

**Proceedings
of the
4th European Conference
on Information
Management and
Evaluation**

**Universidade Nova de Lisboa,
Lisbon, Portugal**

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Edited by
Miguel de Castro Neto
Universidade Nova de Lisboa
Portugal

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Preface

The 4th European Conference on Information Management and Evaluation (ECIME) is hosted this year by Universidade Nova de Lisboa, Lisbon, Portugal. The Conference Chair is Maria do Rosário Oliveira Martins and the Programme Chair is Miguel de Castro Neto.

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 Professor José Manuel Tribolet from the Universidade Técnica de Lisboa - Instituto Superior Técnico.

ECIME 2010 received an initial submission of 120 abstracts. After the double-blind peer review process 57 papers have been accepted for these Conference Proceedings. These papers represent research from around the world, including Australia, Austria, Brazil, Egypt, Finland, Germany, Greece, Iran, Ireland, Italy, Korea, Malaysia, The Netherlands, New Zealand, Pakistan, Papua New Guinea, Portugal, Romania, Russia, Serbia, South Africa, Spain, , Sweden, the United Arab Emirates, the United Kingdom and the United States of America.

We wish you a most interesting conference.

Miguel de Castro Neto
Universidade Nova de Lisboa, Portugal
Programme Chair
September 2010

Biographies of Conference Chairs, Programme Chairs and Keynote Speakers

Conference Chairs



Dr Maria do Rosário Fraga Oliveira is an Associate Professor and vice-Director at the Institute for Statistics and Information Management (ISEGI) of the Universidade Nova de Lisboa. She is also Pro-Rector of this University. Her research interests include Econometrics, Multivariate Analysis, Credit Scoring, Knowledge Management, e-Learning. Maria has a degree in Economics from the Faculty of Economics of the Nova University of Lisbon, a Master of Econometrics from the Free University of

Brussels and a Doctor of Economics (Ph.D.) from the Free University of Brussels. She is author of several publications including chapters in books and articles. She has published in several national and international journals and conference proceedings. Maria is the scientific co-ordinator of several funded research and development projects as well as community consulting within CEGI and regularly advises graduate students (Masters and PhD) at ISEGI and other schools in the Econometric and Statistics area. She is also called as external committee member to dissertations in other institutions.

Programme Chairs

Dr Miguel de Castro is presently Associate Dean at the Instituto Superior de Estatística e Gestão de Informação of the Universidade Nova de Lisboa (ISEGI-UNL), where he is Invited Assistant Professor. He is editor of the Journal of Information Technology in Agriculture (JITAg), member of the Editorial Advisory Board of Online Information Review journal, and Scientific Advisor of the Revista Brasileira de Agroinformática. Miguel de Castro Neto holds a PhD in Agronomic Engineering (Universidade Técnica de Lisboa) in the field of Internet-based agricultural information systems, a Masters degree in Agricultural Economics (Universidade de Évora), a Masters degree extension in Statistics and Information Management (Universidade Nova de Lisboa) and a degree in Agricultural Engineering (Universidade de Évora). His research interests include Business Intelligence, Knowledge management and Social Computing.



Keynote Speaker



Dr José Manuel Tribolet is Full Professor at Universidade Técnica de Lisboa - Instituto Superior Técnico. He obtained a BA (1970) at Instituto Superior Técnico in Lisbon and a Masters (1972) and PhD in Electrical Engineering and Computer Science (1977) from MIT, USA. He was a Sloan Visiting Fellow at the Sloan School of Management at MIT in 1997-1998. He is Professor of Information Systems and Vice President for Graduate Studies, Department of Computer Engineering of IST. He is President of INESC (Institute of Computers and Systems Engineering). Conducts its scientific research on CEO - Center for Organizational Engineering INESC INNOVATION. Currently teaches Organizational Architecture of Enterprise Information Systems and Organizational Engineering at graduate and post-graduate courses and guides currently 9 PhD students, with whom he has published since 2000, about 70 scientific articles in Organizational Engineering. Acts as a professional in computer engineering since 1999, providing advice to senior corporate executives and public administration.

Mini Track Chairs

Dr David Barnes is a Senior Lecturer in Operations and Strategic Management at the School of Management, Royal Holloway, University of London. He has held lecturing posts with the Open University and Thames Valley University, and was a visiting Research Fellow at the University of Cambridge. He holds a BSc (Eng) from Imperial College London, a MBA from the Open University and a PhD from Staffordshire University. Prior to academia he worked



in the process plant and building products industries, in engineering and line management positions. His research interests include the strategic management of operations; the impact of the Internet-based ICTs of e-business on operations management; performance management; and the management of SMEs. He has published articles in, amongst others, the International Journal of Operations and Production Management, Journal of Manufacturing Technology Management, Knowledge and Process Management, Electronic Markets, Journal of Electronic Commerce in Organizations, International Journal of Electronic Healthcare, European Journal of Management and the International Journal of Small Business and Enterprise Development.



Ian Owens lectures on Information Systems at Cranfield Defence and Security at the Defence Academy of the UK. He has authored over 40 research papers and has worked on a range of information systems projects with number of organisations including NATO, QinetiQ, IBM and the UK Ministry of Defence. He also teaches on Masters Courses and engages in consultancy work for the MOD and the wider Defence community. He is involved in projects looking at Service Oriented

Architecture and Enterprise Modelling using MODAF. He is also interested in decision-making, sense making and related concepts.

Dr Graham Fletcher spent 15 years in industry after completing a PhD, running several industrial R&D departments. In 2008 he joined Cranfield university's academic staff where his interests study how I.S. research is affecting professional practise, i.e. measuring if evidence based evaluations have the power to alter the practise of I.S. professionals.



Tiago Oliveira is a PhD student and teacher assistant in ISEGI, Universidade Nova de Lisboa. His research interests include technology adoption, diffusion and economic impact of the technology. He has published articles in The Electronic Journal Information Systems Evaluation and TEXTOS para la CiberSociedad. He has published in several conferences of information management and statistics. For example, International Conference ON

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Miguel Cacoilo has 10 years experience in IT Projects in Healthcare which made him gain considerable knowledge and provided him with extensive background and experience in this area. His degree is in “Computer Science/Applied Mathematics” and since then he has regularly have been attending trainings in related areas. This year he will finalize his Masters Degree in “Medical Informatics”.

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Jorge Cavaleiro is currently a MSc student in IST, Technical University of Lisbon, Portugal. Previously has completed his BSc in the same institution. His thesis and research interests are in the areas of GreenIT, evaluation and

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Using Balance Score Card in Aligning Strategy Implementation According to Information Technology Development in Organization

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Abstract: Organizations can use methods of strategies implementation control such as Balance Score Card while designing their strategies based on their current infrastructures (as internal resources). One of the most important supportive infrastructures in all organization is IT. In this article, by using information technology levels identify organization information system's attributes according to its maturity level. In each maturity level, we need alignment between strategies in IT and other infrastructure's strategies. During strategy implementation, Balance Score Card dimensions can be weighted differently based on organization strategies and objectives regarding its development level. In this paper, by using BSC in IT department, information technology development levels model and its related questionnaires, we will identify which dimension of BSC have priority in align strategy implementation control according IT development level of organization. In future, according IT level and each level characteristic, we can design optimal BSC dimension balance for align strategy implementation, and then, predict necessary efforts to develop through levels and grow to higher level.

Keywords: IT system development level, IT BSC, BSC, Alignment

Student Teachers' Perceptions about the E-Portfolio as a Performance Assessment Tool

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Abstract: The electronic portfolio is one of the digital applications and one of the latest trends of teaching and learning assessment in the programs of teacher's education. The literature in recent years has assured the importance of using portfolios or e-portfolios in learning environments as a requirement for an organization to obtain academic accreditation. Therefore, in order to cope with the global interest in implementing the portfolio, the Egyptian Ministry of Education has experimented it, but many problems occurred. In spite of these trials, oral and written tests are still the only evaluation methods used. Moreover, student teachers in Egypt are hardly

aware of portfolios as evidenced by a pilot study. The current study aims to identify the student teachers' knowledge and attitudes about the nature, purposes, benefits, value, and problems or difficulties of using portfolio or e-portfolio assessment. To achieve the aim of the study, a questionnaire and a semi-structured interview were used to identify the sample's perceptions about using e-portfolio in their learning assessment process. Results indicated that student teachers perceived portfolios or e-ones as accurate and reliable measures for exhibiting their personal performance and as useful tools for self-evaluation. However, few students found difficulty in using portfolios. Such difficulty was justified by limited funding, the weakness of learning community individuals' culture of portfolios, weak partnership between the society and the educational system, class size, and marginalizing the role and position of the teacher in the Egyptian society. In the light of results, some recommendations were suggested as practical procedures to use the e-portfolio as a learning tool providing very specific information that teachers can use to analyze, evaluate, and improve the performance assessment of pre-service teachers.

Keywords: student teachers; learning portfolio; electronic portfolio; performance assessment

Checklists for Evaluating the Quality of Recordkeeping

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Abstract: Records are evidence of business transactions and actions. They provide the basis for accountability and traceability. Therefore they are essential to evaluation and audit processes. Records and documents are sources of knowledge that support a learning organization and can be defined as "institutional memory". However there are few examples in the literature of how records have been used to evaluate and critically assess the outcomes of business activities. The purpose of this paper is to identify potential criteria for creating a checklist that provides enough information about the records and the business that created them to ensure that records could be used as tools in evaluation programs. In this research paper we have used the ISO standards ISO 15489 and ISO 23081 as tools to achieve our purpose. This was a qualitative research project, situated in a large railway infrastructure project where the budget is 6.6 billion Swedish kronor (approx 650 million €). The project is ten years long, and to date more than 250 000 records have been produced. Many sub-contractors and 16 other public agencies are involved in the project. The internal regulation of records management regulated within the project is very detailed, and at first glimpse the directives

seem to be well grounded. Requirements for records creation, capture and metadata-tagging are presented in the regulations. Yet even after minor analysis it is obvious that the railway project focuses only on managing records that are documents, i.e. in formats that can be treated as a single unit. Common examples of document types are spreadsheets, Word documents, PDF files and blueprints. Thus the project is failing to capture crucial records created in non-document and more complex formats, such as databases and technical drawings produced in applications like CAD. More importantly, the research found that the project's metadata design and capture is inadequate for capturing the context of the records that are kept and preserved. This makes it difficult to use the records for evaluating the project for accountability purposes both during and after the project. The experience and knowledge gained from the project is also difficult to transfer to similar future projects. Records without the contextual binding and applicable contextual metadata cannot provide a quality basis for evaluation of the business. If records are to be used as tools for evaluation, we need to preserve records following the quality criteria that are presented in the ISO 15489 and ISO 23081 standards. If records are to be used as evaluation tools they need to be usable for that purpose and be of sufficient quality. In this paper we propose that the assessment of the quality of a record should be based upon the metadata elements found in the ISO 23081.

Keywords: Checklists, Evaluation, Metadata, Recordkeeping, Recordkeeping standards

Information and Communication Technology's Professionals Profile: Executives' Perception Analysis

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Abstract: Information and Communication Technology (ICT) has become indispensable as a factor which generates a competitive advantage for business, gaining even more investments and being constantly held responsible for that. The success of a project deal with quantitative and qualitative aspects, were people are what have more influence on a project's success or failure. This paper has as main objective to analyze and define the expected ICT professionals' profile in Brazil, from the perspective of the industry. Specialized literature presents professional competence foreign cases, from which was pointed out the influence of cultural aspects in the definition of competence. Based on theoretical references, a data collection instrument was created considering the more common soft skills. The survey was conducted in public and private organizations in Brazil's Federal District.

For data analysis, descriptive statistic techniques and multi-variable analysis were used. The results from the analytical research coincided with those found in literature, with small variations in relation to some factors of importance. It became evident the importance of some non-technical abilities that work as a support for improving the technical abilities requested from ICT professionals. Among technical abilities, the emphasis was on logic and math reasoning. The boundaries of the set of soft skills are generally considered to include least the following attributes and skills: communications (oral and written), teamwork focusing on clients and business, customer service focus, ability to be resourceful and constructive when solving problems and adaptive expertise. This research points out the need for integrating initiatives between enterprises and educational institutions aiming at competence development for future ICT professionals in the 21st century.

Keywords: ICT's professionals profile, competences, soft skills, abilities, survey.

Security Management of Spyware via the Authentication of Web Communication

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Abstract: A continuing Internet information management challenge is the significant prevalence of software that aids in collecting and transmitting information about a person or organization without the information-owner's consent. This software is popularly known as spyware. The Internet users' perception is that spyware – like virus infections - should be legislatively outlawed and operationally eradicated. However, whilst virus infections are designed to damage a targeted computer or network – clearly a criminal act – the distribution of spyware is mainly a commercial venture. It is from this fundamental point that spyware control strategies have become problematic. Legislators have even struggled to specifically define spyware. Within this uncertainty, however, the existing spyware research has established three clear premises. Firstly, spyware is proliferating at a significant rate across the Internet. Secondly, spyware produces several security risks – including privacy breaches and identity theft. Thirdly, anti-spyware controls in the areas of legislation, policy, and technology have experienced many hurdles and are still considered problematic for several significant reasons.

The spyware research described within this paper has proceeded via a factor and gap analysis of the four major dimensions of spyware control: (1) anti-spyware legislative efforts in the U.S; (2) code signing initiatives that are

designed to introduce trust into the use of mobile code; (3) filtering software (e.g. firewalls and proxies), and (4) hybrid solutions. The major result of this research is an information security management framework that strengthens the technological control of spyware. This security management framework, at its core, requires the authentication of each outgoing Web session from each specific software application. The framework facilitates the user-management of all Web communication streams emanating from the host and this in turn must support the better identification of software that engages in the deceptive, misleading, and fraudulent practices already proscribed in existing technology-focused legislation.

Keywords: Spyware, privacy, controls, risk, information security management

Secret Level: Evaluation of a New Zealand Community ICT Project

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Abstract: Multiple objectives relating to Connection, Personal development and Information were the stated outcomes of implementing a suite of computing facilities in a New Zealand city youth centre (Secret Level). The youth centre offered a wide range of both structured and unstructured activities and events. The computing suite included a wireless local area network with Internet access, six moveable, thin client terminals located in the café area and three high-specification multimedia computers with printer and scanner in a separate room. The project was financed from the government's Community Digital Strategy Partnership Fund that aimed to support local, regional and national initiatives to develop and achieve capability, confidence, relevant content and connection to realise community aspirations through information and communication technology (ICT). This paper presents the project's evaluation findings after just four months of operation. The mixed-method study, framed by the overlapping constructs of self-efficacy, social and human capital and third place, involved a survey, semi-structured interviews and observations. The findings revealed that most of the measures of success defined for the project were met but evaluation of many of the Personal development objectives relating to an increase in the work, study, ICT and literacy skills of youth was not possible, due to the short evaluation period,.

Keywords: Community, computing, digital divide, third place, youth

Translate IS Governance Framework into Practice: The Role of IT Service Management and IS Performance Evaluation

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Abstract: IS governance is a recent topic, regarding powers, decisions and behavior linked with the steering of IT/IS investments and information systems (IS). All over the world several large companies are working to design their own IS governance framework, with the aim to pursue a better alignment between IS and business strategy, improve IS performance and outcomes, and reduce IT risk. As a matter of fact, IS governance attempts to fulfil a dual purpose: contributing to present business operations and performance, and transforming and positioning IS to meet future business challenges. However, IS governance should not only be designed, but also executed, that is, “to put it into practice”. Therefore it is necessary to link IS governance dimensions with IT processes and activities, in order to be able to achieve the goals set by the IS governance approach. These activities should be able to make IS evolve from the “as-is” situation to the “to-be” configuration, attempting to optimize both the value of IT/IS investments and IT service quality. Companies are facing with a lot of difficulties in implementing their own IS governance framework, because both it is a new field of IS management and it requires a complete redesign of IS organization and processes. This reorganization could be supported by international standards and best practices, such as COBIT and ITIL, but they are not ready-to-use and companies have to struggle to find the right balance between best practice proposed by these standards and their own IS governance framework. The paper proposes a new IS governance framework focused on the relations among IS governance, IT Service Management and IS Performance Management and links it with effective roadmap and activities to implement it in a specific business environment.

Keywords: IS Governance, COBIT, IT Service Management, IS Performance evaluation

Intellectual Capital and Organizational Information Systems

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Abstract: In a world whose attribute of intangibility is getting more and more pronounced, intellectual capital has become a key component for the growth of a successful enterprise. However, there is still no generally accepted definition of this concept. Numerous researchers have analyzed the content of this notion, but its epistemological perimeter varies from one thinker to another. Therefore, we consider a conceptual overview of intellectual capital to be of crucial importance for the identification of its primary components and the development of reliable management models within the major schools of thought. Intellectual capital has not been included in the traditional accounting models of recognition and evaluation based on historical costs and balance sheet capitalization. However, this is not a valid reason to think of intellectual capital exclusively as a cost of the economic activity. Its real value and its contribution to the global performance of an entity have been the subject of several surveys among corporate shareholders, financial analysts and bankers, who strongly believe in the necessity of disclosing such information. An effort towards the mapping of intellectual capital should provide crucial information on the value creation sources of an enterprise, which are in a strong connection with the strategic vision of the management. For all these reasons, a critical consideration of several recognition and measurement models for intellectual capital is definitely timely and relevant. If we accept the hypothesis that organizational performance is intimately link with the proliferation of intangibles and specialized knowledge, then intellectual capital should be treated as a peer for human or financial capital. However, the use of intellectual capital is not as straightforward as the employment of other types of capital. The dedicated literature suggests the idea that the optimal use of intangibles is only possible in the presence of certain information systems, along with their special infrastructures, networks, databases and market valuation models. Consequently, the study of intellectual capital implies the study of the qualitative attributes of enterprise information systems, in the context of these systems' contribution to value creation and economic growth. As the literature on intellectual capital and intangible value creation is both deep and vast, our contribution will provide a synthesis of the main conceptual frameworks that deal with the link between value creation, intangible recognition and corporate information systems.

Keywords: intellectual capital, recognition and measurement, information systems, organizational performance

Georeferencing Road Accidents with Google Earth

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Abstract: As society has evolved, mobility practices have changed, improving the way travel takes place and the time it takes. High mortality caused by high accident levels has reached unsustainable levels. Research into road mortality is scarce and limited to comparative statistical exercises which go no further than defining accident types. In terms of sharing information and mapping accidents, little progress has been made, aside from the normal publication of figures, either through yearly tables or web pages. This paper describes a road accident georeferencing project for the Lisbon district involving fatalities and serious injuries during 2007. In the initial phase, individual summaries were compiled giving information on accidents, collected by the security forces: the police force (Polícia de Segurança Pública - PSP) and the National Guard (Guarda Nacional Republicana - GNR). The Google Earth platform was used to georeference the information in order to inform the public and the authorities of the accident locations, the nature of the location, and the causes and consequences of the accidents.

Keywords: Road Accidents, Georeference, Geobrowser, GoogleEarth, GIS (Geographical Information System), KML

The Impact of Diverse Information Systems Environments on Information Quality - A Design Science Approach

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Abstract: Information quality is an ever-increasing problem that many organisations must contend with. Despite investment in both technology and refinement of information systems the problem continues to escalate. The introduction of test driven software development methodologies and increased user proficiency has not improved the situation. The use of information systems for more and more business processes at all levels within a multitude of organisations has highlighted the ever increasing problems of information quality. The financial implications are enormous,

prompting research from many disparate disciplines to examine the concept of information quality. Information system deployment has in recent years undergone radical change, the traditional deployment where the architecture, user and access device were known at the time of information systems development, have been replaced by a much more diverse environment. These diverse environments include web interfaces, traditional client server and a revolution with respect to mobile devices. The challenges of measuring information quality where diverse information systems access the same underlying databases are significant. Initial research with respect to information quality concentrated on accuracy and completeness of information. Seminal work in the area of information quality led to the development of Wang and Strong's information quality framework that expanded the number of individual dimensions to fifteen; the sum of which gave an overall level of information quality for an information system. However, little if any research has examined the impact of diverse information systems environments. Several frameworks based on Wang and Strong's original work have been developed in an effort to cater for new and evolving information systems. The expansion of frameworks across a large number of domains presents problems with respect to framework choice, appropriateness, validity and eventually too many diverse frameworks to allow for practical application in diverse information systems environment. In order to overcome these problems this research proposes the construction of a method that allows for the application of Wang and Strong's information quality framework in diverse information systems environment. This method clearly indicates that diverse environments accessing the same information present different levels of information quality; in particular some dimensions have more significance in non traditional environments and as a consequence allowances must be made for this. This in turn impacts on the traditional total weighted sum measurement of information quality dimensions. We recommend that assignment of weightings for individual dimensions in diverse environments. Our method contributes to information quality as field of research by allowing for refinement of the application of information quality frameworks in diverse information systems environments and provides the basis for consolidation of information quality frameworks.

Keywords: Information Quality, Information Systems, Information Quality Frameworks, Design Science

How SMEs Are Accessing And Using Enterprise Software: The Experiences Of UK Based SMEs From Choice Through To Evaluation

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Abstract: This paper focuses on the familiar but under-researched area of the sourcing and usage of enterprise software by SMEs. In 2007 there were 4.7 million micro, small and medium sized enterprises (SMEs) in the United Kingdom, representing 99.9% of all UK private enterprises. UK SMEs employ an estimated 13.5 million people and have a combined annual turnover of £1,440 billion which constitutes over half of the UK economy. Despite the potentially huge size and importance to national economies of the SME market, enterprise software adoption in this sector is very low, with market-leading enterprise software supplier SAP, for example, reporting only 64,000 SME customers *worldwide*. Although there has been considerable research into the adoption and usage of enterprise systems, most of this has centred on large firms. This is to be expected and reflects the reality of enterprise systems usage. Cost, vendor supply policies and nervousness about the role and effectiveness of consultants all militate against adoption by SMEs of this technology. A small proportion does engage, and it is this minority that is explored in the paper. Five companies, spanning a range of industry sectors, based in the North West region of the UK and using enterprise systems were identified. Firm sizes ranged from 3 to 70 employees and annual turnover from £150k up to £4m, thereby offering broad coverage of the SME spectrum. Through semi-structured interviews and secondary sources five small case studies were developed to track the experience of companies from choice of enterprise system through to evaluation. The experience was viewed through the theory lenses of adoption, including both user and provider perspectives, and evaluation. The research identifies not only the similarities between firms in terms of their logic for adoption including the pursuit of operational efficiencies rather than strategic competitiveness but also the differences. These are significant in the area of sourcing and include the influence of legacy systems, the role of self development and third part provision. Theoretically the research advances the case for a contingency approach to make sense of SMEs behaviour in the context of enterprise systems, rather than the more familiar technology adoption and acceptance models. No similar research has been identified and the work has implications for practice and, in particular, for providers.

Keywords: SMEs, enterprise software, choice, evaluation, case studies, adoption

Free Traceability Management using RFID and Topic Maps

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Abstract: The CRDO (Consejo Regulador de la Denominación de Origen “Jamón de Teruel” – Governing Board of the Protected Designation of Origin “Ham from Teruel”) is involved in the development of a system that guarantees the traceability of the pig’s legs. This initiative is innovative since there is no other Governing Board which has such a system to respond to unforeseen circumstances occurred at the slaughterhouse unit. To accomplish the requirements, three different strategies have been followed: (i) RadioFrequency Identification (RFID) technology, which uses a wireless link to transfer data in a fast and easy way – just placing the tag within the communication range of the reader – between read/write access points strategically placed in the slaughter chain and tags attached to every pig’s leg, (ii) the security of the traceability system, that provides evidence that all the controls in a production process have been activated. This enables the client to quickly verify that all the products have correctly passed through the production cycle with the guarantee of trust provided under the responsibility of the signer, and (iii) a free documentary management system (DMS), which is necessary to correctly manage the information collected during the slaughtering process. This paper is focused on the third strategy. To develop the documentary management system, we use the ISO 13250 which defines the Topic Maps paradigm, and its XTM specification. The combination of both technologies (RFID and XTM) in the traceability system offers several advantages to manage the online information in real-time.

Keywords: Traceability, RFID, Topic Maps, Documentary Management System

The SIGLIC System for Improving the Access to Surgery in Portugal

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Abstract: This paper describes the design and first results of an information system (SIGLIC) that supports the new integrated management program (SIGA) to improve the access to surgery in Portugal. SIGIC, the Ministry of Health's agency responsible for access to surgery management, started re-thinking the system in 2005 by re-defining key processes and workflows. The designed information system SIGLIC integrates all hospitals with surgery with every other hospital, where it picks the data to allow the search for optimal solutions for each patient. In the context of SIGIC (Waiting List for Surgery's Integrated Management System) "access" means to assure the treatment by services in terms of quality, standards, equity, process and transparency. The existence of a significant number of patients waiting for treatment that exceed the clinical acceptable times has ominous consequences not only for the individuals (increasing suffering, reduce treatment success, more complex treatments) but also for the society (more expensive use of resources, higher absenteeism, etc), which made the government to create SIGIC program. SIGIC's goals are to reduce waiting time for surgery, to apply identical standards to all patients, to profit from good use of resources and, to create a national structure of homogeneous information based in a system of data collection. The methodology followed was to: a) "survey of information systems and technology in Demand/Supply/Resources"; b) "institutionalization and monitoring of procedural standards for management of the Waiting List for Surgery (WLS)", c) provide "evaluation by results" and, d) "Correction of deviations to the standard". To fulfill SIGIC's objectives it was created a management model (SIGA) and SIGLIC to support it. By now 57 public hospitals and 96 private clinics and hospitals (with convention in SIGIC) had joined the SIGIC network. The Information model include the following items: information on patients and events to allow "Process management", "clinical information" for "Disease Management" and "financial data" to allow management between the health units, from which data is gathered to improve access management. The information is recorded by hospitals in accordance with a set of standards and integrated into the central database of SIGIC. The quality of integrated information from the hospitals is guaranteed by a set of tools to validate its consistency, rejecting non-compliant data. The information is recorded in hospitals throughout the

process of managing the patient on WLS and integrated daily in the central database. The results since 2005 show the importance of an integrated information system to overcome the bureaucracy: There was a 36% improvement in number of scheduled surgical episodes and 60% reduction in days on waiting time.

Keywords: Waiting List for Surgery, Information Systems, Organizational Processes, Health Information Management

Can Cooperation in Virtual Social Networks Help Organizations Manage Knowledge?

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Abstract. The hypothesis that the actions of individuals are motivated by personal interest is surely not new (Barnard, as an example, but also Ouchi, Fruin, Keidel, Nash, Axelrod, Dawkins, etc). According to such, a concept human behaviour is influenced by the context in which the individual operates a context that can be controlled. One of the fields that seems to offer promising clues to such analysis examines behaviours of organizational citizenship (OCB, Bateman and Organ, 1983) and their relation to the processes of creation and sharing of knowledge and how processes of knowledge sharing are preferred in a virtual atmosphere. In effect, knowledge is a good that acquires value with use. Therefore, it is a territory in which behaviours of organizational citizenship have remarkable importance. Then, if we consider that knowledge sharing is favoured by the development of new organizations, such as communities of practice (groups who adopt practical collaboration) it is easy to understand why today we are convinced that the CoP represents one winning strategy to acquiring, memorizing, approaching, sharing, and re-using knowledge. Therefore, uniting the idea of cooperation as a unit of analysis, with the idea of organizational citizenship, we can identify a system that guarantees the attainment of those goals that favour knowledge sharing (practical, procedural, etc) among all the members of the organization. This work highlights that the implementation of participation in virtual social networks can be a way to manage and to integrate OCB into an organization. We analyze how virtual social networks can help managers to transform simple cooperation into knowledge for the organization.

Keywords: CoP, OCB, Knowledge sharing, virtual social networks

An Information Logistics Research Program

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Abstract: Our human and social affairs operate inherently various modes of information sharing; in this we frequently encounter instances where *the needed information is not provided* to the needing actor, at the right time and cost, and in the right format. To this end, an *Information Logistics Research Program* has been formulated, grounded both in current research findings and in the actual needs and opportunities of organizations and individuals. The aim of the program is to guide a long term and comprehensive research efforts by indicating the key research domains to be addressed. The formulated research program proposes the following four key research frontiers for Information Logistics: the Information Logistics Operational Models, the Information Logistics Business Models, the Information Needing Actor, and the Information Logistics Foundations. The proposed Research Program also provides suggestions for how to research the defined frontiers.

Keywords: Information logistics, information operations, business models, information needs, research program

Evidence Based Scoping Reviews

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Abstract: The first's stages of a research require an analysis of extensive information of the literature related with the research project. We focus our proposal on the management of the information on these cases and also we use an evidence based approach to assure a level of quality within the gathered information. Literature reviews fall into two broad areas, scoping and targeted reviews. Scoping reviews use literature to identify questions to answer and possible solutions to use. Targeted reviews evaluate specific solutions to specific problems by combining data from multiple primary studies. The primary role of scoping reviews is to ensure that the following work has purpose and is a

beneficial contribution to world knowledge. Evidence-based science is a broad collection of techniques aimed at improving the quality of research. It includes systematic review as a key element. Systematic review is the current gold standard for conducting a targeted literature review; it is used frequently in many fields from medicine to public policy and latterly software engineering. In this paper we investigate using many of the premises of systematic review and evidence based science in the production of scoping reviews. We argue that using an evidence-based approach to performing scoping review increases repeatability, reduces bias, improves the rigour and adds visible quality to the research. This paper discusses an evidence based approach to conducting a scoping study. The paper highlights the key aspects of the processes. Software tools to perform some of the steps, improving time efficiency and reducing human error are identified and prototyped. Finally, this paper presents a protocol for developing a scoping review developed from our experiences and based in the previously available evidence based publications.

Keywords: Evidence-based protocols, systematic review, literature review, SOA, disadvantaged networks, information management

Life and Death Decisions using Sparse, Unreliable Evidence (Information challenges and mitigations in frontline military environments)

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Abstract: Junior military commanders must cope with evidence provided in various forms across many bearers from several sources. They need to remember and combine long extracts from briefings, recent radio messages, background contexts and regulations, verbal shouts from nearby soldiers and heavily constrained senses (due to smoke, noise, sheltering in cover, etc) to form awareness of the local situation. Systems have evolved to share information more clearly and less ambiguously in these environments, and with little extra cognitive load. However, many were developed for regular warfare with well-defined front lines, and current small wars and multinational counter-insurgency operations have made some of these less useful. This paper describes some of these systems, suggests possibly more useful ways to model them, and outlines issues with ordinary technical solutions. The intent is to describe such an 'extreme' information management/exploitation environment in order to draw out concepts that are hidden in more normal

environments, and ideally to spark an interest in readers from other domains who could suggest improvements.

Keywords: Military, People-based, IM/IX

Critical Success Factors for Business Virtual Communities

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Abstract: Since ancient times, various forms of communities were the basic structure uniting groups of people based on shared business goals or social needs. In the last two decades, as the habit of using the Internet became more common and widespread, the growing popularity of virtual communities is spreading into every aspect of human life. The major banner of this new form of community is the phenomena of interaction between its members being performed mainly via the Internet. Many players in the business world tend to identify virtual communities as the current most cost-effective modern tool to reach out and establish relationships with different types of users, including employees, partners, suppliers, and customers. This method of contacting a huge net of prospects opens a new arena for interaction between the people who make up the communities, via the different types of communities that derive from the various interests, goals, targets and desires dwelling in the marketplace. In this paper we first classify types of business virtual communities, based on a review and analysis of their attributes. Among these attributes are the business arena, the characteristics of the members of the community, the role of the moderator, and the technological platform. Then, we define a set of critical success factors for every type of virtual community. And finally, we explain how to integrate the type of the virtual community with its critical success factors. The field of virtual communities had not reached maturity yet, either from the theoretical investigation aspect or from the practical implementation aspect. We believe that in the near future business virtual communities will grow more frequent and will be manifested by innovative forms that are yet to be developed. Hence, we present a summary of a research in progress analyzing the combination of theoretical comprehension of the concept of community in general and virtual community in particular coupled with an actual inquiry into an array of virtual communities.

Keywords: Virtual communities, community members, moderator, Computer-mediated communication

The Impact of Enterprise Architecture Principles on the Management of IT Investments

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Abstract: The strategic role of IT and its significance throughout the organization increases complexity, variety, and the need of change. Hence IT management must deal with uncertainties derived from different, conflicting and ever changing demands. In this sense Enterprise Architecture is playing an increasingly important role in improving IT management practice. If contemporary organizations do not succeed in managing architectural issues, there is a clear risk that considerable resources will be invested without achieving desirable effects. This paper investigates how Enterprise Architecture Principles impact on the management of IT-investments in the context of large organizations. The purpose of the paper is to provide a deeper insight of the relationship between Enterprise Architecture and management of IT Investments throughout the elucidation of two significant types of principles: Delineation (differentiation) principles and Interoperability (integration) principles. Our conclusion is that the choice of architectural principles has an impact both on alignment between information systems and business demands and on the management of IT investments. This impact concerns at least four aspects: (1) The responsibility for IT investments (2) Time to value (3) Long term alignment, (4) Coordination of investments in information systems with changes in business processes.

Keywords: Enterprise architecture, information systems architecture, business architecture, architectural principles, business value, management of it investments

Perception of EHR Value

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Abstract: Swedish health care organizations invest heavily in electronic health records (EHR) with high expectations of returned value. The purpose of this paper is to draw attention to the initial phase of the Information systems (IS) benefits management process, a phase where benefits are

identified, structured, and valued. This phase often generates descriptions that act as promises and pictures of desired states of value, which organizations later on in the process set out to realize and achieve. The paper focus especially on what may affect the judgment of perceived benefits during this initial phase. On one hand, research in field of IS benefits management shows that how we speak of and perceive benefits have significance for the possibility of creating and capturing value. It also shows that the identification and structuring process itself is of importance in order to gain advantages of IS. On the other hand, benefits realization has proven to be a complex and problematic task. Studies made by researchers within the field shows that the success of identifying and describing benefits at an early stage often is elusive, and that how we describe the same benefits tends to differ over time and between those who describe. The following problem formulation is stated for this paper: what are the key drivers of perceived benefits and how can they be of value in an EHR benefits management process?

The study in this paper explores four different benefits analysis projects that span over three Swedish hospitals within one county council. All four projects had the same reason for conducting their analysis, a newly invested EHR. All projects followed the same analysis process and where lead by the same process leader. However, pre conditions and group constellations differed, as well as the analysis results and the discussions and actions leading up to them. Through the differences and similarities a richer picture emerges. The study is based on a qualitative approach using a single case study methodology and collecting data through observations and project documentations.

Findings show that there is a benefits fluctuation during the initial phase of benefits management. This fluctuation is due to IS benefits judgment dimensions that effects the identification, structuring and valuation of perceived benefits. Dimensions that goes beyond the role of IS at hand and the intended processes it is supposed to support. Implicating that perceived benefits do is elusive, and that proposed dimensions either can enhance or restrict our perception of IS benefits and value. In the end this could be of value when conducting benefits analysis as well as to give a richer picture of how to approach descriptions of EHR benefits as value realization tools.

Keywords: information systems, EHR, benefits management, benefits realization, perception

ERP Systems Diffusion among SMEs: Does Development of Open Source ERPs Play a Role

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Abstract: There is an increasing interest in open source, which also goes for enterprise resource planning (ERPs) systems, especially when it comes for small and medium sized enterprises (SMEs). In this article, the focus is on the combination of open source and ERPs, and specifically on what role development of open source ERPs plays in diffusion of ERPs among SMEs. In an effort to be able to explain the interest in open source ERPs, an investigation about challenges, which a proprietary ERP vendor suggests exist in ERP development today, were used. These challenges were then compared with the open source ERP alternative. It may not be clear whether an interest in open source ERPs is a result of dissatisfaction with proprietary ERP systems or a result of maturity of the open source phenomenon, however, the article aims at providing some new knowledge in this area. The research combines literature reviews, interviews with executives in an ERP software vendor and an investigation of a distribution channel of open source projects. In this article, the focus is on differences between proprietary ERP development and open source ERP development and if, and if so, how these differences could influence future ERP diffusion among SMEs. Based on the identified challenges, the discussion is then on if and how open source ERP systems have a potential for SMEs in the future. It can be concluded that open source ERP development has a great deal to offer, but the main conclusion is that the difference is mainly on the development side, which means that it can be suggested that for the actual diffusion of ERPs among SMEs, it does not matter whether the ERP is open source or proprietary, however for SMEs open source ERPs could probably increase their interest in ERPs and thereby act as an influential factor in diffusion of ERPs among SMEs.

Keywords: Diffusion, ERP systems, Software as a Service, Open Source software, SMEs

Information Inadequacy: Some Causes of Failures in Human and Social Affairs

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Abstract: This paper takes initial steps in facilitating researchers and practitioners to increase the relevance of information for their contexts. Our focus is on forging new possibilities to understand and improve the contemporary dilemma of information inadequacy. We define information inadequacy as vulnerable and inadequate information, composed by the dichotomy of information lack and/or of information overflow, which impose complexities and unexpected behaviour in human and social affairs. By exploring the lack of needed information in human and social affairs, we conducted an inquiry of different empirical and research objects that relate to information inadequacy (for example, empirical situations, theories, or other theoretically and practically based artifacts). The question that emerges then is: How to secure that the needed information is provided to the recipient at the right time, reducing the cause of unpredictable failures and fatalities in our global society? To answer this question, our paper presents initial guiding with a systematic approach that focuses on evaluating and further improving research and practice for information relevance. The empirical cases are mostly based on situations, such as: the financial failures of the Lehman Brothers Bankruptcy 2008, and the Enron bankruptcy 2001; or the disasters of the Space Shuttle Columbia 2003, and Space Shuttle Challenger 1986. The analyses are examined using theories of information behaviour that influence communication processes, from where two or more different actors are necessary to engage in activities of information exchange. The results include the identification of four information exchange patterns: influenced, intentional, hindered, unawares. Furthermore, we discuss implications of the model for practices with information. The paper concludes by challenging the role of information inadequacy in all economic, social and political affairs that remains problematic.

Keywords: Communication processes; information behaviour; information exchange; information inadequacy

Splinternet Era: The Opportunities and Challenges for Users, Managers, and ICT Professionals

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Abstract: Currently, “splinternet” is a new term that is gaining attention in the industry, causing some confusion and anxiety. Professionals in the industry, by indicating that the Golden Age of the web is over have pointed out that the evolution of social network architecture, and fragmented mobile networks and appliances are decelerating the growth in the velocity of advantages gained through standardized web architecture. Thus, for researchers and practitioners it has become important to understand and analyze the impact of this new trend in conceptualization, and the resulting realities that will emerge as a result. While unified communications, ubiquitous computing, and anytime anywhere access are used as good marketing strategies by the vested organizations, the impact of these technologies and compromises that participants have to make are not clearly researched from both theoretical and practical points of view. The point of contention is why, how and where the splinternet occurs. Also, the impact of such a point and its corresponding effect on stakeholders are important research areas that need attention. In this study, authors have analyzed the reasoning behind the evolution of splinternet and its impact on all stakeholders. While presenting a critical analysis of the splinternet the authors argue that there is no true splintering of the Internet. They present logically that the so called splinternet as defined currently did exist from the beginning of internet and that this is an evolutionary step in the development of web. The authors present a framework to study and research this splinternet era, specifically highlighting the applicability of current research in the Internet era and possible new areas of research. The paper points out areas that become useful to practitioners in focusing their efforts in also the areas where splinternet may create new challenges.

Keywords: Splinternet, Internet Evolution, Web Evolution, internet Marketing, Internet Advertising

Self-Evaluation System of IT Projects in Korean Central Government: Institution and Practices

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Abstract: As one of the best information technology (IT) powerhouses in the world, Korea has undertaken systematic IT project evaluation since 1997 in order to maximize the performance of investment into public IT projects. Currently under the Korea's IT project evaluation method under which one third of the total projects are selected as evaluation targets every year, each organization performs self-evaluation on logic model-based survey indicators on Program Assessment Rating Tool (PART), and the Ministry of Strategy and Finance verifies the result. This system pursues outcome-oriented performance management by deducting performance achievement scores if indicators and goals are inappropriate. Moreover, it holds a strong feedback system, under which more than ten percent of the next-year budget is deducted if the final result of evaluation turns out 'poor'. The 2008 IT project evaluation shows high scores in the stages of planning and execution of IT projects. This reflects, in most part, a fair level of collecting opinions from stakeholders, recognizing laws and regulations, and securing connection with relevant projects during the planning stage. It also signifies that any problems in the execution process are responded to in an appropriate way and that time schedules are well maintained and followed. However, the performance indicators and goals were found to be very inappropriate; the reason being that a majority of projects used output or process indicators rather than outcome indicators which represent final project performance and that the performance goals were set in a way too passive compared to the budget and the past performance. Indeed, such lack of appropriateness in performance indicators and goals was reflected as a deduction factor in measuring the performance achievement. The IT project evaluation needs to be improved in the future. First, a methodology or a model that help setting of appropriate performance indicators for IT projects needs to be developed and a process needs to be adopted, which allows setting of performance indicators and goals in the stage of planning in advance. Second, the improved level of informatization raised interoperability, standardization and security issues as IT projects, which had been carried out by each ministry, are now being integrated. Therefore, it is required to establish an evaluation framework that reflects features of the IT projects in order to assess such issues in a comprehensive way. Third, it is recommended to establish and diffuse an

evaluation method that can help not only evaluate the performance of IT projects that had been already invested but also develop new projects or strategy and directions. Fourth, besides the short-term performance evaluation, which takes place about once every three years and measures only the process from planning to execution, performance and feedback during the year, it is also necessary to deploy mid- and long-term impact evaluation.

Keywords: IT project evaluation, performance evaluation, PART, integration of evaluation and budget, Korean case study, self-evaluation

Stakeholder Based Method for Evaluating Information Systems – The VISU Method

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Abstract: In the last decade several researchers have addressed the problem that there does not seem to be much evidence of extensive use of interpretive evaluation approaches in practice. Although the approach seem well founded academically and theoretically to offer potential advantages such as stakeholder commitment and learning opportunities. One reason for this non-use could be that there are very few, if any, interpretive evaluation methods ready at hand for evaluators in practice. An interpretive IS evaluation method means a method in support of doing evaluation as interpretation. This research presents a practical method for doing evaluation of information systems as a joint act of interpretation performed by the stakeholders of an IS in use. The method is named VISU (Swedish acronym for IS evaluation for workpractice development). The process of evaluation according to VISU has been extensively tested in practice and in theoretical grounding processes and is now considered ready for wider use. The research process for developing VISU has been conducted with canonical action research through parallel work with evaluation and method development in six episodes within two cases. VISU can be used by an evaluator in order to evaluate an information system in use in an organisation. The evaluation process according to VISU is performed in three phases; arrange, evaluate and develop. In the paper the method is described according to phases, actions and main concepts. The use of VISU is demonstrated through examples from a performed evaluation of an information system supporting social welfare services.

Keywords: IS evaluation, stakeholder model, interpretive IS evaluation method, action research

Developing an IT Governance Framework at Hospital São Sebastião

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Abstract: This paper describes the introduction of an IT Governance Framework into a Hospital environment. It further addresses the relationship between corporate governance (hospital strategy and organization) and the role of IT Governance in managing new services deployment. Both ITIL and COBIT are introduced as a best practice for supporting Hospital Information Systems (HIS) management. IT Governance is an extensive framework; therefore we focused our study on ITIL Assessment combined with COBIT. The assessments were centered on IT Service Management, which, according to our findings, is being carried inefficiently in Hospital São Sebastião (HSS).

We used both COBIT and ITIL assessment to audit and identify IT Governance weakness. These processes revealed a way to assist the organization at becoming aware about IT improvement priorities. The results were used to rethink HIS strategy in order to properly address the need to develop new health services like ambulatory surgery and connecting with out-patients services. We used the IT Governance standard ISO/IEC 38500 to provide guiding principles for the effective use of IT according to Calder-Moir *framework*. Starting with a COBIT assessment we identified IT management priorities and metrics, then we focused on the ITIL assessment steps. Finally, we applied the framework on both Service Desk and Incident Management processes. We analyzed the level of IT governance maturity and produce some recommendations to improve IT Service Management practices. The ITIL assessment identified existing gaps between the current organization practices and how the organization should perform according to ITIL, and what key actions need to be taken to close those gaps. At the end disclosed that IT Governance inefficiency is an important barrier to HIS management, mostly in IT service management which has a direct impact in users' daily work flow, and therefore on Healthcare services delivery.

Keywords: IS/IT management practice, hospital information systems, IT governance, COBIT, ITIL

Security Improvement Based on Fingerprint Match-on-card for Access Control Protocol in ePassports

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Abstract: Nowadays e-passports base their security on Basic Access Control (BAC) protocol, whose encryption keys are derived from the Machine Readable Zone (MRZ) characters of the document. MRZ data has very low entropy, thus this security measurement does not mean a problem for potential attackers. This paper proposes an alternative access control protocol to improve e-passports' security, based on the holder's fingerprint. First an optimized implementation of an asymmetric matching algorithm for JavaCard platform is proposed, which offers a faster Match-On-Card (MOC) performance; this matching algorithm uses information from the best local minutiae on the fingerprint, and the spatial relationship between them, thus allowing less use of memory and a smaller runtime. Next, an alternative access control protocol for e-passports based on MRZ and random characters, and the bearer's fingerprint Match-On-Card, is presented. The proposed protocol uses the document's Active Authentication (AA) public key to send a candidate template to the card in a secure way, and a random key seed to set the session encryption and Message Authentication Code (MAC) keys; by this way, more secure e-passports can be produced. This access control protocol has been implemented on a Radio Frequency Identification (RFID) JavaCard to show effectiveness and security of our approach. The proposed protocol has been developed as a part of IDENTICA, an advanced identity verification project requested by Telvent, and co-financed by Ministry of Industry, Tourism and Commerce of Spain, in the framework of the National Plan of Scientific Research, Development and Technological Innovation 2004-2007.

Keywords: e-passport, security, fingerprints, minutiae, RFID, JavaCard

Propensity to Adopt – Categorizing SMEs' Adoption of e-commerce

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Abstract: Few attempts to classify adopters of e-commerce have been published in research, even though such classifications enable adopter profiling for marketing campaigns and governmental intervention projects. Overall, earlier studies of e-commerce adoption have often failed to consider the situation surrounding the adoption. Without information on the contexts in which specific drivers or barriers occur, the usefulness of these findings is limited. In this study, a typology over adoption triggers for e-commerce in Small and Medium-sized Enterprises (SMEs) is assessed and enhanced by the case studies of three SMEs. As a result five, 'adoption situations' are proposed. An adoption situation describes a company's disposition to the adoption of e-commerce and the contextual features that foster them. Five categories are identified; proactive adoption, adaptive adoption, pragmatic adoption, forced adoption and enabled adoption. Moreover, factors that determine which adoption situation a company tend to end up in are proposed. These are the relative dependence on individual trading partners, the degree of customer pressure, the company's strategic and structural needs of e-commerce, and the CEO's attitude towards risk taking. The study is theory-building in its nature and the contributions need to be tested empirically in future studies.

Keywords: e-Commerce, sme, adoption, adopter categories, adoption determinants

A Call to Arms and a Blessing for 21st Century Information Technology: the Complexity Challenge

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Abstract: One "problem" with the 21st century world, particularly the economic and business worlds, is the phenomenal and increasing number of connections. Financial markets are strongly interconnected. Economies are interconnected due to globalization. Consumers are interconnected, and influence each others' behaviours, via communications forms of all sorts. This means that markets, prices, supplies, demands, consumers are all interacting and consequently giving raise to enormous degrees of non-linearity, a.k.a.

complexity. Complexity often brings with it unexpected phenomena, such as chaos and emerging behaviour, that can become challenges for the survival of economic agents or systems. Developing econophysics approaches are beginning to apply, to the “economic web”, methods and models that have been used in physics and/or in systems theory to tackle non-linear domains. The paper gives an account of the research in progress in this field. It also advocates the need, and anticipates the emergence, of software tools that will allow reflecting the complexity of the real world, such as that of a company or a financial market. It shows, finally, how Information Technology is to play an even more crucial role in the 21st century economy, as holistic risk management becomes a mandate for financial institutions and businesses at large.

Keywords: Complexity, nonlinearity, econophysics, rational expectations, risk, business intelligence

Study of e-Governance Initiatives in Papua New Guinea (PNG)

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Abstract: e- Governance is a growing concept around the globe that brought paradigm shifts in the system of exchange of information among the government organizations/departments and their citizens/ clients. Various institutions of Government of Papua New Guinea (PNG) have been working since the year 2000 in order to improve their networking infrastructures while enhancing the security and performance of the systems. Information and Communication Technology (ICT) policy and regulatory and legislative framework has been in place since 2008. The aim of this paper is to study the e- governance initiatives, infrastructure and human capacity necessary to implement e-governance process in PNG in comparison with various countries and in particular with South Pacific countries. The study is conducted primarily by using the secondary sources of data and information from various departments and institutions of the Government PNG and the reports of international agencies. However, primary sources of information were also made use of wherever, necessary. It is observed that e-government infrastructure index for PNG declined from 0.2539 in 2005 to 0.2078 in 2008 and the e-government infrastructure ranking for PNG increased from 142 in 2005 to 166 in 2008 due to higher growth of e-government infrastructure in other world countries than in PNG. Web measure index, infrastructure index and human capacity index for PNG in 2008 were 0.0870, 0.0221 and 0.5180 respectively in 2008 where as the

same were 0.2742, 0.0982 and 0.8786 respectively for Fiji in 2008. E-government readiness index was only 0.2078 for PNG whereas it was 0.4156 for Fiji. It is concluded that no significant move is taken to implement e-Governance public service delivery system in PNG. Hence, strategic directions based on the findings of the study are offered to modify the governance process in the areas of providing required e-governance infrastructure and improving necessary human capacity to implement e-governance initiatives for efficient delivery of services in mountainous and islands dominant PNG.

Keywords: Information and communication technology (ict), e-governance, public service delivery, customer satisfaction, service quality

Evaluating the Public Sector in Greece: The case of Citizens' Service Centers

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Abstract: Governments across Europe face the challenge of responding to public demand for more valuable, responsive, efficient and effective services. In this paper we will evaluate the public services in Greece. More specifically this paper refers to a citizen's satisfaction web survey for the Citizens' Service centers. The analysis of the data is based on the MUSA method. MUSA (Multicriteria Satisfaction Analysis) is an ordinal regression model which is based on the principles of multicriteria decision analysis. The provided results are able to evaluate quantitative global and partial satisfaction levels and to determine the weak and strong points of citizens Service Centers. Furthermore the results of this study will help the Citizens Service Centers to improve their services and develop more effective services.

Keywords: public administration, e-government, one stop government, user satisfaction, multicriteria analysis

Business Performance Measurement and Information Evolution Model

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Abstract: In the core of new management philosophies lies the question of evaluation of efficiency and inevitably Performance Measurement. All organizations should have specific strategy and measures derived from strategy. Data and information should be seen as business resources. The performance measurement could be seen as an information system. While analyzing reasons for the introduction, implementation and evaluation of performance measurement, Neely points out the power provided by IT to be a key driver behind the performance measurement development. It is not by chance that the apparition of data warehouse and analytical tools was called information technology renaissance. There is several performance measurement Maturity Models, which describes the development of a performance measurement system over time, following an evolutionary pattern through four or five maturity levels which are characterized by the progressive development along different dimensions. Information Evolution Model, maturity model for Business Intelligence, includes five evolutionary stages (operational, consolidation, integration, optimization and innovation). Each level is a natural and necessary precursor to the next higher level. Characteristic at each evolutionary level are remarkably predictable across four dimensions. Instead of designing an advanced system that fulfils all types of requirements, maturity models encourages organizations to focus on how to fulfill the requirements, within the level that their existing PMS belongs to. This research analyzes PMS characteristics and explores their development during time. The introduced concept of PMS three-level Maturity Model allows companies to keep and improve their existing PMS. Organizations have their own unique need for a PMS, meaning that some of them will be satisfied with simple ones. Using the concept of PMS levels, they can choose how advanced the final result of its PMS should it be.

Keywords: Performance measurement systems, information evolution model, maturity level

Adoption of Medical Records Management System in European Hospitals

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Abstract: Health Care system has had an ongoing focus on improving access to and quality of care, and more recently on cost reduction. The primary mean to achieve these goals has been to change health care policy, as exemplified by the adoption of health information technology (HIT) in particular the adoption of patient centred information, characterized by the ability to manage comprehensive patient information such as: medical records; appointments scheduling; theatre management and ward reporting. Different terms are used to refer to these systems including the most common: electronic patient record (EPR); electronic medical record (EMR); computer based patient record (CPR) and medical records system (MRS). Despite the importance of these systems in health care, little is known about the adoption. This study addresses the existent research gap by analyzing the adoption of medical records management systems (MRS) in European hospitals. Study data source is the e-Business Watch 2006 decision maker survey, covering 448 hospitals in the European Union (EU). Additional information related to country wealth indicators, was extracted from the EU official statistics and opinion polls website (http://europa.eu/documentation/statistics-polls/index_en.htm). Variable choice is based on a derivation from the recently introduced framework known as HOT-fit (Human, Organization and Technology fit). Adding the environmental context into the HOT-fit framework, the HOTE framework is derived. HOTE framework identifies four contexts that influence information and communication technologies (ICT) adoption: Technology characteristics including equipment but also processes; Organizational context as size, localization and even managerial structure; Human context relating to 'User Involvement'; and Environmental context that incorporate the cultural environment of the country and regulatory influence. In order to reduce the number of variables available, a factor analysis (FA) is performed, using the principal component technique with varimax rotation. Three eigen-values, greater than one are extracted, explaining 69.68% of the variance contained in the data. The three contexts found are: country wealth, competition and technology readiness. To determine the correlation between HOTE framework characteristics (Human, Organizational, Technology and Environmental) and Medical Records Management System (MRS) adoption a Logit model is used. For that were used variables obtained from the FA and other variables such as hospital size, education level and research level, gathered directly from the e-business watch survey. MRS adoption is significantly associated with Education Level, Technology Readiness and

Country Wealth. Since MRS adoption may be an organization survival strategy for hospitals to improve quality and efficiency while reducing costs, hospitals that are at risk of missing the wave of implementation should be offered incentives that enable them to implement and maintain patient centred information systems.

Keywords: ICT adoption; e-Business; HOTE framework; Hospitals; Factor Analysis; Logit model

On the Embeddedness of ERP Systems: An Institutional Analysis

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Abstract: The benefits of IS/IT are often described in literature, and are often expressed as almost unlimited. An enterprise resource planning (ERP) system is an example of modern information technology with several benefits, such as a companywide design, with a mutual database and real time data. An ERP system is said to excel the company in several respects. However, previous research has shown that the impacts of ERP systems are moderate on management accounting as well as on the issue of productivity increases within the organization. Our understanding of why the impacts are smaller than expected is insufficient. This paper is based on a case study of a medium sized Swedish manufacturing company during the process of choosing and implementing an ERP system. The IT artifact is conceptualized as an evolving and embedded system, which is brought into a dynamic social context. The social dimension makes the process of implementing an ERP system complex and indeterminate. A less investigated aspect of these processes is the historical perspective, where literature has suggested researchers to expand the temporal boundaries. In the present study this is accomplished by investigating the process of how the ERP system was chosen, which precedes the implementation. Drawing from old institutional economics a process is seen to depend on previous actions and experiences, but at the same time the actor always has the possibility to act in a new way, causing change. The analysis examine the future users' ideas of what an ERP system is, how these ideas affect the evaluation of alternative ERP systems, and also if, how and why the ideas changes throughout the implementation. The purpose is to develop an understanding of how a new IT artifact is embedded into the social context of an organization, due to the actors' prior experiences of IT. One of the conclusions drawn is that the IT artifact may impact the work and organization in a more indirect or unnoticeable way than researchers might expect.

Keywords: ERP system implementation, embedded, institution, ideas, experiences

Why Software Platforms Make Sense in Risk Reduction in Software Development – A Portfolio Theory Approach

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Abstract: Software development is generally characterized by risk and uncertainty. The uncertainty can be argued to be of two general types, either a technical uncertainty and/or a market uncertainty. From an economical stand point we view technical uncertainty as the cost uncertainty for developing the software whereas the market uncertainty is the uncertainty regarding the revenues later gained from the sales of the software. A great deal of research has focused on how to overcome these types of uncertainties by developing models for exploring them with the aim of increasing the ability to manage them. This research has shown that reuse of previous software functionalities in the form of software platforms or as components in software product line engineering can reduce the uncertainty of a software investment. Employment of these strategies can also be seen empirically by studying firms in the software industry. This paper adds to that research by developing an underlying model that explains why and how platform based developing strategies for software development reduce market uncertainty. The model also explains why certain types of software functionalities are better combined with other types of software functionalities into software platforms in order to reduce market uncertainty. The developed model is based upon portfolio theory which is a branch of financial economics that deals with uncertainty reduction in investments. The main part of the paper consists of numerical analysis to show why and how the platform strategy reduces the uncertainty in the software development without an equal reduction in the expected return of the investment in the software development. The analysis begins with a decision setting consisting of two types of software functionalities that can be developed. It is shown that different proportions of the two types of functionalities result in different risk and return profiles. It is also shown that the two functionalities should be developed as a platform instead of developing each functionality separately if the market uncertainty is to be reduced. The analysis is then extended and generalized into a decision setting consisting of several types of functionalities that can be developed and added to the platform. The analysis is concluded with a real option based discussion to explain why the market potential is increased with a platform based developing strategy. The paper ends with a discussion about managerial implications and suggestions for further research based on the presented results in this paper.

Keywords: Software platform, uncertainty reduction, portfolio theory, software development, real options

The Application of a Patient Assessment Data Quality Model to the Modified Early Warning Scorecard

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Abstract: Presented in this paper is the Patient Assessment-Data Quality Model (PA-DQM). It is designed to assess how patient datasets which are poor in composition can impact on the decision processes following patient assessment. The PA-DQM in particular examines four key Data Quality (DQ) dimensions: timeliness, accuracy, consistency and completeness. This DQ model is generic in nature as any number of decision making processes can be substituted to reflect the medical scenario under consideration. For example, Intensive Care Unit (ICU) admissions, Emergency Room (ER) triage systems or Modified Early Warning Scorecards (MEWS). The PA-DQM presented is evaluated using the MEWS process as an exemplar. Paper based MEWS are utilised to assist medical staff identify at risk patients with a declining health status. The calculated MEWS score is designed to trigger earlier medical interventions to avoid or reduce the potential impact of catastrophic events. In particular the existing MEWS system which (i.e. a paper based approach) is evaluated alongside an electronic-Modified Early Warning Scorecard (e-MEWS) system, which is designed and developed to reduce the number of DQ issues which continue to persist with the paper based process. To validate the assertions presented in this paper a workshop (participation of 51 medical staff) was held in St. Luke's Hospital, Kilkenny, Ireland, where the paper based MEWS has been adopted for the last 3 years. It is clear from our initial findings that the proposed e-MEWS system has the ability to greatly enhance the levels of DQ over its existing paper based counterpart.

Keywords: Information quality, MEWS, health informatics and body area networks

MEWS to e-MEWS: From a Paper-Based to an Electronic Clinical Decision Support System

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Abstract: It is now well established that many patients already in hospital can suddenly become acutely ill but experience delayed recognition of their physiological deterioration resulting in late referral to critical care or in some cases death. In recent years there has been significant growth in the use of scorecards to assist with the detection of patient deterioration, but even though a scorecard may be well-constructed and its parameters chosen with the utmost care, the usefulness of any scorecard is only as good as the accuracy and timeliness of the data that is used to populate it. The Modified Early Warning Scorecard (MEWS) is a paper-based medical scorecard application, which is intended to provide clinicians with an early warning of acute patient deterioration. While it is a significant advance in patient care, major data capture and processing deficiencies exist within the paper-based MEWS system. Presented in this paper is the electronic MEWS (e-MEWS) which has been developed by the authors of this paper. The e-MEWS is a rule-based clinical decision support system (CDSS) designed to automatically perform frequent wireless monitoring of a patient’s vital signs and process the data to calculate and display a MEWS score and other valuable patient information. The research presents a unique application of IS to a real-world problem which required collaboration from several disciplines; Information systems, Medicine, and Engineering. To validate the approach that was followed by this research a workshop which involved the participation of 51 medical staff was held in St. Luke’s hospital, Kilkenny, Ireland, where the paper-based MEWS has been in use for almost 6 years. To validate the operation of the e-MEWS system a clinical trial was conducted in the stroke unit of St. Luke’s. It is clear from our findings that the e-MEWS system will enable clinicians to identify patients at risk much earlier, will greatly improve patient care, and will gain wide acceptance among medical and nursing staff.

Keywords: MEWS, Early Warning Scorecard, CDSS, BAN

Information Technology Adoption Models at Firm Level: Review of Literature

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Abstract: Today, information technology (IT) is universally regarded as an essential tool in enhancing the competitiveness of the economy of a country. There is consensus that IT has significant effects on the productivity of firms. These effects will only be realized if, and when, IT are widely spread and used. It is essential to understand the determinants of IT adoption. Consequently it is necessary to know the theoretical models. There are few reviews in the literature about the comparison of IT adoption models at the individual level, and to the best of our knowledge there are even fewer at the firm level. This review will fill this gap. In this study, we review theories for adoption models at the firm level used in information systems literature and discuss two prominent models: diffusion on innovation (DOI) theory, and the technology, organization, and environment (TOE) framework. The DOI found that individual characteristics, internal characteristics of organizational structure, and external characteristics of the organization are important antecedents to organizational innovativeness. The TOE framework identifies three aspects of an enterprise's context that influence the process by which it adopts and implements a technological innovation: technological context, organizational context, and environmental context. We made a thorough analysis of the TOE framework, analysing the studies that used only this theory and the studies that combine the TOE framework with other theories such as: DOI, institutional theory, and the Iacovou, Benbasat, and Dexter model. The institutional theory helps us to understand the factors that influence the adoption of interorganizational systems (IOSs); it postulates that mimetic, coercive, and normative institutional pressures existing in an institutionalized environment may influence the organization's predisposition toward an IT-based interorganizational system. The Iacovou, Benbasat, and Dexter model, analyses IOSs characteristics that influence firms to adopt IT innovations. It is based on three contexts: perceived benefits, organizational readiness, and external pressure. The analysis of these models takes into account the empirical literature, and the difference between independent and dependent variables. The paper also makes recommendations for future research.

Keywords: information technology, diffusion of innovations (DOI) theory, technology-organization-environment (TOE) framework, interorganizational systems (IOSs), institutional theory

Evaluation Of New Information Technologies Exposure On Knowledge Retention, Regarding Benefits And Characteristics Of A Physical Active Life Style

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Abstract: Physical inactivity is an important risk factor in several highly prevalent diseases, being associated with worse quality of life and higher mortality. Despite the implementation of a several global, national and local policy instruments and strategies to promote physical activity (PA), including Internet platforms and advertising campaign, approximately two thirds of the European adult population reports low adherence to an active lifestyle, impairing health benefits that exercise can provide. Increasing efforts to provide adequate information have been made, and the use of new technologies tools has increased, but little investigation focus on the effect of information exposure on knowledge retention, regarding effects of physical inactivity in health. The objective of the present study is to evaluate differences among people in the use of new information technologies as information source on PA, regarding their perceptions of benefits of an active lifestyle and characteristics of adequate physical activity to health improvement. The study included a randomly recruited sample of 879 subjects (53% males; 47% females), age 42.3±19.4 years old. A survey was designed to (1) identify main information sources; (2) relate perceived knowledge and PA information sources; (3) relate knowledge retention on adequate PA for health benefits and PA information sources; (4) relate perceived necessity of more information regarding PA and information sources and (5) relate PA levels and information sources. Results show that generically, groups show no statistical difference, regarding perceptions of the benefits of an active lifestyle and characteristics of adequate physical activity, so, new information technologies exposure do not change significantly knowledge on physical activity/health relation. This result should promote a reflection regarding what kind of information and technology should be considered, to increase active life style adherence.

Keywords: e-health; information technologies exposure; knowledge retention

Global Standards and Best Practices for Supply Chain Information Alignment in Consumer Goods and Retail

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Abstract: The Global Commerce Initiative (GCI) established the Global Upstream Supply Initiative (GUSI) in order to provide a standard framework for consumer goods manufacturers and their suppliers of ingredients, raw materials and packaging to better integrate across a number of supply chain processes. The current situation in the upstream supply chain of the CG industry in the all manufacturers and suppliers are faced with different business processes and data interchanges when they move into more integrated relationships. Different business processes and approaches create a barrier to the scalability of integration efforts whilst also imposing many costs: the time and money spent making transactions; the delays caused by the need for corrections; plus inevitable information gaps and misunderstandings. Without Internal Data Alignment, for example, Global Data Synchronization (GDS) will definitely not improve business performance and will, in fact, magnify the negative impact of poor quality data. What's more, collaborative initiatives such as those included in Efficient Consumer Response (ECR) and Collaborative Planning, Forecasting and Replenishment (CPFR) will not be economically deployable on a wide scale without the consistently accurate and available information that will result from an Internal Data Alignment program. GDS is based on a global network of data pools, or electronic catalogues, which are all inter-operable and compliant with the same business requirements and standards. Interoperability means that a manufacturer can publish a product and partner data on one single Data Pool without having to worry about the fact that customers may select different Data Pools to access the data. Integrated Suppliers is a concept for improving the part of supply chain between manufacturers and the tiers of suppliers of ingredients, raw materials and packaging. By sharing information both parties are able to exercise judgment on costs, quantities and timing of deliveries and productions in order to stream line the production flow and to move to a collaborative relationship. GUSI underlined the long term policy on the use of Standards as a key success factor to achieve upstream e-supply integration. Before exchanging information, partners must agree on product identification. This is a part of the data alignment step defined by GUSI. The UIM (Upstream Integration Model) offers common business processes and data interchanges to support interoperability between manufacturers and suppliers. It has been designed to meet the major electronic communication needs in the following business

areas: procurement; material forecasting; inventory management; dispatch, receipt & consumption of materials; financial settlement.

Keywords: Global standards, information alignment, consumer goods, GLN (global location numbering), GTIN (global trade items numbering), GDS (global data synchronization), integrated suppliers, UIM (upstream integration model), GUSI (global upstream supply initiative)

The Projection of Marketing Intelligence Systems – a Challenge for the Economic Enterprises in Romania from the Perspective of Their Sustainability

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Abstract: Today, the world is becoming more and more interconnected and interdependent, under the pressure of the two main forces – globalization and technology – which helped it move into a new economic stage, one of turbulences generating uncertainties and chaos. In this era of turbulence, an enterprise’s success or even survival in business is conditioned by the use of an integrated competitive system for obtaining information from the competitive environment and for protecting its own informational values.

The goal of this paper is to define why and how a marketing intelligence system can be established on the level of the economic enterprise. A first part of our work will focus on the paradigm of this new management system concerning the external environment in which the economic enterprise operates. A second part, starting from the diagnosis-analysis of the present knowledge stage concerning the concept of marketing intelligence in the Romanian enterprises, brings into discussion some recommendations for them, from the perspective of the demands for convergence with the informational marketing systems already implemented in many west European countries.

Keywords: Scanning, economic intelligenc, competitive intelligence, environmental scanning,marketing intelligence

Information Technology based Customer Knowledge Management Externalisation Techniques for Requirements Analysis

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Abstract: This paper presents a new method to evaluate the application code of a software project and to compare it with requirements specification. For this evaluation we use an information technology supported linguistic based approach. This completely new and innovative way of evaluating and supporting the externalization of requirements is additionally coupled with customer knowledge management. For this we propose to apply customer knowledge management techniques in order to support learning processes; but not in an independent way, moreover we combine the new approaches in an integrated management framework. We start with the presentation of an overview of the basic requirement methods and approaches and related possible problems and challenges and we subsequently incorporate the methods into the framework. We complement our research suggestions with a semantic validation measurement approach as a basis for an empirical investigation and finally we show the effectiveness of our approach by using an illustrative example as a proof-of-concept.

Keywords: Customer knowledge management requirements specification, linguistic based evaluation, framework, case study

Contemporary Solutions for Forming Information Infrastructure of a Company with a Developed Clientele

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Abstract: Businesses and Information and Communication Technologies are more and more closely interrelated. Using ICT in management, including computer simulation modeling methods and tools, is a key driver of business efficiency. They do this by: helping improve quality of products and services, save labor and material costs, increase productivity, and improve production management. Companies applying Information, Communication Technologies are paying more and more attention to the ability to build and develop their Information Infrastructure. This paper studies an approach to forming an Information Infrastructure for a company with a developed

clientele. Companies can succeed in carrying out their development strategies by following modern trends, adding intellectual information tools to Customer Relationship Management (CRM) Systems and creating an External Information Infrastructure. This empirical research studies the role of Information Infrastructure in management and the major aspects of forming Information Infrastructure. This research aims at analyzing applicability and adaptability of the Customer Relationship Management and Multi-Agent technologies for forming comprehensive External Information Infrastructure for companies with growing clientele. This issue is undoubtedly important for more and more companies facing the necessity to improve Customer Relations Management and recognizing their need for modern Information and Communication Technologies and approaches. Thus, the research should study the concept of Adaptive Infrastructure, its modern technologies, and construction of Adaptive Information Infrastructure with using of Multi-Agent Systems (MAS) and Customer Relations Management Systems. Whereas a client-oriented approach is widely used as an element of business strategy, the agent concept is innovative and developing, and the idea of integrating MAS and CRM methodologies is quite new. Interestingly enough, that CRM systems are most efficiently applied, among others, by high-tech and distribution companies. At the same time, distribution and new high-tech services are leading in using Multi-Agent systems. This paper considers the example of a software company whose external infrastructure consists of the following blocks: potential clients; technical support and consultancy; education; sales and dealership. The company strives for long-term contracts, customer loyalty and client-oriented approach. It has a distributed client network all over Russia.

Keywords: Management, Information and Communication Technologies, Information Infrastructure, Multi-Agent Systems, Customer Relations Management Systems

ERP System Adoption in Malaysia: A Comparative Analysis Between SMEs and MNCs

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Abstract: In this paper, we carried a comparative analysis on enterprise resource planning (ERP) system adoption in multinational corporations (MNCs) operating in Malaysia and small and medium sized enterprises (SMEs). More specifically, we used the partial least squares (PLS) modeling

technique to assess the cause-effect associations between technological, organizational and environmental (TOE) factors and successful ERP adoption in these two business sectors. The empirical result suggests that the causal relationship between technological factor and successful ERP adoption is statistically significant for SMEs. This implies that successful ERP system adoption in the sample SMEs seems to be facilitated by the existence of adequate technological and environmental factors exclusively. This finding is not surprising as Malaysian government's support for ERP adoption by SMEs is prevalent. The analysis further revealed significant associations between organizational and environmental factors with successful ERP adoption for MNCs. This suggests that MNCs with distinctive size and operational complexity leverages extensively on their organizational and environmental factors to experience successful ERP adoption as opposed to smaller sized SMEs. Based on the empirical findings, several theoretical and practical implications are highlighted in this study.

Keywords: ERP system, SMEs, MNCs, Technology-Organization-Environment (TOE), PLS, adoption

Chronic Patients as Developers of Innovative Healthcare Information Systems

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Abstract: Healthcare information systems are traditionally developed in institutional organizations such as medical providers' research labs, software houses and hospitals. IT and medical professionals are the constant analysts and developers of most health-care information systems on the market. Within this paper a new empirical trend is analyzed, in which patients turn themselves into the creators of new health-care information systems. A literature review is performed on how chronic patients are taking the lead in the development of new healthcare information systems and a few occurrence cases are studied from the research viewpoint. Findings suggest that the phenomenon is not well covered in the previous literature, and that it has implications for providers of commercial healthcare information systems.

Keywords: Healthcare. e-health, chronic care, patient empowerment, open-source, user innovation

Analysis and Visualization of Information Quality of Technical Documentation

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Abstract: Technical documentation has moved from printed booklets to online versions that need to be updated continuously to match product development and user demands. There is an imminent need to ensure the quality of technical documentation, i.e. information that follows a product. Moving from printed material to online versions also allows for documentation to become active, to integrate interactive content, which blurs the boundaries between information and software. In order to assess quality of technical documentation, we adopt analyses and visualizations known from quality assessment of software. The analyses assess text copies, usage, structural properties, and the conformance of information to meta-information. The analysis results are visualized using a range of abstractions to aid in identifying and communicating quality issues to different stakeholders. In a case study, we assessed the quality of real world technical documentations from a Swedish mobile phone vendor, a Japanese camera vendor, and a Swedish warship producer. The study showed that our analyses and visualization are applicable and can identify quality issues. For example, we tested an unclassified subset of the warship's technical documentation and found that 49% of it was redundant information. The case study was conducted at a Swedish company that is in charge of creating and maintaining technical documentation. While our approach is limited to analysis that can be performed automatically, the company acknowledges that it has great potential and that our results proved helpful.

Keywords: Information Quality, Software Analysis, Software Visualization, Technical Documentation

Software Process Improvement for the Airline Industry

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Abstract: Information technology has evolved over the past few decades from being an automation tool for critical business applications to a strategic tool redefining business processes and opening up new distribution channels to customers and suppliers. Since the airline industry is one of the most volatile industries being continuously affected by macro-micro forces in the environment, it is imperative that the information infrastructure be flexible and

agile to business changes. This paper explores the Service Oriented Architecture based IT reorganisation strategy within the information technology department of AirlineCo, a leading airline company, to handle the volatile business environment of the airline. Current challenges in the AirlineCo's IT information delivery life cycle are analysed in line with this new architectural strategy. An implementation approach is identified for this architecture examining other real world approaches and in line with the current investments. A combination of deductive and inductive approach is used to match theory to practice and arrive at a conclusion.

Keywords: Service Oriented Architecture (SOA), Web Services, IT-Strategy, Airline, Information technology, Organisational structure, ESB, EAI, Agile, Application design

PhD Research

Alliance Decision-Making of SMEs

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Abstract: Hardly a sector of economic activity has remained untouched by the trend of interfirm collaboration, particularly among large enterprises; however this strategy is still unpopular among SMEs, mainly in Latin America. Successful development in some economies such as Japan, Korea, Italy, among other, have been based on effective linkage participation of SMEs. Traditional literature in developed countries has been focused on large companies to explain what makes an alliance successful, how the relationship alliance partners should be, which structure of the alliance or the type of contract may make or break an alliance. Few researches have explored alliance as a strategy to develop SMEs. The critical role of decision-making process regarding the choice of being engaging into an alliance deserves particular research attention. Managing alliances is no more difficult than deciding to enter into such cooperative relationship. This paper is focused on the alliance decision-making process with specially emphasis on SMEs. The main contribution is to provide a framework of different factors that have influenced on alliance decision-making process. Based on social capital and social exchange, this research concentrates his analysis on a sample of SMEs from Mexico in which both experienced and unexperienced alliances entrepreneurs were included. Our proposal included twelve factors which were analyzed to find their impact on the alliance decision-making. The results show that the internal alliance initiative, frequently enterprise diagnose, trust based on partners' prestige and smaller or similar characteristics of potential partners have strong influence on positive alliance decision-making. Opposite expected characteristics were found between alliance experience entrepreneurs and alliance unexperience entrepreneurs. Market and resources access are acknowledged as the most common objective of alliances engagement. Alliances related to cost reduction and research and development are still important challenges that need to be explored by SMEs.

Keywords: Alliances, decision-making, factors, process, SMEs

ERP software for Small and Medium-sized Enterprises in Portugal: Exploratory Study of new KPIs

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Abstract: ERP (Enterprise Resource Planning) systems fail because they are not implemented accordingly with a scalable and sustainable business approach. In today's European Union market landscape, business's are ran accordingly with new management techniques needing new KPIs (Key Performance Indicators) for fast and correct decisions on long term company top management visions. Such KPIs should be based on an orchestrated informational system from the shop floor to bottom line, decisions made on the fly and performance evaluated accordingly with customer satisfaction. ERP software packages are traditionally selected and implemented through methodologies based on Technology or Functional determinants evaluated by operational managers and key users. They are been chosen with the same approach such as a fixed asset, where Return On Investment is the main figure evaluated by high management. Adoption decisions made on Technology are obsolete in two years and those made on Functional domains collapse when mergers, acquisitions or new business units are added/superseded. In a few years firms own a monolithic informational data base. Both perspectives are right in their assessments; Technology advocates electronic business and use of advanced management tools such as Business Intelligence and B2B, Functional domains campaigner that FM (Financial Management) accounting values, SCM (Supply Chain Management) engineering figures and CRM (Customer Relationship Management) statistical information contribution. Both have their true and well organized version of company reality. So, why they don't succeed? . Because management reports miss critical KPIs that contribute to company sustainability; such as collaboration, scalability, flexibility, satisfaction, employee empowerment, work life balance, social responsibility, energy efficiency, etc. In this work it will be made a review on Portuguese Small and Medium-sized Enterprises that use ERP software packages assessing CEOs perception on using of ERP functionalities, tools or reports to allow then running their business accordingly with these new KPI's. As decision makers try to understand the organization overall performance, this work will address those ERPs that hold the three core domain business functions; FM, SCM and CRM. In this way it will measure if these software packages contribute to promote freedom for management and decision makers to focus on taking action over data instead of understanding merging data.

Keywords: ERP, KPI, Collaboration, Sustainability, Information Systems.

e-Government Initiatives and Information Management in Two Local Government Authorities

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Abstract : The paper focuses on E-government initiatives and the challenges of information management in two public authorities in Sweden. It is based on a study of two Swedish municipalities undertaken at the Centre for Digital Information of Management (www.Cedif.org) at Mid-Sweden University. Public authorities have been characterized as rigid structures that are slow in reacting to change. However the municipalities are also re-engineering their work processes, pushed by the demand for high quality service delivery from the citizens is pushing this development. In the private sector, Business Process Management (BPM), Enterprise Architecture (EA) and Enterprise Content Management (ECM) are tools being recommended as the panacea for effective organizations. The management of information assets is of paramount importance to the achievement of efficiency and the delivery of quality services. The municipalities' engagement in E-government projects has meant a two-way flow of information between them and the citizens which has resulted into a deluge of information that has to be effectively managed. By focusing on some of the projects that the municipalities have been engaged in, the paper highlights the challenges of information management in this shifting environment and the impact the projects have on service delivery. It confirms that despite the proliferation of unstructured information, records management is still the dominant information management construct in the two municipalities. The projects provide examples of the efforts that the two municipalities are making to improve service delivery and improved information management. These projects are not part of a whole-of-organization strategic information plan that exemplifies ECM, but are stovepiped. Records management currently enables the municipalities to capture the information that is identified as records but a lot of unstructured information is not captured. Therefore, effective E-government will require long-term strategies for information management that are built on the culture to share information both within and across the municipalities in accordance with the laws governing information access.

Keywords: e-Government, enterprise content management and records management

Evaluating the Relation Between Information System Development and Quality Policy Implementation in the Public Sector

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Abstract: Alongside the development of information society, e-Government has emerged as a research field of its own. E-Government initiatives can be divided to three groups: government to citizen, government to business and government to government. From these the government to government approach is the most appropriate, because the research concentrates on an information system which should increase connectivity among government agencies and would be used by the government officials. However, it is often said about e-Government that it should not concentrate solely in introducing technological applications to government agencies; instead it should also aim for reorganizing governmental structures. Thus, this paper studies a governmental information system project which is related to restructuring work processes. More precisely, this research focuses on studying the implementation of a governmental information system in an organization which has recently developed their first quality policy. The research methodology is ethnographic case study and the organization in question is a Finnish reception center for asylum seekers. Finnish reception centers for asylum seekers, together with the Finnish Immigration Service, is currently implementing a quality policy, which defines the quality of work and quality of service in these organizations. Alongside the implementation of the quality policy, new information system is underdevelopment for the reception centers. Thus, the development of a new information system overlaps with the implementation of the quality policy. Hence, the research question for this paper is “how is the information system development related to the quality policy which has been recently implemented to the organization”. Analysis of official documents and discussions with developers constitute retrospective viewpoint to the development of the quality policy and to background of the new information system. However, the experiences from the introduction of quality policy as well as the challenges faced by the information system implementation are based on the ethnographic research.

Keywords: e-Government, information system development, quality policy, public sector, ethnography

Work In Progress

Adoption of Enterprise Resource Planning System – Some Preliminary Results

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Abstract: In the last years the changes in the business environment drove to significant transformations in the management processes of organizations. Similarly, the information technologies and processes of business reengineering, used together, originated important strategic changes, associated for instance with the implementation of the Enterprise Resource Planning systems (ERP). So, with organizations increasingly opting to implement ERP system, there is an increasing need to understand which reasons are presented to justify this option. An ERP system is an information system consisting of software support modules. The literature refers that in the ERP implementation prevails the application of financial and management accounting modules. And, that the ERP adopters had a big concern to integrate their accounting processes. Accordingly, the aim of this paper is to examine the reasons for ERP implementation and the modules that are typically implemented by Portuguese organizations. Which ERP modules are mostly adopted? Which reasons legitimate their adoption? We try to understand the underlying reasons why organizations move to ERP systems. This paper presents evidence from a survey of ERP adopters operating in Portugal. The data were analyzed using a statistical package for Social Science (SPSS). Empirical evidence reveals that the need for organizations to remain competitive is a condition for the implementation of the ERP system. Consistent with previous studies, the need as result of increased demand for real-time information, to obtain information for decision-making and the integration of applications appear as main reasons to implement an ERP system.

Keywords: Enterprise resource planning systems; ERP system modules; sSurvey; Portugal

Deploying an Anesthesiology Information System Based on Business Process Management for Cardiac Surgery

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Abstract: This study aims at exploring the opportunities of Business Process Management (BPM) to design a workflow of information along the patient treatment process at the Operating Room (OR). It also includes optimization processes and supporting Information Systems (IS) development in the Anesthesia Department for Cardiac Surgery at “Hospital Arrábida” in Oporto (Hospital da Arrábida 2010).

None hospital or health system today is immune from concerns regarding quality of patient care, bottom-line performance, increasing regulations, and staffing shortages. Physicians are constantly being pressured to increase efficiency while reducing costs in order to provide patient satisfaction on healthcare services. New technologies and organizing trends like voluntary practice guidelines, financial incentives, case management programs, social-technical issues, clinical restrictions have had variable success in controlling costs associated with physician’s clinical decision-making (Kuhn et al. 2007). The OR is probably the most complex location in any hospital and critical care areas are more demanding with regard to costs and resources (Grover 2006). Every minute and every day decisions are taken that affect the clinical outcomes and costs of treatments. According to a Harvard study report, surgery is the fastest growing and most resource-intensive area of the hospital (Butler 2005). On average, the surgical environment accounts for more than 50% of a hospital’s total budget and 95% of the costs associated with clinical decisions are taken near the patient (Grover 2006). At critical areas it is possible to automatically capture up to 80% of data from medical devices/nurse documentation from a patient (Butler 2005). It is also recognized that there is a discrepancy between the potential and the actual usage of IT in healthcare (Kuhn et al. 2007; Lenz and Manfres 2005). To cope with this challenge hospitals should be more process-oriented and business-focused (Grover 2006). The next generation of clinical IS will distribute automatically the *Right Work* to the *Right User* at the *Right Time* across patients and users (Eder and Haumann 2007).

Keywords: Business process management; health information system; cardiac surgery; anesthesia; workflow

Proposal for a new IT Energy Consumption Estimation Model Non-Reliant on the Hardware Architecture

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Abstract: Green IT has been developed from the need to reduce the organization's operational costs with energy consumption and to provide it with an environmentally friendly image. In order to apply Green IT solutions to the organization's technological infrastructure it is necessary to find out what is the environmental cost for each of its components. This article proposes a new method for estimating more accurately the energy consumption of an organization's technological infrastructure. It is divided in two sections: the first one explains how to estimate the energy consumption of a system, based on the load that it supports on a given moment; and the second one provides a framework for the parameterization of the estimation model based on the system configuration.

Keywords: GreenIT, energy consumption estimation, environmental efficiency evaluation

SIMPLEXIS: Evaluating eGov Measures Using an Information System Architecture Approach

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Abstract: Portugal, as other countries of the world, faces the challenge of modernizing public administration, making it closer to the citizen. In Portugal this challenge is represented by the SIMPLEX program under which are launched some eGov measures. Nevertheless, the evaluation of these measures has ignored the component of the Information Systems Architecture (ISA). This is the context of our work. Thus, our main goal is to build a tool to evaluate SIMPLEX measures considering Information Systems Architecture component in its three architectures – Informational Architecture, Applicational Architecture and Technological Architecture. This framework - the SIMPLEXIS test - consists in a set of metrics to evaluate the approximation to the reference architecture that a certain measure provides. To accomplish this assessment, in addition to these metrics (which correspond to one or more architectural levels - informational applicational and technological) is possible to define one weight associated to each metric, that can vary the importance of that metric in the concrete scenario of that SIMPLEX measure. Therefore, the evaluator have the freedom to adapt the

SIMPLEXIS test (not only by adjusting the metrics but also defining the weights) to evaluate one specific measure in a concrete scenario. Some of these already developed metrics are still in the maturation process and the metrics present in this article are those that are already more consolidated. This work is still in development phase that will entail not only the evolution of the metrics but also the consolidation of the reference architecture. The two application examples, merely academic, give an idea of how SIMPLEXIS test can be applied in two different approaches considering the reference architecture. In this article we intend to present the work already done, including some of the metrics already developed, give an application example of the SIMPLEXIS test and identify the next steps.

Keywords: Public administration, assessment, e-government, information systems architecture