuses on how costs and benefits of protection of traditional knowledge would impact e-business in healthcare from the perspective of technology innovators and adaptors and also the various constituents.

## **CONSUMER RESPONSIVENESS TO MARKETING COMMUNICATION IN DIGITAL CHANNELS**

Kristina Heinonen, *Hanken Swedish School of Economics and Business Administration, Finland* and Tore Strandvik, *Hanken Swedish School of Economics and Business Administration, Finland*

Technology developments have created new communication channels such as e-mail and SMS to reach customers. These new interactive marketing channels are considered to potentially improve the opportunities to reach customers by personalising the content and context of the message. Simultaneously there is a downside to the development of new interactive channels. The increased number of media has led to a harder competition for customers' attention. Attention and time are scarce resources in the information age. A key question is which marketing messages do customers notice and why? And how do customers relate to interactive media?

Customer responsiveness and attention to marketing communication is influenced by the interest in and relevance of the marketing message. This relevance is most likely customer specific, i.e. something that is relevant for one customer is probably less relevant for another customer. Another aspect that influences the customer's responsiveness to marketing communication is the situation in which the customer receives the marketing messages. The disturbance effect of marketing messages is of interest because the new interactive media allows more direct contact with the customer. Different channels may vary in level of disturbance. The level of disturbance may also vary for different customers.

From the marketer's perspective it is crucial to know which customers are open to marketing communication. This responsiveness towards marketing communication can thus be a function of relevance and disturbance. This paper analyses customers' perceptions of direct marketing efforts via traditional postal mail, e-mail and SMS. The main objective is to understand how customers relate to digital communication channels compared to the traditional channel.

An empirical study was conducted in Finland in early 2002 where data was collected by interviewing consumers on how they perceive marketing communication concerning 15 services and products received by mail, email, sms and in different situations. The interview consisted of two parts. The first part involved open-ended questions about general perceptions of advertisements via direct media, i.e. post, e-mail and SMS. The other part concerned more specifically consumer perceptions of the relevance and disturbance of marketing communication concerning the different services/products in each of the three media. The total sample size of the convenience sample was 1179, ranging from 60 to 124 respondents per service/product, and 297 to 559 for the channels.

The study showed that the main advantage of the electronic channels - that they are personal - may simultaneously be a disadvantage. The mobile channel and SMS was considered the most disturbing channel and traditional direct mail the least disturbing. There are, however, also consumers that are more responsive to communication in the digital channels. Still, there seems to be a challenge how to use the interactive potential in the new channels. The contribution of the paper is the introduction of the relevance/disturbance framework in the marketing communication context, a conceptualisation that points to the active role of an empowered consumer. This framework is used in an empirical study and clearly points to the need for companies to measure the responsiveness of their customers in order to understand the effectiveness of their marketing communication in different traditional and new communication channels.