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# Different Approaches to Evaluation of Information Systems

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# DIFFERENT APPROACHES TO EVALUATION OF INFORMATION SYSTEMS

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## **RATIONALE (OVERVIEW)**

The main focus of the field of informatics traditionally has been on development and implementation of the information technology and information systems. In many development and implementation models the need for an evaluation phase is mentioned, but in practice there is generally not much efforts devoted to evaluation activities, compared with other activities. The time and economy limits may e.g. have been exceeded when the project is implemented. There is, however, an increasing community of researchers trying to draw attention to the importance of evaluation issues. The evaluation of the contents and process of the development, implementation and use of information systems could contribute to important knowledge that can be used in order to increase quality and efficient aspects of the organisation. The increasing focus on knowledge issues in organisations also should include an emphasis on the contribution of reflection and evaluation in the learning process.

Different types of information systems need different evaluation approaches. The evaluation context is much more complex when a system is used by many users compared with a few users e.g. if a system is used by many users at different geographical locations and at different times (CSCW (Computer Supported Co-operative Work) systems) then the evaluation is even more complex. The characteristics of the information communicated through the system is also of importance. It is more complicated to evaluate the exchange of informal than formal information. Different types of organisations could have a need for different evaluation criteria. Is the organisation producing goods or services (or both)? Is it a private or public? Different parts of the organisations could have different internal logics and cultures that could affect the evaluation approaches. There is also a tendency for increasing communication using information systems between organisations and departments.

The increasing complexity of the systems has lead to a focus on multi-method approaches among many researchers. In this panel debate some researches are discussing the advantages and disadvantages with different approaches. The main focus on the debate is on future need for different evaluation approaches.

## **GOALS**

The goals of the panel debate are to focus on the importance of evaluation issues in the field of informatics and to discuss the contribution of different evaluation approaches. The need for further development of evaluation models and methods should be investigated.

## STRUCTURE

The panel discussion is initiated by a short presentation (5 minutes each) of the panellist and their research. Then the following issues are discussed. (One of the panellists has the response of initiating the debate for each issue).

*What can we learn from evaluating information systems and what can the new knowledge contribute with?* (Gerrit Tamm initiates the discussion of the issue)

*How can we stimulate an increasing focus on evaluation issues?*

*Do we need different models and methods for different types of organisations and/or different types of information systems?*

*What are the needs for further development of evaluation approaches, models and methods?*

The panel discussion will last for about 60 minutes.

## PRESENTATION OF THE PANEL PARTICIPANTS

**Ph. D. Owen Eriksson**, Dalarna university and member of the research network VITS. During the period 1992-2000 has my main research field been evaluation of information systems. I have had a focus on the use of information systems and the effects that these systems have on business processes with a special focus on quality aspects. In my research I have developed and discussed the concept of communication quality and how to evaluate the communication quality of information systems embedded in a social interaction context. The concept of communication quality has been empirically grounded in case-studies, and theoretically grounded in the philosophy of language. I would also like to emphasise that in the research network VITS where I am a member, we have made a lot of evaluation research with a number of different applications from a number of different business areas. In VITS we also have a special interest group with a focus on effects and evaluation of information systems.

Eriksson O. 2000. *Communication Quality in the Context of Information Systems and Business processes*, Presented at The Third International workshop on Organisational Semiotics, Stafford, UK, July 4, 2000.

Eriksson O. 1999. *Communication Quality: Towards an Intersubjective understanding of Quality*, Presented at Quergo'99 International Conference on TQM and Human Factors, Linköping, Sweden, June 15-17, 1999.

Eriksson O. 1998. *Communication Quality: A sales Support System in The Eyes of the Customer*, T & S Working Paper 1998:5, Dalarna University, Borlänge, Sweden, Presented at Beyond Convergence ITS98 twelfth biennial conference, Stockholm, Sweden, June 21-24, 1998

**Ph. D Kerstin Grundén** is an assistant professor at the University of Trollhättan/Uddevalla in Sweden. She has developed a model for evaluation of information systems, especially CSCW systems. The MOA-E model has been used in evaluating the use of videoconferences for health care planning. The model is also used in a study of work integrated e-learning at a big public organisation. Grundén has also developed a scenario model (MOA-S) for implementation work of CSCW systems.

### Some publications:

Grundén, K. (2000) *Is videoconference a useful tool for co-ordinated health care planning?* Proceedings of the 23<sup>rd</sup> Information systems Research Seminar in Scandinavia IRIS23, Uddevalla, Sweden,

Grundén, K. (2001) *MOA-E An Evaluation Model for CSCW Systems*. Proceedings of the 24<sup>th</sup> Information Systems Research Seminar in Scandinavia, Bergen, Norway, 11-14 August,

Grundén, K. (2001) Evaluation of the use of video conferences for health care planning. *Health Informatics* 7 (2)

Grundén, K. (2002) *An Evaluation Model for CSCW Systems*. Accepted to the conference ECITE2002 The 9<sup>th</sup> European Conference on Information Technology Evaluation. Université Dauphine, Paris, France, 15-16 July

#### **Ph. D Ela Klecun-Dabrowska**

##### Some publications:

Cornford, T. & Klecun-Dabrowska, E. (2001) Ethical Perspectives in Evaluation of Telehealth, *Cambridge Quarterly of Healthcare Ethics*, special issue on new information technologies in healthcare, 10(2), 161-169.

Klecun-Dabrowska, E. & Cornford, T (2001) *Evaluation and telehealth an interpretative study*. Proceedings of the 34<sup>th</sup> Hawaiian International conference on System Sciences HICSS, Hawaii 3-5 January 2001

Klecun-Dabrowska, E. (1999) *The evaluation of the deployment of Intranet facilities within primary care*. Proceedings of the Second Oxford Clinical Intranet and Internet Conference, Oxford, 26 May 1999.

**Ulrika Lundh Snis** is an Assistant Professor in Informatics at the University of Trollhättan/Uddevalla in Sweden. She has conducted several case studies in which collaborative aspect of knowledge codification has been the main focus. She has developed ICT conditions and requirements for knowledge communities especially within technical work domains. She is a founding member of Laboratorium for Interaction Technology and a member of the IRIS Association.

##### Some publications:

Sorensen, C., & Snis, U. (2001), Innovation through Knowledge Codification, In Journal of Information Technology, special issue on Knowledge Management, 2001, UK.

Bergqvist, M., Ljungberg, J., n & Snis, U., (2001), Practicing Peer Review in Organisations - a Qualifier for Knowledge Dissemination and Legitimation, In Journal of Information Technology, special issue on Knowledge Management, 2001, United Kingdom.

Lundh Snis, U. (2002), Challenges towards knowledge communities in technical work domains, To appear in Proceedings of ECIS, European Conference on Informations Systems, Gdansk, June, 2002

**Jan Pries-Heje** holds M.Sc. and Ph.D. degrees from Copenhagen Business School, Denmark. He is now at The IT University of Copenhagen. His research interests include information systems development, evaluation, and software process improvement.

##### Some Publications:

PRIES-HEJE, Jan & Susanne TRYDE (2001). Diffusion and adoption of IT products and processes in a Danish Bank. In ARDIS, Mark A. & Barbara I. MARCOLIN (eds.). Diffusing Software product and Process Innovations. IFIP TC8 WG 8.6 Fourth Working Conference, April 7 1-, 2001, Banff, Canada. Page 17-34.

BASKERVILLE, Richard & Jan PRIES-HEJE (2001). A Multiple-Theory Analysis of a Diffusion of Information Technology Case. *Information Systems Journal*, Volume 11: 1-32. Blackwell.

MATHIASSEN, Lars, Jan PRIES-HEJE & Ojelanki NGWENYAMA (eds.) (2002). *Improving Software Organizations - From Principles to Practice*. Addison-Wesley.

**Gerrit Tamm** is the manager of the Electronic Business Forum and a doctoral student at Berlin-Brandenburger Graduiertenkolleg Verteilte Informationssysteme.

Some publications:

Tamm, G. & Günther, O. (2000) Business models for ASP marketplaces, *Proc. 12th European Conference on Information Systems (ECIS 2000)*, Vienna Austria.

Günther, O., G. Tamm, Hansen, L., & Thomas Messig, T. (2001), *Application Service Providers: Supply, demand, and long-term perspectives*, Wirtschaftsinformatik, Verlag Vieweg, Berlin Germany, Nov.

Tamm, G. & Günther, O. (2000) Pricing Models for ASP, *Proc. International Telecommunications Society Conference (ITS 2000)*, Buenos Aires Argentina.

**Ph. D Rainer Telesko** is especially interested in Evaluation of knowledge management (evaluation of knowledge management systems and evaluation of knowledge (intellectual) assets). 1984 - 1990: Study of business informatics 1990, 1991: Organisation programmer for Brain Force GmbH, Vienna Feb. 1993 - Nov. 1993: Civil service 1993 - 2002: Research assistant at the University of Vienna, Institute for Computer Science and Business Informatics, Department of Knowledge Engineering, Specializing in knowledge management, knowledge-based-systems and neural networks, several research and industrial projects in these fields 1997: Taking the doctor's degree: Title of the PhD thesis: Neural networks and knowledge-based systems since February 2002: member of the Information- and Management systems group of Profactor Research in Steyr (Austria).

Some publications:

Telesko, R. and D. Karagiannis (2000). InfoAtlas: Process-oriented knowledge management in an Intranet environment. In *Proceedings of the International Symposium on Interactive and Collaborative Computing (ICC'2000)*, (OGATA, H. Ed.), p. 697-703, Wollongong, Australia.

**Dr Edward Truch** is Director at KM Forum Henley Management College, in Oxfordshire, UK. His research is especially focussing Knowledge Management aspects.

Publications:

Truch, E. (2001). "Knowledge management: Auditing and Reporting Intellectual Capital". In *Journal of General Management*, 26 (3), Spring.

**Ph. D Fahri Yetim** received his B.Sc. in Computer Science (1986), M.Sc. in Information Science (1989), and Ph.D. in Information Science (1994) in Konstanz, Germany. He was a research associate at the University of Konstanz (1989-1990), and visiting scientist at the Dept. of Linguistics, University of Hamburg (1995-1996), he worked in industry in Hamburg (1996-97), and held a DAAD professorship at the German Dept. of Information Systems, Marmara University Istanbul (1997-2000). He was a visiting researcher at the University of California (Summer 1997&1998), University of Osaka, Japan (Summer 1999), University of Boston (Summer 2000), and held a DAAD research fellowship at the University of Konstanz (Oct. 2000 - August 2001). Since Sept. 2001, He has been a visiting scholar at the Information Systems Dept., New Jersey Institute of Technology (NJIT), Newark/USA. He published several journal/conference papers relating to cultural and intercultural aspects of information systems from inter disciplinary perspectives.

Some Publications:

Yetim, F. (2002). *Clarifying Global Communication Action Patterns in Terms of Information, Knowledge, and Rational Action*. Submitted to "Language Action Perspective on Communication modeling (LAP 2002), Holland, June 12-13.

Yetim, F. (2002). *Designing "Communication Action Patterns" for Global Communication and Cooperation: A Discourse Ethical Approach*. In: *Proceedings of Xth European Conference on Information Systems (ECIS 2002)*, June 6-8, Poland.

Yetim, F. (1998). Interkulturalität und Informatische Gestaltung – Eine Interdisziplinäre Annäherung. *Informatik-Spektrum 21* (1998), 203-212.