Abstracts of Papers
Presented at the
5th International Conference on
IS Management and Evaluation
ICIME 2015

IS Management and IS Engineering in The Era of Big Data

Hosted by
Xi'an University of Technology
Shaanxi
China

28-29 May 2015

Edited by
Dr Jim Q. Chen
with
Dr Dang Xinghua, Dr Wenxiu Hu
and
Dr Ruidong Zhang

Papers have been double-blind peer reviewed before final submission to the conference. Initially, paper abstracts were read and selected by the conference panel for submission as possible papers for the conference.

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

These Conference Proceedings have been submitted to Thomson ISI for indexing.

Further copies of this book and previous year's proceedings can be purchased from

E-Book ISBN: 978-1-910810-08-8
E-Book ISSN: 2048-9854
Book version ISBN: 978-1-910810-07-1
Book Version ISSN: 2048-9846
CD Version ISBN: 978-1-910810-09-5
CD Version ISSN: 2048-9862

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Published by Academic Conferences and Publishing International Limited
Reading
UK
44-118-972-4148
www.academic-publishing.org

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Preface

The 5th International Conference on Information Management and Evaluation (ICIME) is hosted this year at Xi'an University of Technology, Shaanxi, China. The Conference Co-Chairs are Dr Dang Xinghua from the School of Economics and Management, Xi'an University of Technology, China and Dr Jim Q. Chen from St.Cloud State University, USA. The Programme Co-Chairs are Dr Wenxiu Hu from the School of Economics and Management, Xi'an University of Technology, China and Dr Ruidong Zhang from the University of Wisconsin - Eau Claire, USA.

ICIME provides an opportunity for individuals researching and working in the broad field of information management, including information technology evaluation to come together to exchange ideas and discuss current research in the field. We hope that this year's conference will provide you with plenty of opportunities to share your expertise with colleagues from around the world.

The opening keynote address will be delivered by Dr David C. Yen, SUNY – Oneonta, New York, USA on the topic of "MIS issues, trends and outlook". The second day Keynote will be given by Mr. Yumin Qi, Chief Executive Officer and Chairman of the Board of Huachen Automotive Group Holdings Company Limited (Brilliance Auto Group), China.

ICIME 2015 received an initial submission of 66 abstracts. After the double-blind peer review process 19 Academic Research papers, 2 Masters Research papers and 1 Non Academic Paper have been accepted for these Conference Proceedings. These papers represent research from around the world, including Canada, China, Czech Republic, Malaysia, Namibia, Poland, South Africa, Taiwan, UK and the United States.

We wish you a successful and most interesting conference.

Dr Jim Q. Chen
with
Dr Dang Xinghua, Dr Wenxiu Hu and Dr Ruidong Zhang
May 2015

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Biographies

Conference Co-Chairs

Dr Xinghua Dang is a doctoral supervisor in the School of Economics and Management, academic leader of Management Science and Engineering; director of the Science and Technology Innovation Center; previous dean of the School; earned a PhD degree in Management from Xi 'an Jiaotong University. He also is the vice president of CNIBA (the Chinese Institute of Business Administration), vice president of Soft Science Research Institute of Shaanxi province. He presided more than 10 national, provincial and ministerial-level projects, such as the Chinese natural fund project, the Ministry of Education doctoral degree fund project. Among them, 6 projects won the provincial science and technology awards. He also published more than 40 papers on technology innovation and management in important academic journals such as China Journal of Management Science, Management Science and System Engineering. He was the editor-in-chief of three academic works.

Dr Jim Q. Chen is Professor of Information Systems at St. Cloud State University, USA. He has a Ph. D degree from University of Nebraska – Lincoln and MBA from Northern Illinois University. He is the President of International Chinese Information Systems Association. His research interests include Business Analytics, Information Security and Privacy; An Editorial Board Member for Journal of Internet Commerce and International Journal of Information Systems and Change Management; Published over 60 peer reviewed articles and book chapters; Research work appeared in journals such as Communications of the ACM, Decision Support Systems, Journal of Computer information Systems, Journal of Global Information Management, Asia Case Research Journal, and Information System Management among others.

Programme Co-Chairs

Dr Wenxiu Hu is Dean of the School of Economics and Management, academic leader of industrial and commercial management, XUT, doctoral supervisor. He has a PhD degree in Management from Xi 'an Jiaotong University. He mainly engaged in teaching and scientific research of technical economic evaluation, such as financial enterprise investment management, capital operation, risk management, project investment analysis etc.; presided over 20 national and provincial level projects;

won eight science and technology awards or humanities and social science prizes granted by Shaanxi province government, Xi 'an city government or Shaanxi province education department; published about 100 papers in important academic journals or international academic conference, edited and co-edited 6 academic works.

Dr Ruidong Zhang is currently a professor of Information Systems at University of Wisconsin - Eau Claire, is President-elect of ICISA. He received his Ph.D. from University of Nebraska - Lincoln in 1995, M.A. from People's University of China in 1988, and B.S. from Beijing University of Posts & Telecommunications in 1985. He is. His academic areas cover data communications and networking, enterprise network administration, database and knowledge management systems, and applications programing.

Keynote Speakers

Mr. Yumin Qi, Chief Executive Officer and Chairman of the Board of Huachen Automotive Group Holdings Company Limited (Brilliance Auto Group) since December 2005. Mr. Qi has over 20 years' experience in the heavy machinery industry in the People's Republic of China (the 'PRC'). Prior to joining Huachen, Mr. Qi served as CEO and Chairman of the Board of Dalian Heavy Industries Co., Ltd. and as the President and Chairman of the Board of DHI - DCW Group Co., Ltd. Mr. Qi served as the deputy Mayor of Dalian Municipal Government. He has won many awards and titles including being the 2013 recipient of the China Economic Person of The Year Award from China Central Television (CCTV); Rated one of the Best Chinese CEOs by Forbes 2013; Person of the Year in the Chinese Automotive Industry; one of the 'Ten Economic Persons of Dalian City' in 2003; awarded the title of 'Entrepreneur of Venture Enterprises of Liaoning Province', and 'Best Entrepreneur of National Machinery Industry'. Mr. Qi is a Senior Engineer. He holds a Bachelor degree in Engineering Management from Xi'an University of Technology and a Master degree of Business Administration from Dalian University of Technology.

Prof David (Chi-Chung) Yen is currently a Dean and Professor of MIS at School of Economic and Business, SUNY-Oneonta. As a founding Dean at SUNY-Oneonta since 2013, several major accomplishments including building governance structure, developing undergraduate and graduate curricular proposals, establishing business advisory council, leading university engagement project, wringing competitive grants, publishing dean's annual report and school newsletter, soliciting funding support for faculty development and stabling students advisory council. Professor Yen is active in research and has published books and articles which have appeared in ACM Transaction of MIS, Decision Support Systems, Information & Management, IEEE Computer Society: IT Professionals, Information Sciences, Communications of the ACM, Government Information Quarterly, Information Society, Omega, International Journal of Organizational Computing and Electronic Commerce, and Communications of AIS among others. Professor Yen's research interests include data communications, electronic/mobile commerce, database, and systems analysis and design. Dr. Yen also served as in a number of capacities such as president, VP, conference chair, program chair, executive director, seminar director, and session chair for different professional associations. He also served as a member of the editorial board, as a chief editor, and as an executive editor for several professional outlets and as an external reviewer for a number of programs, curriculum, and P&T decisions. He was a principal investigator of a number of grants such as Cleveland Foundation, GE Foundation, and Microsoft Foundation. Dr. Yen has extensive international experience and good working relationship in such areas as Taiwan, Hong Kong, China, and Singapore and has successfully built the partner relationships with PKU, SUFE, BJTU, SYSU, NJU, CUHK, HKUST, and DUT in China and CCU in Taiwan.

Mini Track Chair

Dr. Amy H. I. Lee received her MBA degree from the University of British Columbia, Canada, and Ph.D. degree in Industrial Engineering and Management from the National Chiao Tung University, Taiwan. She is a professor in the Department of Technology Management and the Department of Industrial Management at Chung Hua University, Taiwan. Her research interests include performance evaluation, supply chain management, and production management. She has published papers in various management and engineering journals. She has also served as a managing editor and production editor for the Quality Technology and Quantitative Management (SCI-E journal) and a reviewer for many journals.

Biographies of Presenting Authors

Allen Benusa is an instructor of computer programming / computer systems at Ridgewater College, USA. He is currently completing master's coursework in Computer Science and Information Assurance at St. Cloud State University, USA. Allen is also the sole proprietor of an IT tech support business that serves the needs of small businesses since 1995.

Professor David Brown is Chair Professor of Strategy and IS and Director of the Lancaster China Management Centre at Lancaster University. The author of over 100 publications his research has been funded by EU, UK research councils and UN. His contribution to UK-China collaboration was recognised by the UKTI with awards in 2008 and 2013.

Christina Ling-hsing Chang is Professor at the Department of Information Management, National Pingtung University in Taiwan R. O. C. Her research areas include the power and political behavior of the IT development process, the relation between culture and IT development, the career anchors and management of IS personnel, Information Ethics, and qualitative methodology.

Yu Chao earned her PhD degree at the National Chiao Tung University and is now an assistant professor of Department of Business Administration at Chung Hua University, Taiwan. Her current research interests include new product development, R&D management, e-commerce and consumer behavior. She has published in journals such as Advanced Materials Research, Social Behavior and Personality, The Business Review.

Dr Linying Dong is Associate Professor of the Ted Rogers School of Information Technology Management of Ted Rogers School of Management, Ryerson University. Dr. Dong has the expertise on IT Adoption and Implementation, and has published in top IS journals such as European Journal of Information Systems, Information Systems Journal, and Journal of Information Technology.

Dr Jamal El-Den is a Senior Research Fellow at the School of Engineering and IT at Charles Darwin University, Australia. Dr El-Den has been in academia for more than 25 years teaching in Information Systems, Information Technology and Computer Science. His current research is in Knowledge management and its application to businesses and organizations.

Dr. Yang Fan is an associate professor of project management at Western Carolina University. Prior to joining WCU, he worked in China, France and Saudi Arabia.

He served on the board of PMI Quality Community of Practice (CoP) from 2010 to 2012. He has PMP certification.

Dr. Kenneth A. Grant is an Associate Professor in the Department of Entrepreneurship & Strategy within the Ted Rogers School of Business Management. Prior to joining the department, he was the founding Director of the Ted Rogers School of Information Technology Management.

Haiqing Hu is Professor and PhD supervisor at the School of Economics and Management, Xi'an University of Technology, Xi'an, Shaanxi, China. His research direction is financial innovation and financial management.

Xiaorong Jiang is an associate professor, master's tutor, Doctor. The main research direction: organizational strategy, organizational behavior and human resource management.

Jianxun Li, a graduate advisor, is a professor in the School of Economics and Management, Xi'an University of Technology, China. His main research areas include decision support, water information, and complexity theory.

Yuxi Liu is a graduate student of Economics and Management at the Xi'an University of Technology, Xi'an, Shaanxi, China. Her research interests are emergency management and investment management.

Stephen Nabareseh is a PhD candidate at the Tomas Bata University in Zlin, Czech Republic. He holds an MSc in Informatics and an MBA in General Management. He majors in Data Mining and predictive analytics using varied statistical tools and is also keen in operations research, management science and multi-criteria decision making.

Prof. Celina M. Olszak, Ph.D., D.Sc , is head of the Department of Business Informatics at the Katowice University of Economics in Poland. She hold a DAAD and Swiss Government scholarship holder. She is the author of 10 books and over 150 academic journal articles. Her research and teaching focus on decision support systems, business intelligence, multi-agent systems and knowledge management.

Mzwandile Muzi Shongwe is a lecturer in the department of Information Studies, University of Zululand, South Africa. I am a PhD candidate in the department of Information Studies, University of KwaZulu- Natal, South Africa. My research interests are knowledge management, knowledge management systems and mobile technologies.

Lun-Meng Sun has a Master's degree in Electrical Engineering, majoring in Communications. Currently, he is studying in PhD Program of Technology Management. He was the Secretary General of Project Management Institute in Taiwan Chapter. He has project management experience of more than ten years and three years' experience in tutoring in a consulting company.

Jean-Paul Van Belle is a professor in the Department of Information Systems at the University of Cape Town and Director of the Centre for IT and National Development. His research areas are the adoption and use of emerging technologies in developing world contexts including mobile, cloud computing and green IS. He has over 150 peer-reviewed publications and supervises 20 post-graduate students.

Dr. Kenneth A. Williams is an associate professor in the Computer Science Department of North Carolina A&T State University in Greensboro, North Carolina, USA. His research interests include various topics in Cyber security, Computer Science education and encryption algorithms based on hard or non-computable problems.

Shuili Yang, a professor and vice dean of the Economics and Management School at Xi'an University of Technology, has been engaged in studying and investigating in the field of corporation governance and motivation mechanisms. Recent years, he has successfully hosted and completed three projects of the National Social Science Fund of China.

Yale Yu has over 30 years' IT engineering and delivery experiences crossing industries in global companies and academic credentials with publishing over 30 papers and 2 books on software, enterprise IT strategy and architecture development. Yale now is a principal enterprise architect of Infosys Australia & New Zealand and honorary professor of Xian Shiyou University, China.

Mingchen Zhang is a postgraduate student of Economics and Management at the Xi'an University of Technology, Xi'an, Shaanxi, China. Her research interests are information management and decision support.

Research Papers

Quality of Work Life Issues in the Introduction of ERP Systems in a Sub-Saharan African Context

Liam Bailey, Lisa Seymour and Jean-Paul Van Belle
Department of Information Systems, University of Cape Town, Cape Town, South Africa

Abstract: Motivated by the possibility of organisational efficiency, effectiveness and improved performance, organisations have implemented Enterprise Resource Planning systems as a means of coping with the competitive business environment, to varying degrees of success. However, successful implementations do not always lead to successful appropriation of the technology within an organisation. Empirical research indicates that ERP implementations in sub-Saharan African countries are more likely to be problematic due to economic, cultural and infrastructure issues, with ERP vendors setting the standards of their software too high for developing countries. This quantitative study determines the impact of the introduction of ERP systems quality of work life issues of users in a sub-Saharan African context. Using an adapted Work-Related Quality of Life scale, this study provides focus on the issues experienced by users in a sub-Saharan African context. ERP users based in Kenya, Malawi, Mauritius, Mozambique, Reunion, Zambia and Zimbabwe were surveyed. The key findings indicate that the introduction of ERP systems has a statistically significant and positive effect on job and career satisfaction, home-work interface, general well-being, working conditions, control at work and stress at work. Statistically significant differences were found between sub-Saharan African users from mainland Africa and the Indian Ocean islands.

Keywords: ERP implementation; SAP; impact; quality of work life; Sub-Saharan Africa information systems implementation

Adoption of Enterprise Systems in Chinese SMEs: Contrasting User and Provider Experiences

David Brown, Zheng Xu and Mark Stevenson
Department of Management Science, Lancaster University Management School, UK

Abstract: Much of the available literature on Enterprise Systems (ES) is set in the context of (large) Western organizations, with an emphasis on the user perspective. The survey method is dominant in this literature, with a focus on what motivates a firm to implement ES and on the factors that are critical to implementation success. In the main such survey work treats ES implementation as an event

with the analysis focused on input factors and outputs. In contrast, this paper presents a broader based examination of ES implementation in Chinese companies – in this case SMEs – by considering not only the user perspective but also those of the ES provider and the wider institutional setting. Additionally, the use of the case study method captures the dynamics of the implementation process and the changing relationships between the stakeholders. Both actor network theory and institutional theory inform the analysis. The findings are potentially significant and challenge user-centered theories of adoption. In the context of China the institutional influences are shown to be weaker than the government agencies intended or anticipated.

Keywords: enterprise systems, SMEs, case study, China, institutional theory, actor network theory

Chinese *Guanxi* Theory: How to Globalize and Popularize Taiwanese Products in Chinese Cultural Areas Using Online Social Network Services

Christina Ling-hsing Chang[1] and Chih-Chung Liu[2]
[1]Department of Information Management, National Pintung University, Pingtung, Taiwan
[2]Department of Information Management, Chia Nan University of Pharmacy & Science, Tainan, Taiwan

Abstract: Participating in online social networks has already become part of internet users' life, which also influenced the interactive style of people tremendously. Therefore, building a relational network with customers through online social network to publicize Taiwanese products and brands has become a prime issue. Differentiating cultures in relational networks is a basic task for Taiwanese enterprises, thus Chinese *guanxi* theory should be applied on online social networks in Chinese cultural areas to help building up relational networks and strategies. This paper details our study findings, which indicate the attitude toward online social network advertisements has a significant impact on purchase intention; moreover, online social network has a significant impact on customer attitude towards social network advertising. Meanwhile, Chinese *guanxi* theory provides significant predictors of online social network advertisements and the attitude towards it. The result shows that after joining advertising in online social network, members pay more attention to the advertisements in online social network as well. There will also be discussions in this paper about the implications of the study and its contribution for both research and practice purposes.

Keywords: online social networks, Chinese *Guanxi* theory, online social network advertisements

How Innovation Capability and Organizational Integration Mediate Market Orientation and NPD Success

Yu Chao[1] and Chen-Hao, Liu[2]
[1]Department of Business Administration, Chung Hua University, Taiwan
[2]Institute of Technology Management, National Tsing Hua University, Taiwan

Abstract: The role of market orientation, innovation capability and organizational integration as an antecedent of new product performance has been extensively documented in the literature. A leading corporation must either develop new successful products to sustain its business competence or keep growing in global markets. Organizational integration has attracted ever-increasing interest because of the publication of seminal works and is a strategically valuable resource for successful new product development (NPD). This article focuses on NPD projects in the Taiwanese ICT industry. In particular, this study examines the mediate relationship between market orientation and new product market success through innovation capability and organizational integration. We propose our research model and then test it by applying structural equation modeling based on the partial least squares (PLS) methodology. The results show that market orientation positively affect organizational integration and innovation capability. And organizational integration positively affect innovation capability. But organizational integration and innovation capability negatively affect new product development success.

Keywords: Market Orientation, innovation capability; organizational integration; new product market success; partial least squares (PLS)

Cloud Computing Adoption by a Cloud Service Provider: Key Adoption Factors

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Abstract: Cloud computing, with its promise of low-cost delivery, fast implementation, enhanced flexibility and scalability, and better accessibility, had attracted a wide and quick adoption. It is estimated that the cloud computing market will reach $160 billion by 2020. Cloud service providers include major Enterprise Resource Planning (ERP) vendors (e.g., SAP, Oracle) and platform providers (e.g., AWS, Salesforce.com). Despite the fast increase of cloud computing, however, research on cloud computing has just begun. The extant cloud computing research lacks in-depth discussion of company business context and rich knowledge about cloud adoption. To make up for the weakness, we have conducted a case study on the cloud adoption by a large telecommunications company in Canada.

Based on the interviews of 20 people who were decision makers or influencers of a cloud adoption, we have identified key factors driving the company to the adoption of a cloud service provided by an external vendor. These factors include fast implementation, flexible technology choice, specialization and continuous innovation, geographical coverage, and local control. The identified key adoption factors are reflective of the company-specific influence. For example, geographical coverage, fast implementation, specialization and continuous innovation are influenced by nature of telecommunications business operations; local control and flexible technology choices, however, suggest the power struggle between the business unit and the internal IT department. Despite the intention of the company to achieve a quick implementation by adopting the external cloud service, at the time when the data was gathered, the implementation was 12-month behind schedule. The business unit that made the cloud adoption decision was remarked as "overly optimistic" about the external solution, and missed some key "foundational work." The findings from the research the fact that the fast and happy path to the cloud adoption may not be fast and happy in the end highlights the drawback of the siloed approached to the cloud adoption, and suggests organizations take a holistic approach in their cloud adoption. We conclude the paper by discussing the contributions of our research to both researchers and practitioners.

Keywords: cloud computing, cloud adoption, case study

Do Project Managers Have Organizational Career Paths? A Study of the Current State of Career Development for IT Project Managers

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Abstract: The temporary nature of projects has changed the traditional career paths for project managers and the way project-oriented organizations prioritize their motivation tactics. By conducting a survey and testing hypotheses to explore a general pattern of employers' Human Resource Management (HRM) practices in IT and other industries, this paper finds that most employers prefer on-job training to organizational career path in motivating project managers. This preference can be partly explained by the nature of a project, which is dynamism and flexibility. Such project nature may suggest that being "transitory" be one of important characters of a project management career. Reacting to such change in HRM practices, project managers need to cope with a permanent "transitory" state with regard to their future career by focusing on an occupation rather than on a single organization. This paper also presents a fact that there is no difference be-

tween IT industry and other industries in terms of the extent of use of HRM tactics. These findings contribute to an in-depth understanding of the project management career and suggest that project managers be proactive in adjusting to change in the workplace by being more autonomous in their career development decisions based on a more dynamic work environment. This paper also suggests that IT project managers are management-oriented rather than technical-oriented and their careers will be more shaped by project management knowledge and working experiences rather than specific technical knowledge. This finding highlights the "generalist" nature of project management profession, which means that to a large extent project management knowledge can be versatile in various projects and industries.

Keywords: organizational career path; on-job training; IT industry

Making the Career Move From CIO to CEO: The Inside View

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Abstract: The role of Chief Information Officer emerged in the early 1980s as IT leadership became increasingly important in many organisations. The CIO is now seen as a key member of the executive team and the position is the ultimate career aspiration of many IT professionals. Significant work has been done to identify the attributes of successful CIOs and much advice has been offered on how to move into the role. Evidence is now emerging that the top CIOs are moving up beyond their specialist leadership role, to become Chief Operating and Chief Executive Officers, with more than 100 such leaders identifiable in North America. These leaders were contacted and asked if they wished to assist in this study, and almost 30% agreed to do so. This work examines the attributes of those who have stepped up to the very top of the corporation through the actual experiences of those who have done so. A theoretical model for IT leadership development was built from the prior literature review and its applicability tested in practice through career reviews and interviews with top executives. Interviews were conducted with 29 North American executives who have become CEOs or COOs (21 CEOs and 8 COOs) in major corporations. In most cases, the participants also provided their CVs. Participants identified key factors that contributed to their career development and success at the highest levels in three distinct areas - their work experience, environmental factors and personal attributes. Their work experience demonstrated initial success at being a CIO, taking on broader firm-wide responsibilities and developing an ever-increasing business focus in their activities. Typically their organisation was a mature user of IT with good IT governance or, as the CIO, they contributed significantly to the development of these factors. Finally,

their personal attributes included superior personal skills and a broad understanding of the business and its customers. They were seen as change leaders in their organisation and also credited a career adviser or mentor with providing significant help during their career development.

Keywords: CIO, CEO, executive leadership, career development, IT governance

Empirical Analysis of Influencing Factors of Innovative Products' Diffusion of Internet Finance in the Case of Individual Online Bank

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Abstract: With the development of internet finance, innovative products of internet finance are showing the trend of diversity increasingly, and have become an essential part of daily life. The emergance of internet finance's innovative products and the innovation of instrument of payment particularly not only strengthen the products' liquidity, but also reduce transaction costs. Innovative products' diffusion of internet finance, as the effective approach of realizing the value, plays a significant role in the study of internet finance. This study, based on TAM (Technology acceptance model) and IDT (Innovation diffusion theory), builds the theoretical model for influencing factors of innovative products' diffusion of internet finance from the following aspects: innovative characteristics, consumer characteristics and diffusion channels, and takes the typical of innovative products of internet finance for instance- individual online bank, using SEM to fit for data and making empirical analysis. It turns out that perceived usefulness, perceived ease of use, network externalities, compatibility and perceived risk of innovative characteristics are closely related to consumers' attitude towards financial innovative products' utility; interpersonal influences of diffusion channels have positive correlation with consumers' usage behavior of financial innovative products; consumers' innovativeness of consumer characteristics and computer self-efficacy are closely related to consumers' usage behavior of financial innovative products; consumers' attitude towards financial innovative products' utility has positive impact on consumers' usage behavior of financial innovative products. Based on theoretical study and empirical analysis, this study sheds light on the promotion of innovative products of internet finance in China, from the following aspects: changing consumers' attitude towards usage, playing the role of products' externalities and compatibility and focusing on consumers' perceive factors.It has a great value and significance to promote the development of China's internet finance.

Keywords: internet finance, innovation, diffusion, influencing factors, SEM

An Integrated Supplier Selection Model

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Abstract: In today's global competitive market, a firm, in order to survive and to succeed, needs to improve its competitive edges to meet rapidly changing technological innovations and dynamic customer needs. A well-constructed and reliable supply chain can ensure the success of products in terms of product quality, performance, delivery and cost, etc. As a result, the supplier evaluation and selection process is important, and it must be implemented appropriately to maintain a high-quality and long-duration buyer-supplier relationship. In this research, an integrated supplier selection model is proposed. The model applies the decision making trial and evaluation laboratory (DEMATEL), the analytic network process (FANP) and the fuzzy set theory. The DEMATEL can be applied to determine whether there are interrelationships between two factors, whether the interrelationships are significant, and whether the relationship between two factors is two-directional. Thus, it can be used to determine the relationships among the aspects and among the criteria. Instead of prioritizing aspects, criteria and suppliers based on linear thinking using a point scoring scale, ANP is applied so that the aspects, criteria and suppliers can be pairwise compared by experts in a systematic way to ensure consistency in experts' opinions. By applying ANP, the interrelationship among the aspects and among the criteria can be evaluated too. Because the DEMATEL is applied first, the relationships that are not very significant do not need to be considered. Thus, the number of pairwise comparisons in the ANP can be reduced substantially. The adoption of the fuzzy set theory to the DEMATEL and the ANP is to incorporate the fuzziness and uncertainty in the information contents of the experts when filling out the questionnaires. A case study is examined using the proposed model to rank the suppliers. The proposed model can provide references for firms in supply chain management, and it can be tailored to meet the requirement of the firm in the decision-making.

Keywords: supplier selection, DEMATEL, ANP, fuzzy

Optimization of (*R*, *Q*) Policies for Assembly Inventory Systems With Operating Flexibility

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Abstract: In a supply chain modeled as a multi-echelon inventory system, the effective management of its inventory at each stock is critical to assure a high service level to customers at the minimal cost. Two approaches are often used in the optimization of inventory policies for multi-echelon inventory systems: stochastic-service approach (SSA) and guaranteed-service approach (GSA). The two approaches differ in demand treatment and service time characteristics. In the SSA, each stock maintains a certain level of safety stock in order to cope with the variability of its demand. When the on-hand inventory of the stock is not sufficient to meet its demand, unsatisfied part of the demand will be backlogged. This implies that the stock may have a stochastic delay to fulfill the unsatisfied demand. On the other hand, the GSA assumes that each stock can use operating flexibility measures such as expediting and overtime to fulfill excessive customer demand superior to a bound as a supplement to its safety stock. In this paper, we extend the work by considering operating flexibility costs in the optimization of (R, Q) policies for a continuous review assembly inventory system with Poisson final demand and fixed costs at each stock. Firstly, we derive a deterministic mathematical programming model for the optimization of an installation (R, Q) policy for the system under the GSA. Secondly, we propose a method for solving the model based on a line search for finding the optimal target cycle service level to customer and an iterative procedure for solving the model when the target cycle service level is given. In each iteration of the procedure, the two sub-problems of the model, the order size decision sub-problem and the reorder point decision sub-problem, are solved by using two efficient dynamic programming (DP) algorithms, respectively. Numerical experiments on randomly generated instances show that the iterative procedure together with the two DP algorithms is very efficient in solving the problem.

Keywords: inventory management, assembly inventory systems, guaranteed-service approach, (R, Q) policy, dynamic programming

Chinese National Statistical System Based-On Cloud Computing

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Abstract*:* Nowadays the demands for mass storage, efficient computing, and real-time sharing from statistical data pose a great series of threaten to the Chinese current statistical systems. Statistical departments moving to national statistical system based-on cloud computing may gain benefits such as cost saving, efficiency improving, and flexibility and scalability of services. Therefore, in this paper, cloud service models can be introduced. Also by analyzing the demands for cloud computing from statistics and the advantages of cloud computing applying to statistics, the basic architecture of national statistical system platform based-on cloud computing can be proposed, in order to solve current problems of mass storage, efficient computing, and real-time sharing from statistical data.

Keywords: cloud computing, statistical system platform, cloud service models

Security on Electronic Transactions in Developing Countries: A Cluster and Decision Tree Mining Approach

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Abstract: The dawn of information technology has impacted tremendously on customer information management and marketing activities of companies. The huge amount of data generated by companies, its management and evaluation has posed a great challenge as well as offered opportunity to businesses to gain competitive advantage. The opportunity created by the advent of the internet has been a blessing and a challenge. It is a blessing since businesses reach a wider coverage of customers and a challenge because the security of customers' data on Electronic Transaction (eTransactions) need to be protected. The increase in eTransaction activities especially in developed countries has been tremendous in recent years. The correlative increase in developing countries has however been very slow. Many researchers have attributed this slow growth of eTransactions to a couple of obstacles with security of transactions prominently featuring in the research outcomes. There is a general outcry of security and cyber fraud concerns on eTransactions in developing countries. Research on the category of consumers who are most concerned about security of transactions has however been limited. This paper has researched five sub-Saharan African Countries (Kenya, Ghana,

South Africa, Nigeria and Zambia) to elicit their views on security of eTransactions and their readiness to shop online. The paper surveyed 600 people across business sectors, age group, income levels and educational qualification in the countries. The paper, using clustering and decision tree analysis of data mining, (1) discovers clusters mostly associated with security of eTransactions in Sub-Sahara Africa, (2) identifies the variable that is more congruent with security as per eTransactions of citizens in Sub-Sahara Africa, (3) details the category of users primarily and mostly concerned about security in eTransactions in the sub-region, and (4) presents a predictive model for predicting customers with likely eTransaction security (payment/data) concerns.

Keywords: electronic transactions, Africa, K-means clustering, transaction security, decision tree analysis

Multi-Agent Approach in Designing of Organizational Creativity Support

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Abstract: Organizational creativity is considered as a one of the most developing research areas. It is treated as a main vehicle of organizational development, the basis for staying on the market and innovative success. The organizations that support organizational creativity and adopt the innovative practices, products and services increase their capability to be more competitive. Last years, some research studies have been conducted that concern computer supported creative problem solving. However, they are fragmentary, scattered and do not refer to the essence of the organizational creativity. They do not illustrate how to design organizational creativity support system. The main purpose of this paper is to propose a framework based on multi-agent approach for organizational creativity support. The idea of the study is an attempt to answer the following questions: (1) what is the issue of organizational creativity and its computer support, (2) what are the properties of multi-agent technology, (3) how to design an organizational creativity support system using multi-agent approach. Search for answers to these questions is mainly conducted on the theoretical, methodological as well as the empirical foundation. The result of this study is an original framework for organizational creativity support based on multi-agent approach. The paper contributes the scientific foundation to enrich the knowledge in the area of organizational creativity and its computer support. It provides some valuable information on using a multi-agent approach for designing of organizational creativity support systems. The findings and outcomes should be useful for any designers of organi-

zational creativity support systems and for all organizations willing to use these systems.

Keywords: organizational creativity, organizational creativity support, information technology, multi-agent approach

Assessing the Security Posture of Cloud Service Providers

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Abstract: Cloud computing offers on-demand scalable resources and IT-based solutions without the need to invest in new infrastructure or train new personnel. Despite its economic advantages, cloud computing has faced scrutiny regarding security risks involved with allowing sensitive data to be controlled and handled by third-party, off-site vendors. Many businesses with interest in using cloud services do not have a process to assess cloud providers security posture. To aid this issue, the Cloud Security Alliance (CSA) has developed the Consensus Assessments Initiative Questionnaire (CAIQ), which has quickly become an industry-accepted way to document security controls found within cloud services. The CSA CAIQ document provides prospective clients an in-depth look into the security controls of a given cloud service provider (CSP). The assessment process is very complicated because it requires clients to examine over 140 questions spanning over eleven security control categories in CAIQ, answer yes/no followed by explanatory comments related to the corresponding question. How cloud consumers can objectively use the CAIQ to assess CSP security levels becomes an important and urgent problem. A Fuzzy Likert System (FLS) was employed that uses fuzzy logic, Likert scales and decision making technologies to assess the Security Posture Score (SPS) for cloud service providers based on client evaluations of CSP feedback on the CAIQ document and client-defined weights signifying the relative importance of each CAIQ category. The FLS allows clients to numerically evaluate the CSA CAIQ and provides weights for each CAIQ category. Upon doing so, the FLS provides a score indicating the security posture of the given CSP. A one-tailed F-test is used to perform a statistical analysis comparing the standard deviation between 1000 random SPSs calculated with our FLS and a traditional weighted-average system. Experimental results indicate that the null hypothesis, which states that the two standard deviations are the same, can be rejected in favor of the alternate hypothesis, thus claiming that with 95% confidence there is a significant difference between scoring methods.

Keywords: cloud computing security, fuzzy Likert system, assessment

A Study of TOC-Supply Chain Replenishment System in LED Chip Manufacturers

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Abstract: The LED chip manufacturing (LED-CM) is an important process in the LED supply chain. Under the severely competitive pressure these years, the issue of effective management of inventory for the variety of products is an imperative task for the LED-CM plant. The Theory of Constraints - supply chain replenishment system (TOC-SCRS) which is one of the potential solutions to effectively manage inventory in the industry is therefore recommended in LED-CM plants. The TOC-SCRS is a replenishment method of the TOC supply chain solution and is now being implemented by a growing number of companies. The performance reported by the implemented companies includes reduction of inventory level, lead-time and transportation costs and increasing forecast accuracy and customer service levels. However, because the special features of specification of a product composed of the chips of different bins exist in these plants, implementation of TOC-SCRS to the LED-CM plant will encounter the issue of the determination of the optimal inventory buffer of the chips in the different bins based on the required buffer of product specifications. An optimal bin allocation model to resolve this issue is thus proposed in this paper. A practical application in a LED-CM plant in Taiwan is utilized to provide detailed explanations and to demonstrate the feasibility of the model. Employing the proposed optimization model will facilitate LED-CM plants to improve their throughput, competitiveness and inventory reduction.

Keywords: LED chip manufacturing(LED-CM), feasible bins, unstable production output, theory of constraints- supply chain replenishment system (TOC-SCRS), optimization model

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Chinese National Statistical System Based on big Data

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Abstract: With the construction of information increasingly deepening, both in the government and non-government institutions, information communication and coordination work is becoming increasingly important. In the rapid growth of big data era, the demand for an unprecedented expansion of statistical information, also enhances unceasingly. The need and require more from multi-angle, multi-facet on statistical work. The production and use of big data is gradually

changing the traditional mode of the government statistical work. However, the existing statistical system is not sound and being inadequate investment at present, statistical accounting coverage rate is not high, as well as the lack of awareness of big data, leading to information security, digital divide, information islands, the abuse of power and many other issues. How to effectively use big data has become an urgent issue to government statistical agencies and academic research. Therefore, study on the issue Chinese national statistical system based on big data is of great significance.

Keywords: government statistics, big data, statistical system

The Impact of Manufacturing Enterprise Knowledge Integration Capability on Innovation Performance

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Abstract: Manufacturing enterprises are facing practical challenges at present, such as the shortened industrial technology cycle, the accelerated flow of resources and so on. There also exist several problems within the enterprise, for example, the new knowledge and new technology are of indigestion and knowledge base updates slowly. In addition to the source of enterprise knowledge is becoming more widely and the distribution of knowledge is becoming more scattered. Innovation knowledge exists in a fragmented form. All the above highlight the importance of knowledge integration capability for enterprises. In this paper we regard manufacturing enterprises as research object and regard the relationship between the knowledge integration capability and innovation performance as the research subject. Based on the theoretical analysis the relationship among knowledge integration capability, knowledge sharing, innovation performance in the form of questionnaires is explored. Then through the empirical research we verify the research hypothesis. In this process we will use SPSS software and AMOS software to analyze the data. The results show that knowledge integration capability has a positive impact on innovative performance; knowledge integration capability has a positive impact on knowledge sharing; knowledge sharing has a partly positive impact on innovative performance. Consciously improving the knowledge integration capability of enterprises and promoting the enterprise internal and external knowledge sharing, which is very important for the improvement of the enterprise innovation performance.

Keywords: manufacturing enterprises; knowledge integration capability; knowledge sharing; innovative performance

Research of CRM System Structure Based-on Cloud Computing

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Abstract: CRM provides perfect environment for corporate client or business customer by the integration of human resources, business processes and professional technology. CRM can take advantage of the lower costs and higher efficiency to meet customer needs which will make enterprise can maximize customer satisfaction and loyalty, however, in the case of the small and medium-sized enterprises, huge hardware investment and much large-scale software integration in CRM have caused difficulties for its implementation. Cloud computing is a kind of scale economy to promote network computing model, it integrated a lot of computing, storage, software resources to construct a huge virtual resource pool, so as to provide the user with convenient economic dynamic scalable service. The CRM based-on cloud computing can effective utilize network resources to make more effective sharing; break through the limitations of traditional CRM product concept; actively expand to new fields such as SaaS, online, hosting, SNS, for achieving high efficiency and low cost target of customer relation management. Therefore, according to the ideas of the centralized deployment and loose coupling, the paper established a CRM environment by cloud computing; carried out services of resources virtualization, data mining, safety management; improved enterprise management and market management and other parts of the process to maximize meet customer needs; enhanced the automation level of each part, supported enterprises to carry out the life cycle management of customer. All of these can assist enterprises to discover and firmly grasp customer community which can bring the greatest value to them.

Keywords: CRM; cloud computing; system structure; SaaS; PaaS; IaaS

Evolutionary Game Analysis on the Relationship Between Enterprise Employees' Trust and Knowledge Sharing Behavior

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Abstract: Without any doubt knowledge and knowledge sharing are becoming integral as strategic resources for decision making and competitiveness for enterprises in today' knowledge economy. In order to make the most out of the

knowledge they possess, organizations need to develop policies and procedures which increase the knowledge sharing among their employees. The paper introduces an evolutionary game model of knowledge sharing behavior based on trust. This paper argues that the question should not be whether or not employees share what they know (contribution/collection), but how involved in the development of the strategies between knowledge contribution behavior and collecting behavior. The paper introduces an evolutionary game model for enterprise employees' knowledge sharing behavior based on the analysis method of evolutionary game. The paper introduces six research variables: the quantity of knowledge, the coefficient of sharing capacity, the coefficient of knowledge sharing reward, the coefficient of knowledge sharing penalty, the coefficient of knowledge sharing risk and the coefficient of knowledge sharing cost. The paper also discusses the effect these variables on knowledge contribution behavior and knowledge collecting behavior. The result shows that among these variables, knowledge contribution coefficient, the coefficient of sharing rewards and the coefficient of sharing penalty are positively related with knowledge sharing behavior, while the risk of sharing coefficient and cost coefficient are negatively related to knowledge sharing behavior. Finally, taking the reality and problems of enterprise knowledge sharing into account, some pertinent suggestions were put forward.

Keywords: knowledge economy, evolutionary game, cognitive trust, emotional trust, knowledge sharing behavior

PHD Research Paper

The Role of Knowledge Management in Facilitating Learning in Software Organisations

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Abstract: Software organisations have been experiencing software development failures since the start of software development. These failures include among others abandoned and runaway projects, cost overruns, and low quality software. One of the major causes of software development failure is the inability of software organisations to learn from past mistakes. Many intervention strategies have been tried by software organisations to address this issue. Such strategies include software process improvement (SPI) models such as the Capability Maturity Model Integration (CMMI) and new software development methodologies such as agile methods. These intervention strategies don't seem to be working because software development projects continue to fail. Current statistics from surveys indicate that less than 50% of projects are successful. To dress this issue, today, software organisations are turning to knowledge management. This is because the software development process is a knowledge intensive task. Knowledge management is a series of processes that seek to acquire, create, capture and store, transfer and apply knowledge to organisational routines and processes. It aims to make knowledge available to the right people and processes at the right times in the right presentation for the right cost. Knowledge management is believed to promote learning in software organisations so that they become learning software organisations. In software organisations, knowledge workers use the captured knowledge in their daily tasks thus learning from it. Organisational learning increases efficiency and prevents past mistakes from happening in the future. This paper presents a theoretical framework that shows how knowledge management facilitates learning of individuals, teams and the organisation. Specifically, it argues that knowledge management plays a vital role in facilitating learning in software organisations.

Keywords: knowledge management frameworks, learning, organisational learning, learning software organisations, software project failure, software organisations

Masters Research Papers

HIPAA Compliance Challenges: A Case Study of a Small Healthcare Provider

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Abstract: Small business healthcare providers have a difficult time initially meeting HIPAA Information Security compliance due to their small staff and limited resources. The realm of small healthcare providers include dental offices, orthodontists, chiropractors, massage therapists, optometrists, long–term care facilities and other small, independent clinics that have typically 1 to 30 employees. This paper will examine the challenges the small healthcare providers have in meeting HIPAA Information Security compliance, what services and technologies are available to them to become compliant, and how they can maintain continued compliance once they become compliant. A process model is proposed to guide small business in the compliance effort.

Keywords: HIPAA, Regulatory Compliance, Information Management, Healthcare

A RDEU Evolutionary Game Model and Analysis for Network Emergency Under the big Data era

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Abstract: In the context of the big data era, when faced with network emergency, both individuals and organizations exist irrational behavior. The phenomenon of Panic, herd behavior, rumors spread are relatively common, which have seriously affected the effectiveness of risk response. Based on Quiggin's Rank-Dependent Expected Utility theory and Smith's evolutionary game theory, This paper firstly put the emotional factor of netizens into evolutionary game model and establish a new kind of RDEU evolutionary game model between the netizen groups, then according to netizen's six kinds of possible emotional conditions, analyze the evolutionary equilibrium of network emergency and finally reveal the evolutionary mechanisms.The results show that: emotional factor has a significant impact on the game equilibrium of network emergency. When netizens have "pessimistic" emotions, it's easy to make "conflict" behavior. Correspondingly, when netizens have "optimistic" emotions, it's easy to make "concession" behavior. This finding provide a theoretical basis for the security management of network emergency.

Keywords: network emergency, RDEU evolutionary game model, emotion, evolutionary equilibrium

Non Academic Paper

An Enterprise Application Architecture Assessment Framework: Driven by Business Value and Focusing on IT Supportability

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Abstract: This paper proposes a composite architecture assessment framework for evaluating an enterprise application from eight key dimensions viz. business enablement, architecture governance, application architecture, architecture quality, integration architecture, security architecture, technology and vendor perspective, and application delivery and operations. The framework can help the application owner building developing a comprehensive understanding on the IT supportability of an enterprise application. Besides investigating and assessing the internal architecture of the enterprise application, the framework also evaluates the ancillary areas around the application from delivery, operation, support, technology and vendor perspective, which have significant impacts on the total cost of ownership and time to market delivered by the application. The framework has been successfully used in practical situations in multiple global enterprises with positive feedback.

Keywords: enterprise application, application architecture assessment, architecture quality, integration architecture, security architecture, application delivery and operation, IT supportability, total cost of development and operation

Abstract Only

Implementing Virtual Private Network Using IPsec Suite of Protocols for Medical Data Privacy

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Abstract: The United States government is working to revamp health care industry by digitizing all health care records to reduce the cost associated with keeping and sharing of patient information among clinics, hospitals, labs, and insurance companies. Ensuring the privacy and protection of patient records would be a very challenging undertaking. Patient data theft and tampering during transmission over the internet are specific risks in this context. Use of existing TCP/IP based public networks such as Internet for health care data transmission is the most cost effective method. However, Internet Protocol or IP on its own does not have mechanisms to ensure if a packet is from the legitimate sender, nor does it know if the original data was sniffed and tampered during transmission. This paper, after analyzing several secure data transmission methods, proposes the use of IPsec VPN to protect patient data during transmission over the Internet. A prototype simulation environment was developed using a network simulation software to test secure patient data transmission between a clinic and a remote hospital. We believe that IPsec VPN is the most cost-effective solution to achieve the fundamental objectives of information security which are Confidentiality, Integrity, and Availability for secure data transmission over the internet.

Keywords: IP security, encryption, hashing, SSL, routing, virtual private network, tunneling, cloud

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