

The Proceedings of the 3rd European Conference on Information Management and Evaluation

University of Gothenburg, Sweden
17-18 September 2009

Edited by
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Many thanks to the reviewers who helped ensure the quality of the full papers.

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Preface

The 3rd European Conference on Information Management and Evaluation (ECIME) is hosted jointly this year by the IT University, Goteborg and the West University in Sweden and is being held at the IT University in Goteborg. The Conference Co-Chairs are Kalevi Pessi and Elisabeth Frisk, University of Gothenburg, Sweden and the Programme Co-Chairs are Jan Ljungberg, University of Gothenburg, Sweden and Kerstin Grundén, West University, Sweden.

ECIME aims to bring together individuals researching and working in the broad field of information management, including information technology evaluation. We hope that this year's conference will provide you with plenty of opportunities to share your expertise with colleagues from around the world.

This year's opening keynote address will be delivered by Olle Höglom, Volvo Information Technology, AB on the topic, *Challenges for Volvo Information Technology in a turbulent automotive industry*.

A second keynote address on day two will be delivered by Debra Howcroft, Manchester Business School, UK on the topic of *Indian ITES-BPO Industry: Issues of space and place*.

To further enhance the conference experience there will be a panel discussion on the topic of *Green IT in relation to Information Management and Evaluation*

ECIME 2009 received an initial submission of 130 abstracts. Of this 59 papers have been accepted for these Conference Proceedings on the basis of a double blind, peer review process. These papers come from all parts of the world including Australia, Austria, Belgium, Brazil, Canada, Denmark, Finland, Germany, Greece, India, Iran, Ireland, Italy, Jordan, Latvia, The Netherlands, New Zealand, Nigeria, Portugal, South Africa, Spain, Sri Lanka, Sweden, Turkey, the United Kingdom and the United States of America. So ECIME continues to be a truly international conference!

We wish you a most interesting conference.

Jan Ljungberg and Kerstin Grundén
Co-Programme Chairs
September 2009

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Conference Committee

The conference programme committee consists of key people in the information systems community. The following people have confirmed their participation:

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Biographies of Conference Chairs, Programme Chair and Keynote Speaker

Conference Chairs



Dr. Kalevi Pessi leads the IT management research group at the IT University in Gothenburg. He is head of all IT Management courses at the IT-University. He has served as both Managing Director and Knowledge Management Director for many years in trade and industry. As a consultant he has been working with large international corporations such as Volvo, Ericsson and Electrolux. His current research interest relates to IT business value and architectural design.

Elisabeth Frisk is a PhD student at the Department of Applied IT, Gothenburg University. Her research interests include IT management, IT Evaluation, and Strategic Management. During 2005 and 2007 she was partly involved in a research project financed by the Swedish Rescue Services Agency (SRSA). The aim of the research project was to develop new IT Evaluation models for the Fire Rescue Services in Sweden. She was also involved in the organization of ECIS 2006 in Gothenburg. As a teacher she held courses at Gothenburg University, concerning Evaluating IT Investments from a Management Perspective. Since 2008 her research is financed by MIT Research School in Sweden. She has previously worked as a business controller, a financial controller, a chartered accountant and a financial manager.



Programme Chairs

Dr. Jan Ljungberg, from Gothenburg University, has a PhD in informatics, and is professor in Informatics at the IT-University of Gothenburg. He is responsible for PhD-education at the Department of Applied Information Technology. His research interests lie in the wasteland between information technology and social issues. They focus on usage of IT, and include knowledge management, open source, open innovation, commons based peer production, narratives and IT and organizing. He was organization chair of ECIS 2006, held in Gothenburg.



Kerstin Grundén is senior lecturer in informatics at the West University of Sweden. She has also a background as a sociologist. She has made several evaluation studies of implementation of CSCW systems in health care organisations and the social insurance board of Sweden. She has also made several studies of web-based internal education at the national county administration and in the field of health care. In recent years she has made research studies within the field of e-Government, with a focus on social aspects of implementation and use of e-services.



Keynote Speakers



Mr. Olle Höglom is Vice President Volvo IT Customer Relations and a member of the Volvo Group IT Management Council. Prior to holding this position, he has held a number of different IT leadership positions within the Volvo Group, including President of Volvo IT North America and Director of Global Commercial IT for Volvo Car Corporation. Mr Höglom has a degree in Information Systems from the University of Göteborg, Sweden..

Dr Debra Howcroft is a Professor of Technology and Organisations at Manchester Business School and her research interests focus on technology and organizations within a global context. She is an Associate Editor for the Information Systems Journal and a member of the editorial boards for IT & People, Journal of Information Technology, Journal of Strategic Information Systems, and Qualitative Review of Accounting and Management.



Biographies of contributing authors (in alphabetical order)

Can Adam Albayrak is a Professor of Business Informatics at Harz University of Applied Sciences, Germany. His expertise in teaching, research and management is in the field of operative and strategic IT management. He graduated from RWTH Aachen University, Germany, with a PhD in Computer Science. Before being appointed Professor, he spent several years as a Senior Strategic IT Manager.

Adebusoye Anifalaje is a doctoral candidate at the LSE. His thesis focuses on understanding the role of health information systems in improving public health in Nigeria. As part of an initiative to encourage interdisciplinary research between the medical and social sciences, his PhD – supervised partly at the Imperial College – is jointly funded by the ESRC and MRC.

Hussein Al-Yaseen has a PhD in Information Technology from Brunel University, UK. Hussein has published in a number of leading journals and international conferences in the areas of information technology evaluation, project management, and ICTs in developing countries. He is currently the Dean of the Faculty of Administrative and Financial Sciences at Al-Ahliyya Amman University.

Robert Benyon is a lecturer and PhD candidate in the Department of Information Systems at Rhodes University. He is a founding member of the Association for Information (AIS) Systems Special Interest Group for Services (SIG SVC). He is also a member of the Information Technology Service Management Forum (itSMF-SA). He received an IBM Faculty Award in recognition of his work and has published an itSMF book, *Service Agreements – A Management Guide*.

Linda Bergkvist is currently a Ph.D. Student at the *Faculty of Economic Sciences, Communication and IT at the department of Information Systems at Karlstad University*. She holds a *Licentiate Degree in Information Systems*. Her primary area of interest includes the IS outsourcing process and conditions influencing its successful outcome using a relationship perspective.

Erik Borglund is a senior lecturer of Archives and Information Science at Mid Sweden University. His research interests include recordkeeping systems in the digital environment, design of recordkeeping systems, documentation in crisis management, enterprise content management, and archival related storage issues.

Irène Bernhard (M.Sc) is a lecturer in media- and communication studies at the University West, Trollhättan, Sweden. For the time being she is a part of a research group doing research within eGovernment and innovations. The aim of the research project is to support and evaluate the development of customer centres and e-services for municipalities in Sweden. Besides this she has long experience in applied organisation communication e.g. she is coordinator for international scientific symposia. Also she has long experience of dealing with issues regarding labour law.

Colm Burns Completed a BSc in Management with French at Queen's University, Belfast in July 2006. Began a 3-year full-time Ph.D at the Queen's University Management School, Belfast in September 2006 and currently completing 2nd year.

Research focus is management and organisation for integrated IT implementation, and more specifically Digital Manufacturing software implementation.

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Managing Mergers and Acquisitions or Post-Merger Cookbook for CIOs and IT Management

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Abstract: Mergers and acquisitions take place all over the world and in many industries, typically motivated by corporate politics. While IT management is often not involved in the decision-making, it has to solve a wide range of problems in the post-merger phase. Indeed, merging two or more companies implies not only merging their core businesses, but also creating a new and efficiently integrated IT organisation from the individual ones, since persistence of the current IT organisations usually does not make sense. In addition, corporate management frequently imposes constraints, e.g., cost reductions, on the IT infrastructure. The principal critical success factor when merging IT organisations is the uninterrupted operation of the IT business, because a service gap is neither acceptable for in-house functional departments nor for external customers. Therefore, the IT rebuilding phase has to focus on IT services that facilitate the processes of functional departments, support processes, and processes of customers and suppliers, so that any transformation work is transparent to internal and external customers. In this article we describe a real-world but anonymous case study. Our goals are to highlight the points important for merging IT organisations, and to help decision-makers, particularly in the areas of IT organisation and IT personnel. We focus on the arising organisational and non-technical issues from a management perspective, i.e., the CIO's view, and provide checklists intended to help IT managers to address the most pressing issues. To assist CIOs surviving in the post merger phase, we give check lists for merging IT organisations, check lists for merging IT human resources, check lists for IT budgets and reporting, and assess activities in a merger scenario. IT hardware, software and IT infrastructure as well as running IT projects are not considered in this paper.

Keywords: Mergers and acquisitions, post-merger phase, IT management, IT organisation, information systems

Awareness and Acceptability Evaluation of Using e-Government Services in Developing Countries: The Case of Jordan

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Abstract: Similar to other developing countries, Jordan started a national e-Government initiative aiming to streamline government procedures and make information and government services available to business and citizens online. This paper presents the results of a pilot study that aims to assess factors which could influence the awareness and use of e-Government services in Jordan. It investigates issues such as: accessibility of e-government, citizen's attitude toward various privacy and security, the required services and costs. The data was collected using quantitative and qualitative methods including a survey and interviews with e-Government officials. The results of this preliminary study suggest that awareness of e-government did not reach the required level. These findings are hoped to be useful for researchers, practitioners and policy makers.

Keywords: ICT, Evaluation, e-government, developing countries, Jordan

Operational Use Evaluation of HealthCare Information Systems in Developing Countries

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Abstract: Information and Communication Technology (ICT) project managers require accurate and reliable evaluation to allocate and control project resources. In addition, many private hospitals indicated that a number of their projects failed; and between one and two thirds of ICTs projects exceed their budget and time. Further, about half of the expensive ICT projects at the end will be considered out of control and cancelled. Justifying ICT investments is a long standing problem, and managers for the past decades have expressed concerns about the value they are getting from their investments, and they have been searching for ways to evaluate and justify these projects. Hence, evaluation of ICTs is therefore becoming an important issue for both managers and practitioners. This paper aims to investigate the current practice of both types of evaluation: Prior Operational Use evaluation -POUe- and Operational Use evaluation -Oue- in Jordanian private hospitals to better understand what is required for the evaluation process and its associated benefits; secondly, to collect information about how hospitals carry out the evaluation process. In doing so, we attempts to answer specific questions, such as: How prevalent is POUe and OUE? What criteria are being used in both types of evaluation? What are their main benefits and uses of each type of evaluation? Results suggest that most decision makers do not place much importance on OUE of their IT/IS. Most managers tend to think of it only as a formality rather than a proper evaluation process. Without adopting a formal OUE the cost of future health informatics would seem likely to be less accurately estimated

Keywords: Health/Hospital information systems, health informatics, evaluation, developing countries, Jordan

Management Conditions Influencing the Successful Outcome of IS Outsourcing

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Abstract: This research paper contributes to the existing literature on information systems (IS) outsourcing and IS outsourcing relationships by studying the successful outcome of IS outsourcing using a relationship perspective. The research study focuses the exploration of management conditions influencing the successful outcome of IS outsourcing. The purpose chosen and addressed is to describe and explain management conditions influencing the successful outcome of IS outsourcing using a relationship perspective. Relationship perspective is in this research study constituted of the client firm and the IS supplier firm and their actors involved in IS outsourcing. To approach the purpose, a literature review study is conducted. The literature review study includes three theoretical fields: Information Systems, Industrial marketing and IS outsourcing. The combination of several theories increases the possibility to obtain a better understanding of management conditions influencing the successful outcome of IS outsourcing. As a result of the literature review study, management conditions influencing the successful outcome of IS outsourcing are identified. The conditions concern the management of IS outsourcing and the client–IS supplier relationship. More precisely, management of IS outsourcing involves management related to the contract, finance, performance, time and quality. Knowledge management, resource management, team building and working relationship management are management conditions related to the client–IS supplier relationship. The degree of management depends on, for example, the special case of IS outsourcing (e.g. IS offshoring, IS nearshoring) and the IS activity outsourced. The management conditions identified are a result of their potential for describing and explaining the successful outcome of IS outsourcing from a relationship perspective. The management conditions are believed to support managers during the design and implementation of IS outsourcing.

Keywords: IS outsourcing, client–IS supplier relationship, management conditions, successful outcome, literature review

Evaluation of Customer Centre and e-Services in a Swedish Municipality with Focus on the Citizens' Perspective

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Abstract: Communication and quality of service to the citizens are considered to be of utmost importance in today's society. Even though the Swedish municipalities have a high level of self-regulation and freedom to organize communication and dialogue with their citizens in their own way, the Swedish government has expressed their demands of increased expectations by citing the potential of e-governance and high quality of service in order to increase the efficiency of the service to the citizens. To implement customer centers is one way to meet these demands. This paper offers a critical evaluation of consequences for Swedish citizens regarding the quality of service from the citizens' perspective in a municipality where a new customer centre and more e-services have been developed and established. The main research method is qualitative based upon analysis from twelve interviews with different personnel categories of employees within the municipality. The results are also based on analysis of customer investigations made by the municipality. No interviews are made directly with citizens. The key results are that this implementation and developing of e-services are mostly positive for the quality of service to the citizens due to e.g. that the accessibility to the municipal services has increased which has led to improved possibilities to choose the communication way of service for the citizens. Another positive results are the developing of the working processes that are moved to the customer centers, that the citizens needs have been highlighted and that the municipality use results of customer investigations and results of discussing with focus groups including citizens in the developing of e-services to improve the service and that there is a striving towards more democracy as all citizens will have an equivalent treatment with just one telephone number to the customer centre. But there are also some weak aspects found; e.g. that there can appear a lack of trust from the citizens to the system as all contacts are to be done through the customer centre and that there can be a lack of direct communication with clerks at the administration that have authority to make decisions. Also, there are citizens having problem using the tone selection when calling to the customer centre.

Keywords: Customer centre, evaluation, municipality citizen communication, e-service, digital divide

Corporate Blogs Evaluation Using Corporate Leadership Discourse and Followers' Characteristics

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Abstract: Although some studies have analyzed corporate blogging, very little academic attention has been given to the phenomena of Corporate Blogs and their content from a leadership perspective. Based on posts and comments found in two Fortune 100 Corporate Blogs, we have used content analysis to obtain specific corporate leadership characteristics (analyzing posts) as well as to obtain followers' characteristics (analyzing comments). Then, we have used correspondence analysis to identify relationships among them. The findings show empirical evidence that corporate leadership styles, expressed in Corporate Blogs, match with the kind of followers that they have. Furthermore, the company with bad results (GM) has transactional and transformational leadership styles, and the company with positive profits (Wells Fargo) has task-oriented and relationship-oriented leadership styles. These results suggest that the company with negative profits tries to reinforce the innovation and the development of new opportunities to attempt to enhance its results, whereas the company with positive profits has enough strength to take care personal activities of its followers. Finally, to explain the matching pattern, we propose three possible explanations: Corporate Blogs attract readers/followers with compatible characteristics; the audience adopts the characteristics expressed in each Corporate Blog; or leaders and followers exert influence between them to converge, in a homogenization process, to a hybrid result of styles. The discussion is open.

Keywords: Corporate leadership; followers' characteristics; Fortune 100; content analysis; correspondence analysis

Business Values of Electronic Records Management in Smes

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Abstract: Electronic records management in Small and Medium Enterprises is a relatively new research area. It is difficult to find much on the SME and electronic record management in academic databases. In public organizations and in large enterprises the management of electronic records is now acknowledged as important for business support. Efficient records management is e.g. necessary for fulfilling requirements found in various legislation such as e.g. the Sarbanes-Oxley Act (SOX). The requirements for documentation in the ISO 9000, and the ISO 14000 series can be fulfilled if standards for records management are used. This paper aims to contribute further knowledge on the quality of records management in SMEs. The following research question has guided this research: How well do SMEs meet minimum ISO 15489 requirements for records management? The research has been carried out within a EU funded research program, where 4 SMEs from both Sweden and Finland have been studied using a qualitative research approach. The data have been collected from four SMEs through interviews. The analytical lens used in this research has been the international standard for Information and Documentation - Record Management: ISO 15489. The results show that electronic records are managed in a rather ad-hoc manner and that management is very dependent upon individuals, many of whom have little, if any, expertise or training in this area and no access to expert advice. One of the identified business values of well-managed electronic records is that the SME gains the opportunity to manage and benefit from their explicit knowledge and experience. This research shows that there are major obstacles to overcome before SMEs are able to fully adopt best practice in electronic records management. Many of these hindrances have their roots in a lack of appropriate strategies for records appraisal and that the SMEs have not followed the steps recommended in the ISO 15489 standard.

Keywords: Business value, electronic record management systems, records management, SME

How Requirements of Record Managers Change after Implementing new Electronic Records Management Systems

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Abstract: Swedish strategies and legislation that govern the management of records and archives in organizations have their roots in an analogue and paper-based environment. Today, very few records are created on paper: the majority of records are born digital, but they may be transformed to analogue form to fit organizational business needs and workflow. In a records management system of the highest quality electronic records should be maintained in their digital format to preserve context, digital links and dynamic relationships among information held in databases and multimedia documents. These relationships are frequently lost in any attempt to transfer to analogue form, thus compromising best practice records management standards. To meet the new need for managing born-digital records, many organizations have implemented electronic record management systems, and the effect of those implementations has gained interest from researchers, but it is not solely a software system that is needed to give a capacity of electronic record management. The ISO 15489 Standard for Records Management argues that the organizational structure and work processes affect how well the organization is able to manage their electronic records. This paper is based upon a research in a Swedish municipality, which carried out a comprehensive change management process to increase their capacity to manage electronic records, both for supporting business needs and long-term preservation needs. There is very little archival literature that focuses on how the roles of both archivists and record managers change, for example as a consequence of implementing electronic document management systems, and the organization becomes a process-oriented organization. The purpose of this paper aims to increase knowledge of the way the records managers need to change their work in order to meet the requirements generated by increased capacity in electronic records management. The research is based upon a qualitative approach where questionnaires, individual interviews, and group interviews have been used as data collection techniques. The research is in progress and has not yet fully been analyzed. However, the preliminary results indicate that the records managers need to act more proactively to meet the new system's requirements of them. The importance of the records managers' role in the municipality has become clearer and their competence is acknowledged as being more important as a result of this change management process in the municipality. The records managers are important in the sense that they know what information and what records are created, received and needed in different parts of the municipality. Records managers' "record keeping" responsibilities have been better defined after this change process and their role in relation to areas that were traditionally the responsibility of archivists has also been more clearly delineated.

Keywords: Change management, electronic records management system, ISO 15489, municipal, records managers

A Proposed Risk Management Framework for Securing Confidential Information Held by Government Departments in the United Kingdom

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Abstract: With the global prevalence of identity fraud, maintaining the integrity of the public's information held by organisations is becoming increasingly important. There have been many incidences of data loss by Government Departments in the United Kingdom during the period 2007 to 2008. It has been determined that having a formal Risk Management framework in place in an organisation can help to reduce data loss. The current Risk Management framework proposed for Government Departments in the UK by the Cabinet Office: The Information Assurance Governance framework has been found to be lacking in several key areas. This has been concluded by analysing this framework as well as examining recent incidences of data loss by Government Departments carried by the UK media. A new Risk Management framework based on the basic tenets of Risk Management, namely Risk Identification, Risk Assessment, Risk Reduction and Risk Monitoring has been proposed for use by the UK public sector. This framework has a strong focus on leadership in the Risk Management process and ownership of the identified risks.

Keywords: Risk management, information security

Implementation of Discrete and Integrated IT: the Role of Organisational Structure and Culture

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Abstract: Integrated organisational IT systems, such as enterprise resource planning (ERP) and digital manufacturing (DM), have promised and delivered substantial performance benefits to many adopting firms. However, implementations of such systems have tended to be problematic. ERP projects, in particular, are prone to cost and time overruns, not delivering anticipated benefits and often being abandoned before completion. While research has developed around IT implementation, this has focused mainly on standalone (or discrete), as opposed to integrated, IT systems. Within this literature, organisational (i.e. structural and cultural) characteristics have been found to influence implementation success. The key aims of this research are (a) to investigate the role of organisational characteristics in determining IT implementation success; (b) to determine whether their influence differs for integrated IT and discrete IT projects, and; (c) to develop specific guidelines for managers of integrated IT implementations. An in-depth comparative case study of two IT projects was conducted within a major aerospace manufacturing company. Results show that certain organisational characteristics were perceived to be more or less important and beneficial for integrated than for discrete IT implementation. The contribution of the paper to theory is the distinction and comparison between integrated and discrete IT, which tends to be overlooked in the implementation literature. Practically, it provides necessary guidance for current and future adopters of integrated IT (ERP, SCM, CRM and, particularly, DM) systems, by proposing an optimum configuration of organisational factors for implementation.

Keywords: IT implementation, integration management, organisational change, case study

Towards a Model for Determining the Scope of ICT Integration in the Enterprise: The Case of Enterprise Resource Planning (ERP) Systems

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Abstract: The question of integration of information systems (IS) into the planning and execution of operational activities has been the focus for researchers from different constituencies. Organisational theorists recognise the need for “integrating mechanisms” (Galbraith in Pennings, 1983) for co-ordinating the actions of sub-units within an organisation. Centralisation has been seen as a defensive reaction by organisations when placed under increasing external control (Mintzberg 1981), and also as a way to improve the efficiency of information processing, at least for routine tasks (Galbraith 1973). In the meantime, researchers have been sceptical about the ability for structured information systems to deal with the complexity of the information flows within the organisation (Dearden 1972). Frameworks have also been identifying characteristics of the tasks themselves that have a bearing on the amount of information processing required (Gorry & Scott Morton 1971; Earl & Hopwood in Lucas et al. 1980; Adam 1998). The real world is complex and moving, thus managers require flexibility in their interpretation of the mixed signals arising from this complexity. However, managers are working in environments where highly integrated information systems blur the distinction between what is real and what is virtual. A framework for integration would allow organisations to question which areas of activity are worth integrating, and conversely which areas are better left under local control. Where integrated, managers require processes for the maintenance of data integrity (people, tools, procedures, ...). Based on field work involving two multi-national manufacturing companies, this paper proposes a framework for integration, which would allow managers to consider the conditions under which a realistic level of ICT adoption could be expected.

Keywords: ERP, enterprise, integration, framework, complexity

Supporting Innovation in Small Local Government Organizations

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Abstract: E-Government entails the adoption and widespread use of ICTs in Public Administration in order to enable more innovative forms of government and governance. In the past years, which were extensively dominated by the paradigm of online services, E-Government has often been reduced to technological innovation in Public Administration. However, even when they concern highly specific activities of Public Administration, the innovation processes entailed by E-Government involve many different dimensions of innovation that make them different from simple processes of technological innovation. Due to their multidimensionality, the management of the innovation processes entailed by E-Government requires the availability of specialized competencies in various domains, including technology, marketing, communication, policy making and project management that small local government organizations (i.e. municipalities with less than 5000 inhabitants) often lack. However, the non technological aspects of innovation have not been adequately addressed in the policies for supporting the spread of E-Government at the local level which at least in Italy, have mainly (or even exclusively) focused on the funding of technological solutions as the driver for innovation. The paper will discuss what aspects should be considered when devising a supporting model that an authority of a higher institutional level (the Regional Government and the National Government, in the case of Italy) can assume to sustain innovation processes in small local government organizations. The discussion will be based on the case of Lombardy Region (Italy) that, for its characteristics, represents a good case study for evaluating the impact of different policies for the spread of E-Government at the local level. More specifically, by considering the multidimensional character of the innovation processes entailed by E-Government, in the paper it will be claimed that a model for supporting the spread of E-Government at the local level should integrate the funding of technological innovation with the appropriate information, training, assistance as well as control and regulation actions. The need of implementing such actions will be exemplified by considering the results of different funding programmes for the spread of E-Government at the local level that have been delivered to the municipalities of Lombardy (and Italy as well) in the past years.

Keywords: e-Government, innovation, local government, supporting policies

A Risk Management Investigation of SME Adoption of Agile Method Information System Development

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Abstract: Contemporary Information System Development (ISD) is performed within operational environments characterized by rapid change across many dimensions – including personnel, user requirements, regulation, and technology architectures. The rapidity, extent, and inevitability of this environmental change are credited as the major catalysts for a move away from traditional, plan-driven ISD methods (i.e. the Waterfall method) toward the agile method paradigm. Agile methods are known for several main operational strategies, including iterative development, significant user involvement and frequent releases. Agile method adoption, however, does come with risks. These risks must be carefully identified and managed within any potential agile-adopter. This is particularly so within a small adopting organization that is less able to absorb the impact of any significant level of failed ISD experimentation. This study describes the identification and analysis of the major risk in the adoption of agile methods by a Small-to-Medium-Enterprise (SME) software developer. The study was completed over a twelve month period during which the SME moved from Waterfall ISD to agile ISD. Research data has been obtained via an exploratory case study utilizing the risk-identifying Agility/Discipline Assessment (A/DA). The A/DA data collection involved interviews and observations across three different SME sources: project managers, project team members, and customers. The case study factor analysis synthesised the experiences of these stake holders to produce a comprehensive understanding of the strategic management challenges. The contribution from this study is that the SME agile method adoption faced one very major risk – a risk that could not be effectively controlled. The risk is posed by the need for the SME and the customer to formalize the customer relationship via the negotiation of an appropriate contract. It proves very difficult to negotiate such a contract whilst not constraining the full potential of agile ISD.

Keywords: Agile methods; software development; XP; Scrum; management challenges

Understanding IT Management in SMEs

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Abstract: There is evidence in the IT literature indicating that IT management is one factor that influences IT success. In addition, there is much literature indicating that IT management is important in the SME context. However, much of this literature has focused on the important role of the owner and/or other senior managers. For example, Thong et al (1996) focused on top management support and its influence on IT success. This paper argues that top management support is only one aspect of IT management and other aspects of IT management have received little attention in studies of SMEs. The study commenced with a review of the literature which identified many different definitions of IT management. However, the broader management literature indicated that the classical functions of planning, organising, controlling and leading provide an excellent way of conceptualising the many activities involved in managing (Carroll & Gillen, 1987). The management literature also provided working definitions for the four management functions. A multiple-case study approach was then used to collect evidence from four SMEs (with between 4 and 50 employees). The data identified IT management practices associated with each of the four IT functions, ie, IT planning, IT organising, IT controlling and IT leading. For example, one firm had an IT committee made up of staff from different levels of the firm. Some on the committee would be assigned specific IT responsibilities, eg, training of other staff. This practice provided an example of IT organising, ie, of 'defining tasks and assigning personnel'. Similarly, many other IT management practices were both identified and classified. The results provide a significant foundation for researchers of IT management in SMEs. For example, the conceptualisation indicates 4 IT management functions. Also, the definitions clarify important aspects of IT management. The study also indicated that some aspects of IT management have received little attention in prior studies. For example, while IT planning has received considerable attention, IT leading in SMEs has only been examined in the narrower context of top management support. Furthermore, few studies have examined the role and importance of IT organising and IT controlling in the SME context. Thus the study also indicates directions for future research, including the identification of IT management best practices.

Keywords: Small business, IT management, IT management practices, accounting firms

A Theoretical Framework for Evaluating Web 2

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Abstract: The issue surrounding the use of web 2 systems (in particular social networks, social learning and knowledge sharing, and social capital) have drawn much attention in the education, information system, organizational learning, communication, sociology, medical and psychology literature. Each publication highlights a different aspect of web2. As information systems value involves aspects of technology, process, people and context, it is asserted that a cross disciplinary approach will be required to correctly evaluate the possible challenges and benefits presented by web 2. This paper begins with a brief overview of some of these aspects before introducing some more theoretical aspects of web2. Beginning with socio-technical theory, appropriate theories from a diverse cross disciplinary literature base that may be used to build a theoretical framework for further research and understanding of the potential of these phenomena, are introduced.

Keywords: Web 2, Social networks, e-learning, social capital, organizational effectiveness, theory

IT Governance in SMEs: A Theoretical Framework Based on the Outsourced Information System Failure

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Abstract: IT Governance in Small and Medium-sized Enterprises (SME) is both controversial and paradoxal. When it comes to IT, SMEs tend to have an idiographic profile with characteristics that differs strongly from larger companies. Although the majorities of organisations comply with the sizing standard of an SME (less than 250 employees) we focus here on family-owned SMEs. In these companies the concept of IT Governance is very elusive if present at all. SMEs tend to be slow adopters of IT but they do invest in strategic IS and face the challenges of adopting IT. However, SMEs depend strongly on external IT expertise for implementing an IS. On the other hand one can observe the vast amount of failed outsourced IS projects in SMEs.

In this work we design a theoretical framework to explain the setting of an SME conducting an outsourced IS project that leads to an outsourced IS failure (OISF). A multiple case study methodology is used to build up the framework. The scene is dominated by two actors: a relatively well informed agent and a less informed SME-principal meeting each other on a typical market. This situation of information asymmetry gives rise to well known problems already predicted by agency theory: moral hazard and adverse selection. However other observable phenomenon's like trust deterioration, misunderstood scope and underfunding of budget can be better explained and/or predicted by other theories. To enlarge the explanatory and predicting power of our framework we draw from four additional theories: Lemon Market Theory (LMT), Prospect Theory (PT), Incomplete Contract Theory (ICT), and Organisational Trust Theory (OTT). The use of different theoretical constructs matches better with the different ways actors deal with the circumstantial settings found in the empirical cases.

We conclude that the framework yields a strong internal validity and enlarges our insight to the level of IT Governance in SMEs based on the sole but rich observation of OISFs. We suggest further empirical research based on the framework to extend the external validity of our framework.

Keywords: SMEs, IS Failures, IS Success, IT Governance, Nomological IS Net

Monitoring and Evaluating Microfinance Delivery Through ICT Based Correspondent Banking

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Abstract: Developed to expand bank access to population segments underserved by financial services, the correspondent banking (CB) phenomenon is defined as business arrangements based on ICT networks that allow retail stores to serve as a banking channel. Largely adopted in Brazil, CBs are also popular in countries like India and Colombia. This essay proposes that dimensions such as benefits provided to clients and productivity of companies involved would improve the evaluation of CBs' social performance, currently measured basically through geographical outreach and transactional volumes. By proceeding along a three-step methodology and building on work that has originally been done to measure social performance in microfinance institutions (MFIs), some new indicators are suggested by this essay to evaluate the CBs channel. The essay discusses opportunities and limitations of the proposed set of new indicators related to social performance related to groups other than the banks.

Keywords: Correspondent banking, indicators, development, evaluation, financial services, social performance

Aspects on Implementing RUP in Organizations – an Implementer Perspective

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Abstract: The use of an information systems development method (ISDM) is almost an understatement in the IT literature. The literature arguments for use are consequently logical and convincing. A more problematic and complex picture emerges when it comes to practical information systems development work where one cannot take ISDM use for granted. This became my experiences from two years as a leader for an ISDM implementing group in a large Swedish public organization. The difficulties in implementing the ISDM resulted in the creation of a network for experience exchange between medium and large organizations (public and private) struggling with similar ISDM implementation processes. The network held two annual meetings and the research presented here was conducted during one of these meetings. The aim of the study was to illuminate the ISDM efforts from an operative implementation role perspective. Fourteen individuals in ISDM implementation roles answered two questions concerning critical success factors for ISDM implementation respectively experienced shortcomings in the implementation work. The investigation resulted in 130 factors for ISDM implementation. The factors were analysed and compared to research on organizational implementation and technology adoption.

Keywords: ISDM, RUP implementation, managerial action, infrastructure for use, implementer role

Technical Criteria for the Comparison of Modern ERP Systems for Usage in Orchestra Companies

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Abstract: In literature one can find criteria for the comparison of enterprise resource planning (ERP) system architectures. (Kennerley and Neely, 2002; Dumslaff, 1994; Stefanou, 2001) However, these criteria are usually on a very detailed technical level and are based primarily on the requirements of larger companies. (Illa et al., 2000; Verville and Halington, 2002). It is therefore difficult for small and medium-size enterprises, which have other requirements, to use these criteria to decide upon a particular system. This paper defines a specific class of companies, “orchestra companies”, which fall into the category of small and medium size enterprises. A key aspect of an orchestra company is the fact that it does not gain direct value from its IT systems; the IT equipment in the company is only an operating resource. These companies do not have their own IT departments and decisions regarding ERP selection are usually made by the decision makers directly without a long and expensive selection process. (Barbacci, 2002) On the basis of the definition and needs of orchestra companies, criteria for the comparison of ERP systems specific to this company class have been developed. Based on a literary analysis of existing methods for the comparison of ERP systems, the criteria for orchestra companies are identified and modified. The target audiences are IT managers and decision makers who can use these criteria during the ERP selection process to get qualitative metrics as a basis for the choice of a system. The validation of the developed criteria has been carried out in case studies by applying it to Microsoft Dynamics AX 2009 and SAP Business One 2007.

Keywords: ERP selection, comparison criteria, Orchestra company, SAP Business One, Microsoft Dynamics AX

Proposing a Tool for the Measurement of e-Government

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Abstract: Governments across the 27 European Union member states face the challenge of responding to public demand for more responsive, efficient and effective services. E-Government based on the principle of providing services via internet at any time to the citizens and companies. The rapidly growth of electronic government gave to the 27 EU member states the possibility to correspond more effectively at the needs of citizens providing more valuable services. In this paper we analyze the web based services which have been developed by the 27 European Member States. Besides a comparative measurement of the progress of online services delivery is presented using a Multi-criteria INteractive Ordinal Regression Analysis (MINORA) system. Multi-criteria Analysis will help us to justify the ranking that European Union suggests. More over we realize the importance of the role of Multicriteria Analysis and the use of reliable methods which allowed the development of a function of total utility dynamically modified depending on the evolution of on line services of e-government.

Keywords: Web based services, e-government, internet, sophistication levels, multi-criteria analysis

Can Positive Psychology Provide Some Guidance to ICT Professionals as They Provide Leadership in the Ethical use of ICT?

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Abstract: Ethical and moral behaviour in business and society has come into much greater prominence at the beginning of the 21st century. Given the ever increasing use of information and communications technologies (ICT) and a significant move from a physical face-to-face world to a much more digital or virtual world, there is a need to broaden the understanding of managers, ICT professionals and the general public in the ethical issues regarding the use of ICT. This paper reviews the role of the ICT profession, computer ethics as an academic and professional discipline, moral development and what affects moral development and behaviour. It identifies weakness in the current cognitive approach used in much of the ICT ethics education and suggests that the appreciative inquiry approach from the field of positive psychology may offer an opportunity to improve the ways we educate ICT professionals in dealing with ethical issues.

Keywords: Computer ethics, moral development, positive psychology, information technology, IT professionals

MOA – an Evaluation Model for Implementation and Use of IT in Organisations

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Abstract: MOA is an evaluation model for implementation of IT in organisations, developed by the author. The model has been used for several evaluation studies, and has been slightly modified in order to be useful for different fields of informatics. The MOA-E model has been used for case studies within the field of Computer-Supported Co-operative Work and implementation of e-Government. The MOA-L model has been used for case studies within the field of e-Learning at work for web-based internally developed courses. The MOA model has also been used as a scenario model (MOA-S). The basic model primarily focuses on the three different aspects work processes (from a management perspective), work situations (from the perspectives of the employees) and quality of services (or product) produced (from the perspective of the customers/clients or patients). The model has mainly been used in a process-oriented way, studying implementation and use at different stages of the development process. The aim of the paper is to describe the model and the main experiences from the use of the model. Some experiences from the use of the model are usefulness for many different fields of informatics and flexibility. The model combines simplicity and complexity in a flexible way. The focus on different perspectives of the model facilitates the design of technology, organisation (and education) leading to a “win-win”-scenario for the different interest groups, and also the evaluation of consequences for different interest groups.

Keywords: MOA, evaluation model, work process, work situation, implementation

Knowing What we Know: a Study of how Small to Medium Sized Software Enterprises can get Better Visibility on What They Know

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Abstract: In today's challenging economic times organisations recognise the need to leverage their existing knowledge resources to sustain market position, but often fail to develop the routines and procedures that would allow them to fully utilise what they have. In addition, while research continues to pursue KM approaches in multinational organisations, there remains a dearth of empirical research in small and medium sized enterprises (SMEs). Notwithstanding organisation size, SMEs like multinationals struggle to manage what they know. While some contend that knowledge may be effectively managed in a smaller company, a more formalised approach to KM to access relevant knowledge is needed allowing the organisation to seize opportunities as they arise and deal with problems and threats more effectively. The objective of this study was to develop a classification of knowledge activities in SMEs and to capture rich pictures of the actions or events that form part of managing organisational knowledge. From the literature it is apparent that different terms are used for the same/similar knowledge activity. In this paper, we establish a classification of knowledge activities by leveraging the wealth of existing literature. This study then used a qualitative analysis approach to identify incidences of these knowledge activities (KA) in one Irish based SME. The software industry by its very nature is a knowledge industry, focusing on the knowledge rich business processes of software development and sales, six semi-structured interviews were conducted with key employees. From this, occurrences of knowledge activities were identified. This paper concludes by proposing that (1) a classification of KA for SMEs is a useful means of investigating the extent to which one software SME actively pursues a KM approach and (2) that such an approach can allow the firm to gain the visibility on its knowledge which is most useful in reacting to change and, even, pre-empting it.

Keywords: Knowledge Activities (KA), Small to Medium Sized Enterprise (SMEs), software development, knowledge, visibility of organisational knowledge

Measuring ERP Systems Usage

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Abstract: Organizations have invested and still invest intensively in enterprise resource planning (ERP) systems. It can be assumed that they do so with the purpose of gaining improved performance. However, it can also be suggested that to gain improved performance usage are a necessary precondition. Motivated by the increased diffusion of ERP systems and the question whether ERP contribute to firm performance or not, we address the issue of measuring ERP systems usage. In the paper we propose an initial ERP utilization model. The model emphasizes on the need for more research on the construct “use” both as an independent and dependent variable. It is also of interest to explain ERP systems utilization and what factors that influences ERP utilization. From the initial model we then test the model through a survey in which 77 firms participated. The developed model includes six dimensions of utilization: Diversity, ERP for production and procurement, Internal integration, User, Administrative support, and External integration. The main contribution is the fact that the initial model which consisted of the dimensions suggested in the model by Massetti and Zmud did not explain ERP system utilization. We therefore developed the model further with six dimensions. This model seems to better measure and explain ERP system utilization. However, this model for utilization measurement must be further tested and refined. One conclusion is that different systems and different industries are necessary to take into consideration when exploring ERP system utilization.

Keywords: ERP systems; measurement; utilization

When Institutionalised Behaviour Creates Obstacles to Democratic Debate: Analysing Silence in Brazilian Environmental-Education Virtual Communities

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Abstract: The emergence of virtual communities has opened many opportunities for a more participatory democratic debate, but this potential has not necessarily been explored in all online collectives. This research – based on an empirical study on Brazilian environmental-education virtual communities – explores the reasons why members may prefer to keep silent in debates that are supposed to foster democratic participation through online interactions. Drawing upon institutional theory, this research explores how authority and power systems may constrain the freedom of expression in virtual communities in such a way that more institutionalised perspectives are reproduced by social actors in the online environment. Community members reveal the fear of challenging participants with legitimate knowledge, such as academic professionals, and questioning mainstream perspectives on the theme of environmental education. The study also gives details about the relevance of mechanisms that reinforce the legitimacy of institutionalised perspectives, and mechanisms that punish deviant behaviour such as the expression of challenging standpoints. Indeed, respondents point out that the practice of strongly criticising members (flaming), ostracising dissident voices and even expelling participants who do not agree with mainstream perspectives, are mechanisms for fostering silence in the communities. In addition, leaders have other subtle procedures to set the agenda of debate for the whole community – including the private organisation of peers to demonstrate a coordinated support to their common ideas in the public space – as a way of avoiding the emergence of challenging propositions. Even the fact that alternative perspectives are simply ignored by the community creates reasons for frustration and silence as members understand the debate is not actually open. The study concludes on the relevance of considering the institutional environment to understand the social structures that emerge from virtual communities, and of reflecting on the limits of virtual communities as spaces for a more participatory democratic debate in specific contexts.

Keywords: Virtual community; silence; democratic debate; institution; institutional theory

Architectural Principles for Alignment Within the Context of Agile Enterprises

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Abstract: During the last few decades, new perspectives have evolved, both on business and IT development, where organizations are viewed as dynamic and complex information environments. While many entrenched organizations experience varying degrees of crises, we can note a rapid growth of new, flexible and dynamic organizations that have found new ways to compete and cooperate. In times of increasing heterogeneity and turbulence in the business environment, the concept of agility has become a new guiding paradigm for the management of change and development of enterprises. Agile business requires agile information systems and this has consequences on how the systems should be delineated and integrated. This paper presents architectural principles that strive to create and maintain alignment in enterprise architecture in a dynamic and uncertain business environment. In the paper we discuss the following two crucial aspects in the context of an agile enterprise: (1) the delineation of the involved information systems and their ability to change and operate independently of each other, (2) the choice of interoperability principle and its impact on agility. A case from Swedish Health Care is used to demonstrate the application of alternative sets of architectural principles. Through the use of the case we discuss the above two aspects as well as the impact of the principles on agility and alignment. In the paper we argue that the choice of principles for delineation and interoperability has a significant impact on business agility and on long term alignment. Strategies that are efficient and offers agility enough in a limited area of the organization may not be suitable in large complex organizations. The larger, heterogeneous, and dynamic the business and its environment are, the more crucial are the issues of information systems delineation and interoperability. The conclusion is that the choice of a suitable architectural principle is a main condition for aligning information systems to business demands and to create agility. Different principles for systems delineation and interoperability should therefore be analyzed and evaluated in an agility perspective before choice of alternative. If the wrong principles are chosen, there is a considerable risk for misalignment and expensive consequences.

Keywords: Business agility, enterprise architecture, information systems architecture, business architecture, alignment

Actual vs. Planned ERP Systems Implementation Costs in European SMEs

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Abstract: Enterprise resource planning (ERP) systems have become more and more common in enterprises, not only in large enterprises but also in small and medium-sized enterprises (SMEs). Although virtually nobody really doubts their importance for running a business, some even consider ERP systems to be a de facto price of entry for running a business, as there is sentiment regarding their implementation – both in terms of time and money. The question asked in this paper is to what extent ERP system implementation costs exceed planned costs in SMEs within a European context that is characterized by, for instance, fixed price policy. Our literature review suggests lack of empirical research in this field as such, and especially in SMEs in the European context (as opposed to the North American). The questionnaire research which focused on this issue was conducted in Denmark, Slovakia and Slovenia. The dependent variable was a percentage of actual ERP system implementation costs vis-à-vis the planned ones. The independent variables were country, company size, information strategy, and representation of the IT department on board level. According to the collected data, companies with information strategy were more likely to stay on budget. It seems that SMEs in all countries did not have extra resources for unplanned ERP system-related expenditures, as it might have been the case in large enterprises. Although surprising that representation of the IT department on board level did not automatically result in fewer overruns, it may be argued that, for example, CIOs were likely not only to manage implementation projects better, but were also able to request additional funds for unplanned customizations or training. Overall, 74.2% of companies stayed on budget, and on average, companies spent 104.3% of what they originally planned to spend. These results suggest a higher success rate in European SMEs than in American ones surveyed by Standish Group.

Keywords: Enterprise resource planning (ERP) system, implementation costs, empirical research

Towards a Tool for Monitoring Crime and Law Enforcement

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Abstract: Crime and law enforcement is a broad policy field in which many organizations are involved, each having a database covering a part of the criminal justice chain. To monitor crime and law enforcement, we therefore have to deal with many organizations and with challenges of the data as redundancy, changing of semantics over time and how to combine register and survey data. In this paper we address these challenges and propose pragmatic solutions in order to produce reliable statistical overviews. However, doing this manually is a laborious proces. A data ware house that may make this proces more efficient appears not to be feasible, since we can only use highly aggregated data. For reasons of privacy, micro data is not available. As an alternative approach we present a framework that may facilitate the management of highly aggregated data of register as well as survey data. In our framework, the relationships between databases that come from different organizations are exploited.

Keywords: Public safety, crime and law enforcement, monitoring tool, collecting data, combining data

Understanding How the Use of ICT Services Improves Productivity: A Case of Remote Login among City Employees in Finland

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Abstract: New information and communications technology (ICT) services are developed and taken in use within organisations more and more. The importance to understand how ICT contributes to organisational performance and creates value for its users is high on the agenda. The purpose of the paper is to shed light on the performance management of ICT services by using a case study approach in the Finnish public sector and examining an ICT service used by city employees. The paper aims to answer the following questions: What are the key productivity impacts of the use of an ICT service? How can these benefits be achieved? Which factors can enhance the realisation of benefits in the future? The focus is on indirect and intangible productivity impacts that are charted mainly from an individual employee's point of view and by using subjective measures. The ICT service in question is a remote login that makes possible to use the city's intranet as well as work email and calendar anywhere outside of the workplace where the network connection is available, e.g., at home, at a meeting, abroad or while on the move. A questionnaire (n=290) and interviews (n=8) were used as data collection methods to examine service experience, obtained benefits and future productivity improvement potential. Both quantitative and qualitative methods were used to analyse the data.

This study contributes by increasing understanding about the productivity impacts of ICT services as well as requirements and future drivers of the potential benefits. The key benefits from the use of remote login are convenience and improved situation awareness that the more flexible access to the city's intranet and to the employees' own e-mail and calendar provides. Even though the service was mainly used during leisure hours, the majority of respondents consider that perceived benefits (especially the improved flow of information and increased flexibility) outrun perceived drawbacks (such as the increase of working time and blurring of borderline between work and leisure). It seems that the service experience will contribute to the realisation of benefits but it is not a sufficient condition for productivity impacts to come true. The results suggest that in the case of remote login perceived productivity impacts could increase if organisational practices better complete the use of remote login. For example, increase in organisational flexibility and development of work processes by the use of mobile services (with remote login) could open the way for further benefits. In future studies, the question of organisational impacts should be addressed. What are the productivity impacts from the use of remote login from the point of view of the whole organisation and its strategies and goals? How the use of remote login could improve work processes and public services that city employees are producing?

Keywords: Information and communications technology, ICT service, ICT management, Productivity, e-Government, Finland

An Evaluation of Evaluation Methodologies Concerning Academic Performance in Iran

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Abstract: In Iran there are two kinds of promotion for faculty in every governmental university or research institution: the one that can be achieved annually and is called "horizontal" promotion and the other that can be achieved every four or five years and is usually called "vertical". Although the former requires some points from an applicant applying for an annual promotion, the latter is the more serious of the two since it promotes a faculty from some rank to a higher one. The vertical promotion is a means of upgrading from instructor rank to assistant professorship, to associate professorship, and finally to full professorship that is the ultimate academic rank. In the vertical promotion, the academic performance of every faculty is measured from three aspects: educational, research, and scientific services. Each aspect is divided in turn into detailed items each of which is allocated some point. An applicant applying to promote to a higher rank must gain a minimum of a total point and a minimal point in some parts of educational, research, and services activities. To measure these performances, there have been, and are regulations approved by the Ministry of Sciences, Researches, and Technology (MSRT), the ministry responsible for non-medical higher education, and Ministry of Health, Treatment, and Medical Education (MHTME) in Iran. So far, three versions of these regulations have appeared and the purpose of this paper is to examine both quantitatively and qualitatively the modifications from the first version to the third to indicate the general trends governing these regulations. To do this, the paper tries to answer some questions by measurement and comparison of the activities, and tables and charts will be used to present the data compared. The author also tries to present some suggestions at the end.

Keywords: Academic performance, Iranian universities, Iranian faculty, Iranian performance measurement regulations, Performance measurement

Organisational Learning and Six Sigma Deployment Evaluation in an IT Setting

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Abstract: Due to fierce business competition a challenging question that companies' leaders face nowadays is how to stay successful in the future. Researching and implementing the right quality initiatives to improve and optimize the whole company and its core organisational processes is important. For this effort to be sustainable organisational learning is needed. The main purpose of this study is to carry out an assessment of a company's readiness for a possible deployment of Six Sigma and based on an organisational learning framework. The studied organisation is a Global Distribution System and an IT solutions provider to the travel and tourism industry. The study also examines the form that a possible deployment can take in the organisation's context based on the degree of readiness. To carry out the readiness assessment, a theoretical model, adapted from Kettinger's and Grover's Business Process Change model was built to serve as a reference for assessment. The model comprises eight assessment criteria and these are also related to an organisational learning framework. The theoretical model was then used as a basis for the empirical study. The empirical data derives from 12 in-depth semi-structured interviews of selected employees having different functions in the organisation. In addition, it includes participant observation and documentation. The results from the analysis suggest that having Six Sigma as a company wide strategy may not prove useful or suitable in the current context. However, the analysis shows that having Six Sigma as an "improvement program" provides a structure for the improvement work and the DMAIC methodology is needed to address some current inefficiencies and problems. The findings have been based on organisational learning theory from which a comprehensive framework describing Six Sigma assessment in an organisational learning context is developed. Knowledge of a Six Sigma evaluation in an organisational learning context should be valuable for many organisations. Especially since research regarding Six Sigma in software companies is limited. The study shows that organisational learning can provide a useful framework for assessing Six Sigma readiness in an IT organisation.

Keywords: Organisational learning, Evaluation, Six Sigma deployment, Business Process Change model, Service and IT organisation, learning capacity

Testing of a Model Evaluating e-Government Portal Acceptance and Satisfaction

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Abstract: e-Government has the potential to improve public administration efficiency by increasing convenience, performance and accessibility of government information and service to users. But knowledge about e-Government remains limited. To realize its potential, e-Government needs to be grounded on in-depth understanding of target users' needs, perceptions and other factors influencing its uptake. This cross-sectional study identifies and examines factors influencing e-Government portal satisfaction and adoption by individual citizens in Macao, three years after its inauguration. It is an adaptation to the e-Government context of a model developed for assessing e-commerce websites. To understand the determinants of e-government portal adoption, an integrated model of user satisfaction and technology acceptance is empirically tested. The integrated model involves four success factors -- information quality, system quality, perceived effectiveness and social influence -- which impact user satisfaction with the e-Government website, influencing intention to reuse. Overall, the study proposes that user perceptions about the e-Government portal influence user attitude towards the portal. An Internet survey collected data from 464 online users of Macao's e-government portal. The model was found to explain a large proportion of the variance in citizen's intention to reuse the portal. The portal partially mediates the relationship between success factors and intention-to-reuse. The results provide evidence that Information Quality, System Quality and Social Influence (but not Perceived Effectiveness) are success factors influencing user satisfaction and adoption. It is recommended that portal management needs to ensure ease-of-use, currency and accuracy of the supplied information. Timely information updating is a major concern for the e-Government portal in Macao. The content an e-government portal that is perceived by users to be easier to navigate is likely to facilitate satisfaction and reuse. Finally, the importance of social influence justifies, managerial actions aimed at improving e-Government portal acceptance by individual users and government employees.

Keywords: e-Government portal, adoption, satisfaction, TAM, EUS

An Evaluation Framework for the Selection of a Mobile Policing Information Solution

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Abstract: The bureaucratic nature of UK policing is currently being challenged. Following a Government initiative to equip 10,000 police officers with handheld computers by the end of 2008, the Government has invested £50 million into implementing mobile information management systems (MIMS) into UK police forces. This presents challenges including how to appropriately identify and prioritise user requirements to select from competing solutions. The paper develops an evaluation framework to evaluate objectively the diversity of solutions available, in order to ensure that the chosen MIMS solution best meets the needs of police organisations. The framework was developed through an empirical study within the Leicestershire Constabulary. This involved collecting qualitative data regarding user requirements via a focus group with operational officers who already had experience of using a MIMS. Firstly, a stakeholder analysis technique was used to identify, evaluate and address competing user requirements. Secondly, a feature analysis technique was employed to evaluate various MIMS solutions in an unbiased manner. Finally, the framework was verified through interviews and observation. Findings from the verification stage suggested the use of the framework had contributed to a relatively successful implementation of a MIMS. This involved the use of mobile data terminals in response vehicles with full access to systems utilised in the station, thus allowing 'anytime anyplace' crime recording; the Constabulary is the first in the UK to do so. The paper contributes to the domain of evaluating information management solutions and user requirements by creating an evaluation framework that can be used by police forces and other similar organisations looking to adopt, design and evaluate a usable mobile information system (MIMS).

Keywords: Evaluation, information management solutions, policing, mobile information, evaluation framework

Technical and Social Implementation of ICT-Based Performance Recording at a University of Arts

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Abstract: How can the artistic and research performance of about 550 university staff members be measured? And how can the staff be made to participate in an online tool designed to measure their performance? At the University of Music and Performing Arts Graz (Austria), we developed a comprehensive system to represent the wide-spread range of activities of our artists and researchers in particular and other staff members too. We implemented this tool as part of our existing campus management system. The roll-out in 2008 was accomplished by various challenges to be reported. The presentation deals with the situation before and immediately after the roll-out of this ICT-tool. We examine (a) the design process, (b) the technical implementation especially considering user-friendliness, and (c) the accompanying measures of the roll-out. In these respects, we have learned that (a) high effort for involving a wide range of persons pays off twice afterwards, (b) sometimes research and management interests in data collection have to be pared down, and (c) extensive instructions, personal assistance, and highlighting beneficial features can make even skeptics or unskilled computer users participate in an ICT-based performance recording. The new system rapidly was accepted by the majority of the staff members: the participation rate is two thirds of the staff members in the first year of use. They observe additional personal advantages from the new ICT-tool. We now have a fine-working tool to measure artistic and research performance. Both quality and quantity of the collected data were strongly increased as compared to former approaches to measure artistic and research performance of our staff members. The tool provides fundamental data for performance statistics of single persons, departments, and our university, in our Intellectual Capital Report for instance. Enhancements are ongoing, based on user feedback as well as additional management requirements. A process will be developed to assure the quality of individual entries without restricting the individuality of artistic and research activities. Aside, we cooperate with another Austrian university to adjust our system to their specific needs and to transfer it.

Keywords: online tool, evaluation, artistic performance, research performance, practical experiences

Ontological System for Information Retrieval and Integration of Research Reports in Selected Nigerian Universities

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Abstract: Carrying out a successful research in any field of knowledge requires having access to information sources like literatures and other relevant materials. One of the basic information sources for researches in tertiary education is previous research reports in term of Long Essays and Dissertations. Findings have revealed that current way of accessing available research materials like dissertations (and other research reports) is cumbersome. There is the need for the provision for, and enhancement of knowledge reusability. This would be achieved through a system by which such dissertations (as research information sources) can be integrated in Nigerian tertiary schools. The aim of this study is to present a web based realistic framework for easy information retrieval, integration of graduate and undergraduate research report (thesis and long essays) for effective accessing of such research works in a number of Nigerian universities. This would be done within a given domain for knowledge re-use and for new ideas to emerge or to implement existing works. Ontological method is used in the classification of distinct entities, i.e. student research reports. This method has become popular in knowledge engineering, cooperative information systems, intelligent information integration, and knowledge management (Smith et. al. 2001). Performance evaluation of the system is carried out by the use of Recall and Precision. Visual Basic is also adopted for the implementation of the system.

Keywords: Ontology, information, retrieval, integration, knowledge re-use, system

Effects of ICT on Bank Branch Performance: a Sri Lankan Case Study

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Abstract: Banks are spending heavily on Information and Communication Technology (ICT) for operational and strategic reasons. Many are now getting concerned about the utilization and the returns of such investments. This paper reviews empirical and theoretical information and attempts to analyse the effects of ICT on bank branches. Initial findings indicate a scarcity of empirical research with respect to benchmarking on the ICT competency of bank branches in Sri Lanka. The research study was carried out on a leading commercial bank in Sri Lanka within the year 2008. Data collection was done from branch managers selected from 18 branches, staff members and customers attached to the same set of branches of the bank using survey method. All 18 branches selected are of equivalent grade according to the grading set by the bank. Three types of questionnaires were designed with structured and semi structured questions with 5 point and 4 point likert scale. Questionnaire distribution was done by post, via e-mail and hand delivery. Quantitative analysis of primary and secondary data collected for the study revealed that ICT usage at branches has a positive effect on financial performance and quality performance of bank branches. The factors such as bank employee attitude towards ICT usage, ICT literacy level of bank employees and scope and complexity of the ICT applications have a positive impact on bank branch performance. The appropriate use of ICT has a significant impact on branch performance. The positive impact on the overall profit of the branch is very high. Establishment of on-line inter branch network covering most of the branches in island has increased the convenience of customers. The achievement of anytime and anywhere banking has reduced customer visits to branches. The level of ICT usage at some branches, despite the core banking application availability was not at an adequate level. Functionalities provided by ATM machines need to be enhanced as ATM usage is very popular among customers. Most of the customers use ATM cards for cash withdrawal and balance inquiry. This paper concludes with a discussion and recommendation to improve the positive effects of ICT on bank branch performance.

Keywords: Financial performance, quality performance, information and communication technology usage, ICT literacy, benchmarking bank branches

Determinants of e-Commerce Adoption by Small Firms in Portugal

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Abstract: The goal of this study is to identify the determinants of e-commerce adoption by small Portuguese firms. We considered a framework with a three stage adoption process, where the sequence begins with the use of internet and progresses through web site development to e-commerce. A logistic regression analysis is conducted in each stage, using a representative sample of 3,155 firms surveyed by the Portuguese Institute of Statistics. We used as dependent variable the internet adoption decision (0/1), the web site adoption decision (0/1) and the e-commerce adoption decision (0/1). As explanatory variables we considered technological, organizational, and environmental (TOE) factors such as technology readiness, technology integration, security applications, firm size, perceived benefits, IT training programmes, access to the IT system of firm, internet and e-mail norms, perceived obstacles, and competitive pressure. Our findings reveal that the influence pattern of TOE factors vary with the phase of the adoption. Furthermore, the impact of the technological and organizational factors decreases as the level of e-commerce involvement increases. On the contrary, the importance of the environmental factor (competitive pressure) is more pronounced at the last adoption phase. Such findings are consistent with most of the predictions advanced in earlier studies published on this subject and can be used to develop the adequate public policies to encourage small firms' involvement with e-commerce. Explanations and implications are offered.

Keywords: e-commerce adoption, small firms, logistic regression, phase involvement, information technologies

Learning to Understand What the ERP System is all About: a Literature Review

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Abstract: The purpose of an enterprise resource planning (ERP) system is to bring several benefits to the company by using a mutual database and real time data. Though, empirical studies show that several companies judge the ERP project as unsuccessful. Research has tried to explain why users are disappointed with the ERP system, but findings are scattered and inconsistent. There is need for further development of our knowledge on how ERP systems are viewed and used in companies. Organizational learning (OL) is a concept that has been used in research within the fields of organization theory and management. Still, only a few empirical studies have been conducted on OL in the context of ERP systems. To what extent and how do research conceptualize the ERP system as involved in the organizational learning process? The paper is a review of research on OL in the context of ERP systems: selection, implementation and use. Twelve articles were found in full text. The purpose is to compare and contrast approaches in order to analyze similarities and dissimilarities. The analysis shows that overall there is a lack of definitions and stringency in research on OL and ERP systems. The complexity of the ERP system and how that can be understood, how the artifact functions or interplays with the organization and the organizing process, is seldom discussed in greater detail. If learning in organizations, at least partially, depends on the use of enabling technologies, it would be a worthwhile effort to analyze more closely how, when and why an ERP system can be used in this respect. A major suggestion for future research is that it should be more explicitly engaged with the relationship between OL and the ERP system. Regarding the ERP system as a part of the organizational memory might be a fruitful way to go.

Keywords: ERP systems, organizational learning, literature review

A Theoretical Lens to Examine the Structural Impact of Adopting Web 2.0

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Abstract: With the widespread integration of Web 2.0 technologies across society and business there is an increasing need to understand their underlying impact. Yet, very little research has been done on such technologies, so much so, that a definition still eludes the academic community. Nonetheless, their impacts cannot be ignored. For instance, from a societal perspective, the proliferation of social networks and attitude towards openness highlights the transformation from hierarchical type social structures to more non-hierarchical (horizontal) systems. However, rigorous analysis of the structural impacts of the technologies in an organisational context is more difficult due to the lack of theoretical frameworks. Moreover, there has been a call for researchers to build their own theoretical frameworks for further understanding in the domain. As a result, this paper aims to add to the body of knowledge by (i) further defining Web 2.0, (ii) reviewing past literature on organisational structure and technology, and (iii) developing a theoretical lens by rediscovering past socio-technical theories.

Keywords: Democratisation of information, organisational flattening, enterprise 2.0, case study

Uncertainty Reduction in Software Development by the use of a Platform Based Development Strategy

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Abstract: The process of developing software requires a substantial investment and the project has several sources of uncertainty. One part of this uncertainty is the inner uncertainty, i.e. the uncertainty related to the cost and time for developing the software. The second part of the uncertainty is the outer uncertainty, i.e. the market uncertainty whether the investment will yield a positive return or not. This paper looks at how the uncertainty associated with software development can be managed. For this purpose, a development model is constructed by analyzing three video games that has become successes for different reasons. The video game industry is used as a benchmark since video games exhibit the same type of uncertainties as software but in a more extreme way while sharing the same product characteristics which makes the comparison possible. The theoretical point of departure for the analysis is based upon the latest innovation and strategy research. Recent innovation and strategy literature stresses that flexibility in the development not only adds value to the project but also decreases uncertainty in the project because of real options planted into the project. In this paper we focus on how these options were planted into the video games and the result of it. We argue that the possibility to plant these real options is directly related to the use of a platform based development strategy. These video games were chosen so that three different types of platforms could be indentified. Each of these platforms resulted in a different type of a real option for future product development. The analyses focus on the uniqueness in the different platform in the sense that they lead to a competitive advantage for the firm from which different types of real options for future product development can be derived. The general analysis of the platform based development strategy results in three implications for software development. The paper ends with conclusions and suggestions for further research.

Keywords: Platforms, real options, software development, video game uncertainty

Evaluating the Integration of Leading Edge Pervasive Technologies to Improve Service-Based Performance

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Abstract: Within retail banking making decisions related to staff allocation to deliver services is complex in nature. It is often the case that certain services are either over or under staffed. Over staffing incurs a cost to the bank while under staffing impedes existing services and typically offers a poor consumer experience. Thus, making these sizing decisions is important in terms of both short and long term impact. In this paper, traditional approaches to measuring branch performance are compared with a new approach leveraging leading edge technologies. While current performance measurement protocols are based on an audit scenario, with a group of experts travelling from branch to branch to perform scheduled monitoring of key processes. This paper intends to demonstrate that such evaluation and auditing activities can be performed in near real-time using for example live customer location tracking feeds at the branch level. When implemented correctly the integration of such a technology should ensure service based activities can be executed in a far more efficient manner. The effectiveness of this approach from a performance measurement perspective is assessed well beyond simple cost factors in order to deliver a higher level of service quality and improve overall efficiency levels e.g. average customer waiting times and staff utilisation at various points throughout the day. This paper presents its findings from two perspectives: 1) Existing Data Gathering Approach (comprehensive analysis): To help evaluate the existing data gathering approach, a queue and staffing resource simulation model has been developed. 2) Automated Data Gathering Approach (initial and projected impact): Further use of leading edge technologies for data representation, in the shape of dashboards of management information, lead to a complete decision support solution. The granular level of detail attainable from such location tracking devices is immense, providing the dual function of both enhancing staff allocation solutions which can provide near real-time data, as well as new analytical capabilities to branch managers and regional managers alike. Branch metrics have been extensively evaluated in the past from a variety of viewpoints through the application of different business processes and technology integration. In this paper the *Predictive Customer Queue-Resource Simulation Model (PCQ-RSM)* architecture is proposed. Using simulation tools, an extensive evaluation of an existing manual data collection approach is contrasted with the application of a location tracking technology. It is evident from initial experiments that new dynamic staffing approaches can help improve the overall performance of service based businesses.

Keywords: Pervasive technology integration and evaluation, staff management and simulation.

Firms Patterns of e-Business Adoption: Evidence for the European Union-27

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Abstract: Research has shown that firms using e-business achieve considerable returns through efficiency improvements, inventory reduction, sales increase, customer relationship enhancement, new market penetration, and ultimately financial returns. However, there is little systematic research in terms of e-business adoption patterns in firms across countries and industries. This study addresses the research gap by analysing the pattern of e-business adoption by firms across European Union (EU) members. For that, we used the survey data from 6,964 businesses in EU27 members (excluding Malta and Bulgaria). The choice of variables that we will use in our study is based on the technology-organization-environment (TOE) theory. In the TOE framework, three aspects may possibly influence e-business adoption: technological context (technology readiness and technology integration); organizational context (firm size, expected benefits and barriers of e-business and improved products or services or internal processes); and environmental context (internet penetration and competitive pressure). We performed a factor analysis (FA) of multi-item indicators to evaluate the validity and to reduce the number of variables. We used the principal component technique with varimax rotation to extract four eigen-value, which were all greater than one. The first 4 factors explain 72.4% of variance contained in the data. The four factors found are: expected benefits and obstacles of e-business, internet penetration, technology readiness and technology integration. These factors are in accordance with the literature review. Afterwards, we performed a cluster analysis (CA) using variables obtained from the FA and the other variables were gathered directly (firm size, employees' education, improved products or services or internal processes and competitive pressure) from the e-Business W@tch survey. In the CA we used hierarchical and non hierarchical methods. We obtained four distinct groups of e-business adoption. The pattern of these groups suggested that in the European context the most important factor to characterize e-business adoption is the specific characteristics of the industry and is not the country to which the firms belong.

Keywords: e-Business adoption; information and communication technology (ICT); technology-organizational-environment (TOE) framework; cluster analysis (CA); European Union (EU) members

Creating Strategic Value Through Executive Information Systems: An Exploratory Study

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Abstract: Over the past few years, information technology has grown so rapidly that businesses had to adjust very quickly to keep abreast of fast growing technologies and international trends. An increasing number of South African companies listed on the Johannesburg Stock Exchange (JSE) have implemented Executive Information Systems (EISs) that have resulted in the widespread use of computers in companies. Users of EISs need systems that provide them with access to diverse types of information in order to take decisions, to solve problems and to compete with competitors. This article discusses whether South African companies create strategic value through the use of EISs. The strategic value of the business is explained as an advantage to improve businesses' performances firstly, by gains in profitability and financial strength and secondly, gains in the businesses' competitive strength and market standing. Executives and top management need to be aware of the opportunities available to them by using information technology as a business tool to analyse their businesses' performance and competitiveness.. A structured questionnaire was designed and was sent to 334 listed JSE companies in order to investigate the existence of an EIS, the gathering, selecting and use of information in companies in order to make decisions and to solve problems. Many businesses have chosen EIS technology to provide relevant and accurate information to top management and executives. Currently the EIS provides information that is only available to executives and top management, but the need exists to expand EISs to other users in the business. The research questions investigated in this study are to establish what EISs offer to fulfil the needs of users and to determine the impact on creating strategic value within the business in order to keep pace with on-going changes in technology. In addressing these problems the existence of EISs was investigated to debate, express, and understand the role and use of an EIS and resulted in creating strategic value for businesses. The value of the study explains the vital importance of executives' influence towards the adoption, commitment and use of EISs at strategic management levels, creating and adding strategic value in companies. The findings of the study add to the current understanding and awareness of EISs in listed JSE companies and therefore create an environment in which the business can enhance sustainability and strategic competitiveness. Responses were favourable since respondents requested a report on the outcome of the results as they expressed an interest in the underlying motivation of the study and how their company compares with their competitors in the industry. Conclusions drawn from the results are that EISs need to incorporate all the unmet needs of users in order for EISs to add strategic value and to be used as effective business tools in companies.

Keywords: Competitive advantage, executive information system, information technology, performance, strategic value, sustainability

Post-Implementation Evaluation of Collaborative Technology: A Case Study in Business Education

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Abstract: To be successful in their future careers students need to develop diverse skills and qualifications. Firstly, in addition to learning the course content and the theory, students need to learn how to work effectively in multidisciplinary and multicultural groups. Secondly, they need to familiarise with collaborative technologies (CTs) since these are increasingly used in the workplace to facilitate communication and collaboration between distant co-workers. To address these needs it is essential to incorporate CTs (such as videoconferencing systems) in the curriculum and provide opportunities to students to gain hands-on experience. Nevertheless, *what* technologies are used does not make the difference between motivated and unmotivated students; it is *how* these technologies are used that matters. Whilst innovative technologies can be fascinating, they must be properly evaluated and adjusted to specific educational, individual, and group needs in order to be successfully adopted by students. This evaluation entails taking into consideration the context within which technology will be used (appropriateness evaluation) and the social-psychological motives for user acceptance (evaluation of user satisfaction). This paper reports the findings from an interpretive case study in postgraduate business education where students were using a videoconferencing system as part of their workshops and group discussion sessions. This setting provided a suitable social milieu for post-implementation evaluation of this collaborative technology. Qualitative methods were employed including participant observation, focus groups, and analysis of videoconferencing sessions captured on video. The findings indicate that computer-supported collaborative learning (CSCL) helps students become confident with using CTs, learn best practices of how to communicate and collaborate in technology-mediated settings, and appreciate the impact that technology has on everyday social practices. The videoconferencing exercises also engaged students to actively participate in the learning process. Given the duality of technology presence (in educational and business contexts alike) the findings can inform the design of new pedagogical models that maximize the learning potential of CTs.

Keywords: computer-supported collaborative learning (CSCL); collaborative technology (CT) evaluation; business education; case study

A Fuzzy AHP Based Approach Towards Enterprise Architecture Evaluation

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Abstract: Enterprise Architecture (EA) as a discipline with numerous and enterprise-wide models, has pervasive impact across the enterprise. Due to expensive implementation of enterprise-wide scenarios, it is critical to perform an architecture assessment before any decision about choosing a scenario. In order to provide such support, EA models should be amenable to analysis of various utilities and quality attributes. This paper provides an approach based on Fuzzy Analytical Hierarchy Process towards EA analysis. It proposes a quantitative method of measuring quality attribute achievement of different scenarios using AHP based on the knowledge and experience of EA experts and domain experts. Due to the vagueness and uncertainty in the judgments of participants, the crisp pair wise comparison in the conventional AHP is insufficient and imprecise to capture the right judgments. Therefore, a fuzzy logic is introduced in the pairwise comparison of AHP to make up for this deficiency. In this method, the situation of the enterprise is considered in giving weight to the different criteria and sub criteria of each quality attribute. The applicability of the proposed approach is demonstrated using a practical case study.

Keywords: Enterprise Architecture analysis, quality attribute, Analytical Hierarchy Process, fuzzy logic

Principles as a Complement to Models in Defining the Target Enterprise Architecture

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Abstract: The main reason to adopt an Enterprise Architecture framework (EAF) is to manage change; moving from where an organization is today, to where it needs to be in the future. The challenge in this is to understand what to change, why to change it, to what it should be changed and how to manage that change or migration. Existing literature in the EA area of research often describes how successful understanding and description of both current and target architectures can be derived from visual models, and the migration work is often described as a project or program. As a complement to defining the target architecture as a model, architectural design principles can be used and the EA work can also be seen as an ongoing change process. However, existing frameworks give very little support for working with principles as a complement to models. The purpose of this paper is to create a better view of *“in what situations should the understanding of the future architecture of the enterprise be derived by a model and in what situations should it be derived from principles or a combination of both?”* To investigate this two real-life cases are analysed. Our conclusion is that factors like time, dynamic external environment, and complexity of business tend to draw organizations towards increased uncertainty of the future. Models become less meaningful as they will most likely lose their validity over time and they simply cannot accurately represent the future. In these situations an architectural principles can support the architecture migration.

Keywords: Enterprise architecture, enterprise architecture frameworks, model-driven architecture, architectural principles, target architecture

Radio Frequency Identification (RFID) Adoption in the South African Retail Sector: An Investigation of Perceptions Held by Members of the Retail Sector Regarding the Adoption Constraints

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Abstract: Radio Frequency Identification (RFID) technology is a method of identifying unique items using radio waves that communicate between RFID tags and readers without line-of-sight readability. Application areas include person identification, logistics, pharmaceutical, access control, security guard monitoring and asset management. One of the areas where RFID promises excellent potential is in the retail industry for the tracking of goods and products throughout the supply chain. There are concerns around numerous RFID adoption barriers. Decision makers in the South African retail sector seem to be adopting a wait and see approach. In an attempt to identify and explore these barriers, a literature review was conducted identifying 29 unique barriers to RFID adoption. A survey instrument, informed by these barriers, was constructed and administered to members of the retail sector in South Africa. The research reveals that the South African retail sector is aware of the benefits in adopting RFID technology, however, they have identified numerous adoption barriers that will need mitigation before they will commit to adopting RFID. The research confirms six main categories with several adoption barriers in each, needing to be addressed. The main categories include, RFID skills shortage, a lack of standardization, high costs of RFID devices, the difficulty of integrating with current legacy systems and a lack of familiarity with RFID systems.

Keywords; RFID, diffusion of innovation, adoption barriers, business case, supply chain management

Moving ERP Research Forward: The Future Directions for ERP Research

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Abstract: This paper presents an unbalanced overview of existing Enterprise Resource Planning (ERP) research by reassessing the body of knowledge and emphasising future research directions that need to be pursued in an attempt to fill knowledge gaps and bridge the existing gap between practitioners and academia. To fulfil this objective, nine leading international IS publications covering the period of 2006 to 2008 are explored to complement previous ERP reviews that have covered publications up until 2006. Fifty-eight articles and papers were identified from this sample. An ERP lifecycle framework (cf. Esteves and Pastor, 1999) is employed to analyse and organise the publications into two domains of interest to both practitioners and academia: namely, the *ERP organisational perspective* and the *ERP managerial perspective*. The ERP organisational perspective contains six stages according to the ERP lifecycle framework. They are *adoption, acquisition, implementation, use and maintenance, evolution* and *retirement*. The ERP managerial perspective includes various strategic issues related to ERP. The results of the analysis suggest a number of key observations from both perspectives. From the organisational perspective, the results highlight that there has been a heavy research concentration on the ERP *implementation* stage, and they also reveal that ERP *use and maintenance*, and ERP *retirement* remain somewhat un-researched areas. From the managerial perspective, the analysis reveals conflicting views on ERP advantages from different organisation levels, competitive advantage generated from standardised ERP packages and the concept of the 'unfit nature' of rigid ERP systems, tasks, and people. The fifty-eight publications reviewed can be considered to be the back bone of existing ERP knowledge, which can be used to further build knowledge that, in turn, can be of greater use and significance to practitioners.

Keywords: ERP research, ERP lifecycle framework, organisational perspective, managerial perspective

How a Medium Sized Enterprise Applies the CRM Approach in its Marketing

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Abstract: The purpose is to describe how a medium sized enterprise with an international scope, positive economic development, and relatively high ICT maturity applies the CRM approach in its marketing. Medium sized enterprises with these features are assumed to be role models for smaller enterprises, and in particular for smaller enterprises with growth ambitions. This case study is based on structured interviews conducted with the CEO and the manager responsible for IT and IS development in the enterprise. The findings show that the enterprise endorses a customer-oriented business strategy, supported by fairly simple information gathering and analysing methods; that the dependency on agents and dealers is a problem in an CRM perspective; and that the development of the Web offers new possibilities for CRM practices and policies.

Keywords: Small and medium sized enterprises, customer relationship marketing, Web 2.0, dependency on marketing agents

e-Government Initiatives in India

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Abstract: In democratic states information about government activities is of crucial importance to all citizens, who need to make judgments regarding public policy. Government of India has emerged as a vital group engaged in generating, collecting and disseminating information in the country which is essential to the public for understanding of the national issues. National Informatics Center (NIC) has developed government websites in which one can get an overview of the functioning of government bodies. Now, there has been greater emphasis on free flow of information from government to public as it is considered to be an indicator of good governance. E-governance contributes to the functioning of democracy by online provision of government information and services to the public, leading to increasing transparency, greater efficiency and productivity. This paper focuses on innovative applications of Information and Communication Technologies (ICTs) in support of e-government initiatives in India in various sectors viz. rural development, agriculture and administration etc. The study also tries to look at the various benefits of e-government initiatives in Indian context. It also briefly discusses the National e-governance Plan (NeGP) and other planning initiatives undertaken by the Government of India (GOI) to develop a single coherent policy for implementation of mission mode e-governance projects. It highlights the salient features of government websites in India followed by analyses of three websites selected as case studies. The major finding of this study is that the e-governance initiatives have been partially successful in India and it has limited impact due to low e-literacy and infrastructure limitations.

Keywords: e-Government; e-governance; Government websites

Research in Progress Papers

IT Balanced Scorecard as Tool for Managing IT Innovations and IT-based Innovations

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Abstract: IT organizations are facing a changing understanding of their responsibilities and their role in companies. They are no longer just seen as IT service providers but as business-oriented drivers for innovations which have an impact on the business concept. Therefore, IT has to focus more strongly on its ability to innovate and contribute to the company's future success. In this context, IT innovations and IT-based business innovations are very important. Consequently, the innovation aspect has to be considered adequately in the IT strategy as well as in IT management frameworks which are used for their implementation. One of the widely used frameworks is the IT balanced scorecard. Therefore, this research paper points out how IT innovations and IT-based innovations can be assured by an appropriate configuration of the IT balanced scorecard. For this purpose, five different scorecards have been examined. One of these scorecards is the original balanced scorecard of Kaplan/Norton.

Keywords: IT balanced scorecard, it innovation, it-based innovation

Governance Implications of Vertical Health Interventions on Health Information Systems Policy Implementation in Nigeria

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Abstract: The international community has long advocated the necessity of a decentralised system for the equitable distribution of healthcare services in developing countries. These initiatives have been proposed against the backdrop of an extensive health reform agenda. However, the tendency of these policies has often been skewed towards selective primary health care. For a qualitative study of decentralised healthcare policy challenges in Nigeria, this study adopts concepts from “decision space” framework. The central proposition of this framework is that by understanding the dynamics between principals and agents we might be able to analyse how policy makers (i.e. principals) can impact the decisions made by local officials (i.e. agents) in a way that leads to better performing health systems. The framework employs this relational dynamics to propose implications of accountability mechanisms on the role of information in measuring and monitoring performance. The main findings were that while selective interventions might be imperative, in the long run this approach necessarily weakens the general health system. This is reflected in a weak accountability mechanism and therefore creates a socio-political dimension to the evaluation of health information systems (HIS). Primarily because, within this inappropriate institutional arrangement, information is often on the periphery of health planning considerations and health information systems are co-opted in furthering the personal objectives of a network of interests. Accordingly, health data loses its *objectivity* status, credibility and reliability. The implication of this study for health development partners, HIS practitioners and health policy makers is to appreciate the influence of current ideological positions which impact the socio-political arrangements that underlie the development of an information-based health system. In essence, the proliferation of vertical interventions has a negative impact on the institutional infrastructures necessary for developing a coordinated, transparent and accountable health system. This in turn compromises the objectives of implementing an information-based health system. In conclusion, HIS evaluation should incorporate these underlying factors in order to provide robust analysis of the challenges faced in their implementation especially in developing countries.

Keywords: Health information systems, primary health care, decision space, Nigeria, vertical interventions, governance

An Investigation of the Activities and Skill Sets Needed By Senior Information Technology (IT) Managers

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Abstract: Information Technology (IT) is considered as a very important part of today's world of business. As many researches indicated, IT helped and still helps companies to lower their costs and increase the information quality with their speed and other advancements. On the other hand, Senior IT Managers of these IT departments, such as Chief Information Officers (CIO) roles are more important and crucial than other department's relationships with their senior managers. This study investigates the required skills and activities with the advised education for prospective senior IT managers. Research indicates that computer engineering undergraduate education and with two years of work experience prior to MBA (Master of Business Administration) education. From a list of 18 skills and 24 activities, the IT employees ranked "Crisis Management", "Long-term Planning", "Strategy Setting" activities and "Communication and Coordination Skill", "Leadership Skill" and "Team working skill" as the top requirements for senior IT managers.

Keywords: Skills, information technology, private sector, senior manager, IT, information systems, IS, skills set, skills and activities

IT-Supported Work Processes for Contact Services in Swedish Municipalities – the Initial Design Steps

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Abstract: A contact service in a municipality is a place where the citizens can apply for processing of their claims concerning municipal jurisdiction. Examples could be application for a place at pre-school, planning permission or change of dustbin etc. The clerks at the contact centre should be able to provide immediate service in most of the matters. This requires the work-process for each matter to be known. Before starting of a contact service this knowledge existed in the administration for the actual claim. In many cases it was tacit and not described. This paper discusses the problem of making this knowledge explicit and described in order to be used at the contact service. Issues concerning work organisation, personnel and job satisfaction are recognised, but not in focus. Instead our focus lies on the work content, processing of the claims, which the clerks are dealing with. It is a qualitative study, based upon three existing contact services and one, which is in the design phase. We start with a brief discussion of different types of knowledge, related to classical epistemologies within the organisation area (Nonaka & Takeuchi, Brown & Duguid, Cook & Brown, Polyani, etc). Based upon empirical material from the cases we identify some typical knowledge categories. It might be general knowledge about rules, procedures and such things; it might be experience-based knowledge from previous claims, typical claims and work praxis developed over time. It might also be knowledge about the specific citizen and about the specific application. But it can also be totally new categories. Two categories we are pretty sure to identify are matter-oriented knowledge, concerning the actual matter and procedural knowledge, concerning the processing of the matter-oriented knowledge. In our previous research about work-flow four levels have been identified and we suspect the same basic reasoning might apply here.

Keywords: Tacit knowledge, ontologies, contact service, municipalities

How do CIOs Become CEOs? Barriers and Success Factors

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Abstract: This paper presents the results of the first stage of a two-stage research project being carried out under the sponsorship of the Chief Information Officers' (CIO) Association of Canada. The challenges in achieving promotion to and success as a CIO have been well documented. Little, however, has been done to look at how CIOs advance beyond their role to the top positions in organizations. This project, still in process, provides new insights by examining current theory along with some early documented cases and provides a framework that assesses the potential for promotion. It then proposes testing this new framework through case interviews with current CEOs. Stage 1 of the project, the focus of this paper, reports on the results of a comparative analysis of current CIO and CEO theoretical leadership models and of a validity test of these models through examination of identified well-documented cases where CIOs have achieved advancement to COO or CEO positions. From this review of both models and field stories, a new theoretical model is developed of the characteristics of these successes -- including career evolution and those attributes, experiences or behaviours that appear to contribute to this advancement. A research approach for testing this model in practice is presented, examining the role of Emotional Intelligence as a factor for CIO to CEO success.

Keywords: CIO, CEO, career opportunities, IT leadership, case studies, emotional intelligence

Complementary IS and BP Changes in SMEs

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Abstract. Changes in the business process and changes in the information system that supports the process usually complement one another. In many situations it is not even possible to detect which changes are causes and which are effects. However, our research has shown that it is possible to identify sets of changes that usually happen when one of the business process or information system elements changes its state and thus destabilizes the relationship between business and information systems. These sets of changes may be used as patterns for a situation analysis in change cases to anticipate full range of activities needed to be performed to get the business process and information system relationship back to its stable state after it is lost because of changes in one of the elements of the business process or information system. The paper presents theoretically derived main change elements, change options, and change patterns where changes of states of several elements are amalgamated. Those patterns were analysed according to different information system and change management theories and tested in 48 real information systems change cases in SMEs. Both theoretical and empirical research results have pointed to three basic change patterns. Based on these three patterns a tool for supporting information systems change management in SMEs is under development. The approach presented in the paper allows to improve information systems change management by checking whether all potentially needed changes are planned and introduced into information system and business processes. The approach considers internal organisational changes and changes caused by external environment. The approach is especially useful for SMEs as it does not require the use of sophisticated business process modeling and configuration management tools. The tool that supports all three basic change patterns does not require deep knowledge in information technologies and therefore can relatively easily be used by business and information systems managers of SMEs.

Keywords: Business process, information system, change management

Problems of Cost Efficiency Management of Business Informatics and Their Solving by Means of new Model of Measuring and Analyzing Costs in Business Informatics in the Context of Data Quality

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Abstract: This paper is devoted to problems of cost efficiency management of business informatics and their analysis with the Business Intelligence (BI) support. In this paper define basic critical points that must be taken into account during creating models for cost efficiency management of business informatics in the paper. It proposes a new model for management of cost efficiency; this model includes also definitions of dimensions and indicators for cost efficiency measuring. The model takes into account requirements that pose claim on cost efficiency management necessitated by accounting, requirements from consultancy with companies' managers, differences in the method of account of business informatics cost and profits. We can distinguish two types of business informatics: Business informatics as a cost centre and business informatics as an in-house unit that has its own in-house accounting system, control its costs, profits and draw up a statement of balance and each of this access to business informatics require different procedures in management of business informatics. The model also takes into account requirements of methodologies for business informatics management and methods and processes of business informatics evaluating and measuring. This methodologies, methods and processes are transformed into procedures that are appropriate to measuring and evaluating of business informatics. This model is intended for monitoring of actual situation, cost efficiency evolution of business informatics and it can be used for making decisions about convenience of business informatics outsourcing. The designed model interconnects costs from aspects of investment, operative and another more detailed classification of activities (installation, HW service, training, administration etc) that are connected with their creation. Designed model has been based on above mentioned facts as companies and in-house costs structure. All of these facts are instruments to evaluation of business informatics total costs and especially tag prices for services provided by business informatics to other in-house units. The model of business informatics costs efficiency is interested in all basic fields that should be monitored in business informatics. The model has been created with reference to the ITGPM (IS/ICT Management Reference Model). ITGPM is integrated reference model for managing business informatics. There are presented some examples from presentation level of mentioned model for measuring of cost efficiency of business informatics. This presentation level is in the form of tables and also in the form of dashboards.

Keywords: Business informatics, economic efficiency, cost, business intelligence, measuring

Agile Teams: Reflective Debate and Shared Understanding

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Abstract: This research proposes a method referred to as a sense-making workshop which, by its design, facilitates *theses* and *antitheses* to be proposed by workshop participants (Agile team members) around their individual understanding (truth function) of the factors affecting their Agile project or iteration. Furthermore, the teams shared understanding will be formulated (by the workshop facilitator) which will allow reflective debate to take place around the individual and shared representations of these factors. Through this reflective debate amongst the workshop participants a synthesis/consensus will be reached through creative conflict; focusing on differing assumptions that exist amongst the team members and creating new perceptions of their Agile project or iteration. This is valuable due to the fact that developers can yield to other opinions, as developers have a low tolerance of conflict; therefore, the creative conflict created by the workshop can help the Agile developers to overcome their tendency to give in so as to avoid arguments. To achieve this workshop outcome, the steps of the novel method are proposed in this paper. These sections illustrate the means by which a shared understanding of successes and failures can be achieved from a group of individuals' perceptions of the factors at play in an Agile project or iteration. Reflection workshops use brainstorming to generate ideas, however, it is argued herein that this is not the most effective method of conducting project reviews, and that alternate views can be suppressed in a "rush to judgement". Therefore, through reflective sense-making, the members of an Agile team can better conduct project reviews or post-mortems.

Keywords: Sense-making, workshops, agile project teams, shared understanding, project reviews

Benefits are From Venus, Costs are From Mars

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Abstract: Given the plethora of available information systems (IS) evaluation techniques, it seems unlikely that yet another technique will address the problems of unsuccessful projects and ineffective management. Rather, more insight into the foundations of evaluation techniques may yield greater benefits. One generally accepted, but largely unexplored, issue concerns objectivity and subjectivity in the assessment of costs and benefits. This research in progress addresses three questions regarding these concepts and their objectivity: (1) how different are costs and benefits, (2) what is the gap between the assessments of costs and of benefits in IS evaluation, and, (3) how could this gap be reduced? It is demonstrated that, over time, the objectivity of evaluation approaches has diminished as they increasingly assess benefits. As cost measurements remain more objective, assessments that seek to compare costs and benefits become more problematic; hence, benefits are from Venus, costs are from Mars and their orbits are diverging. In order to bring the orbits closer together, a design science methodology is adopted to analyse the divergence's influence on evaluation methods, as well as the 'tweakability' for closing the gap. In a field study, an objectified redesign of Bedell's method (1985), previously considered as subjective, is presented, tested, and compared to the original. In this paper it is argued that narrowing the gap, and particularly the objective measurement of IT benefits, is a prerequisite for a more general acceptance of IT evaluation methods. This identification of objectivity as one of the possible causes for existing methods not being the expected success adds to the foundations upon which IS are evaluated. In addition, gaining insights into the multiple properties of evaluation techniques will enable future research on trade-offs between these properties. The research offers practitioners the possibility of increasing the formality of the assessments. This offers improved potential to address resources allocated to IS and increased credibility of the IS function.

Keywords: Objectivity, IS evaluation, evaluation methods, IS economics

Poster

Information cost Modelling Using Activity Based Costing

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Abstract: Information is the final product obtained from Data Warehousing Systems and the main purpose of its implementation. It has been noted that the existing information costs models, such as technology-subjective and holistic, may be combined with Activity Base Costing (ABC) model and each phase of the information creation process in data warehousing can be described as elements of the ABC's Activity Dictionary. Costs measurement using model ABC consists of four stages: (1) the Activity Dictionary compilation, (2) determining the costs pool, (3) recognizing the products, services and customers, and (4) choice of cost drivers, combining activity costs with the products, services and customers.

Keywords: information cost, data warehousing, Activity Based Costing, activity dictionary, costs drivers