

Information Systems and New Applications in the Service Sector: Models and Methods

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Comparative Analysis of International Education Systems..... 1

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International comparisons of educational systems are commonly practiced using subjective methods available in literature. The use of subjective methods can lead to non-standard ranking; each individual investigator inputs his or her own subjective judgment when assigning weights to measurements in each class. The compiled results differ with large variations. A mathematical evaluation method based on concept of Pareto optimal organization is proposed for this study. This method is easy to apply and uses linear programming model. The weights for various measurements are determined through an objective method. We illustrate our methodology in a comparison of the educational systems of twenty-one industrialized countries.

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This chapter addresses simple but effective framework for adoption factors of mobile services. The framework synthesizes, refines, and extends current approaches to explain adoption factors. The study started with a background research to identify factors determining the adoption of innovation and mobile services. Then, study is continued with a survey which had questions about two types of mobile services according to current adoption status of these services. For the first type of service, SMS had

been selected as a widely used, already adopted service to seek for factors affecting consumer satisfaction. The second type of service was not currently widely adopted service in the market as opposed to already used SMS, which is called “Pocket Info&Enjoy” service in the paper. Pocket Info&Enjoy, which is information based service, had been described in the survey and asked questions to identify factors determining attitude to use this new service. Most of the findings were in line with literature, for an already adopted service, usefulness and attitude are direct factors influencing consumer satisfaction. On the other hand, usefulness and external influence are direct and personalization, image, content, mobility, entertainment are indirect determinants of consumer’s attitude towards using new mobile services.

Chapter 3

Customer Perceived Value of Travel and Tourism Web Sites: An Outlook on Web 2.0

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Maria Lexhagen, Mid Sweden University, Sweden

The continuing development and growth of the Internet imply that business and customers perceive that the Internet provides them with some kind of value. The Internet has also seen an increasing importance of user-generated content and utilisation of the Internet as a social medium often referred to as the Web 2.0. In this study the concept of customer value, based on the typology of consumer value (Holbrook, 1994; 1999) and the value hierarchy model (Woodruff & Gardial, 1996; Woodruff, 1997), is used to identify dimensions and expressions of what customer-perceived value is in travel and tourism web sites and how it is created. Moderately structured in-depth interviews are used to collect data. In the analysis connections between different types of value are presented and the lack of certain types of value is discussed.

Chapter 4

The Architecture of Service Systems as the Framework for the Definition of Service Science

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Andrew Targowski, Western Michigan University, USA

The purpose of this study is to define generic service processes, their system, and a scope of service science developed originally by the author. In the presented approach, the main criterion is the class of serviced users, since this leads to the six kinds of process recognition and eventually helps in planning e-service systems’ architecture. E-service system, e-SS is defined as a mission-goal-strategy-driven configuration of technology, organizational processes and networks designed to deliver HTservicesTH that satisfy the needs, wants, or aspirations of customers. Marketing, operations, and global environment considerations have significant implications for the design of an e-service system. Four criteria which impact e-service systems’ architecture have been defined as: service business model, customer contact and level of involvement, Service User Interface, service provider’s enterprise complexity, Enterprise Systems and Networks, and scope of goods involved in service. It was proved that the e-service system is the intermediary layer between Service User Interface and Enterprise Systems and Networks. Two examples of e-SS have been modeled.

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Modern information systems are extending the traditional boundaries of organizations incorporating external resources in the form of data and services. The need to support increasing client demands has led to dynamic and more complex business processes. Complex workflows in networked organizations are much more difficult to manage since traditional approaches are not suited for distributed environments. Service-Oriented approaches in the form of Web or Grid services bear the potential of increased performance and flexibility. In this work, we discuss the use of a relatively new computing paradigm that leverages distributed service-oriented business models: the Grid. We discuss how the Grid can facilitate efficient intra-business processes in highly dynamic virtual enterprises and present a high level architecture for managing complexity of business functions using Grid services.

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Information Systems, IS effectiveness has been studied over the past three decades, with user satisfaction utilized as a key measure. However, very little attention has been given to the role of user-perceived cognitive value of IS in measuring the effectiveness of such systems. Therefore, this article defines and articulates user-perceived value of IS as an important construct for IS research, not from the financial or 'net benefit' perspective to the organization, rather from the cognitive perspective. Following literature review, a new taxonomy of IS effectiveness, Value-Satisfaction Taxonomy of IS Effectiveness, VSTISE, is presented. The VSTISE posits four quadrants to indicate level of user-perceived IS effectiveness: improvement, effective, misleading, and ineffective. A case study using the proposed VSTISE is discussed. Results based on the 192 responses identify several problematic system characteristics that warrant additional investigation for their limited IS effectiveness. Finally, recommendations for research and practice are provided.

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Semantic web services, SWS hold the promise of enabling dynamic discovery of candidate web services fitting a particular specified need. One interesting question is what impact this will have on software

and systems engineering methods – will mainstream methods like RUP still be suitable, or will new or adapted methods be needed? This article surveys the state-of-the-art in methods specifically tailored for the engineering of SWS systems, looking at development methods trying to cover the entire lifecycle as well as methods covering only one or two phases. Some of the surveyed methods are specifically meant to deal with semantics, others are for the engineering of service-oriented systems in general. The survey reveals that there are many proposals being made in this area, some extensions of mainstream methods like RUP, others more experimental.

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This paper proposes a framework for online service applications based on Service Science which identifies and enables a better understanding of the different issues faced by online service designers, engineers, and delivery personnel. The application of the Service Science framework is made possible by carefully distinguishing online service applications not only from traditional personal software applications but also from online information applications, such as the ones used by news and entertainment websites, through a process of specializing Pinhanez’s definition of customer-intensive systems, Pinhanez, 2008 to online applications. To demonstrate the utility of the framework, we consider the six basic characteristics of services, as traditionally defined in Service Science — customer-as-input, heterogeneity, simultaneity, perishability, coproduction, and intangibility — and derive from these characteristics a list of 15 different issues that are highly important for the design and evaluation of the human-computer interface of online services.

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Toward an Integrated Conceptualization of the Service and Service System Concepts:

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Manuel Mora, Autonomous University of Aguascalientes, México

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Service and service systems concepts are fundamental constructs for the development of the emergent SSME, ITSM, and Service Oriented Software, SOS knowledge streams. A diversified literature has provided a richness of findings, but at the same time, the lack of standardized conceptualizations is a source of confusion to IT practitioners and academics. Given this problematic situation, we pose that a systems approach is useful to address it. In this article, we review and synthesize key studies in these knowledge streams to design: i a framework to characterize both concepts under a system view and, ii harmonized definitions, e.g. identification of shared and essential properties for such fundamental concepts. Our main contribution is scholastic, but we are confident that the posed conceptual artifacts can be further used to elaborate standardized definition for the IT service and IT service system constructs, as well as analysis tools for describe real service systems.

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Historically, information systems, IS programs have taught two of the three areas of information technology, IT management: strategy and management, and applications development. Academic programs have ignored the third area, IT operations. IT operations management is becoming increasingly important as it is recognized as consuming as much as 90% of the IT budget and as acquisition of software becomes more prevalent than development of custom applications. Along with the shift of management focus to IT operations, standards such as the IT infrastructure library, ITIL have been adopted by businesses to guide the development of processes for IT operations that facilitate evolution to IT service management. This shift to servitizing IT management, creates an opportunity for IS programs to align with business practices by innovating in the teaching of IT service management. Several methods of incorporating ITSM material into educational programs are explored.

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Aileen Cater-Steel, University of Southern Queensland, Australia

IT service management best practice frameworks such as the IT Infrastructure Library (ITIL) aim to improve the quality of service to customers. This study reports on recent surveys and case studies of organizations which have embarked on IT service management improvement. It highlights specific difficulties experienced by organizations in changing the orientation of staff to customer service rather than technology. Six factors were found to be critical in achieving an effective service-oriented philosophy. The factors are support from senior management; the threat or opportunity to outsource IT services; integration of processes to provide end-to-end service; involvement of business stakeholders; culture change of IT staff to service excellence; and the redesign of processes prior to investing in tools.

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Discipline - Outline & References 194

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The growth of the global service economy has led to a dramatic increase in our daily interactions with highly specialized service systems. Service, or value-cocreation interactions are both frequent and diverse, and may include retail, financial, healthcare, education, on-line, communications, technical support, entertainment, transportation, legal, professional, government, or many other types of specialized interactions. And yet surprisingly few students graduating from universities have studied anything about service or service systems. Service Science, Management, Engineering, and Design, SSMED,

or service science for short, is an emerging discipline aimed at understanding service and innovating service systems. This article sketches an outline and provides an extensive, yet preliminary, set of references to provoke discussions about the interdisciplinary nature of SSMED. One difficult challenge remaining is to integrate multiple disciplines to create a new and unique service science.

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Hua Wang, University of Southern Queensland, Australia

XML documents usually contain private information that cannot be shared by every user communities. It is widely used in web environment. XML database is becoming increasingly important since it consists of XML documents. Several applications for supporting selective access to data are available over the web. Usage control has been considered as the next generation access control model with distinguishing properties of decision continuity. It has been proven efficient to improve security administration with flexible authorization management. Object-oriented database systems represent complex data structure and XML databases may be stored in the objects-oriented database system. Therefore authorization models for XML databases could be used the same the models as object-oriented databases. In this paper, we propose usage control models to access XML databases and compare with an authorization model designed for object-oriented databases. We have analyzed the characteristics of various access authorizations and presented detailed models for different kinds of authorizations. Finally, comparisons with related works are analyzed.

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IT Services Offshoring: Opportunities and Critical Factors from a Strategic Perspective 240

Paolo Popoli, Parthenope University of Naples, Italy

In light of new changes in the market, in supply as well as demand, IT offshore outsourcing may be interpreted as an articulate and complex tool for pursuing strategic goals which go well beyond the traditional objective of cost saving. Indeed, IT services today are required not only to make management processes more efficient and economical, but also to help increase a company's capacity to create value, and thus gain a greater competitive advantage. From a strategic point of view, IT structures are increasingly crucial in the implementation of business, and are no longer mere support factors in value chain activities. At the same time, the increased potential of this tool has also led to a greater complexity of management, which can only be properly matched by a flexible, dynamic governing model. This paper will identify some critical elements in managing offshoring relationships aimed at the innovation and improvement of the value creation processes.

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Online Services Delivered by NTO Portals: A Cross-Country Examination..... 259

Marco Papa, University of Bari, Italy

Marina Avgeri, Monte dei Paschi di Siena Bank, Italy

This study compares the online services currently delivered by the official National Tourism Organizations, NTO portals of the 25 European Union states, to assess their capability in evolving into powerful marketing communication tools. A conceptual framework that identifies 129 online service quality attributes is developed based on the 2QCV3Q model, Mich et al., 2003 and on four different perspectives: marketing, customer, technical and information for the destination, So and Morrison, 2004. The 25 portals are compared by means of content analysis. Our rankings provide a first time assessment of the NTO online offerings and indicate high variability in their performance. Surprisingly, Greece and Italy, two of the most popular tourism destinations, underperformed with respect to all four perspectives examined. We provide out-of-sample evidence that affluence levels explain the variation in the observed scores, while e-readiness, popularity of tourism destination and cultural richness are not statistically significant.

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Byungho Jeong, Chonbuk National University, Korea

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This paper proposes a workflow and performance model for surgery patient identification using RFID (Radio Frequency Identification). Certain types of mistakes may be prevented by automatically identifying the patient before surgery. The proposed workflow is designed to ensure that both the correct site and patient are engaged in the surgical process. The performance model can be used to predict patient waiting time and service duration time with RFID implementation. A proof-of-concept system is developed to understand the information flow and to use information in RFID-based patient identification. Performance model indicates the response time to patients can be reduced to 38% after four hours using the proposed RFID based workflow.

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Does the Internet Increase Fundraising Revenues of Nonprofit Organizations?

An Economic Analysis..... 293

Yasin Ozelik, Fairfield University, USA

Nonprofit organizations have been using the Internet for disseminating information about themselves, interacting with potential donors, and fundraising. In this chapter, we focus on online service providers for nonprofits (OSPNS) that bring donors and nonprofits together in an electronic environment to help them find a suitable match. We investigate the effects of OSPNS on the outcomes of fundraising markets by developing an economic model. We compare the total net revenues of nonprofits competing for donations in two different settings: while nonprofits in the first market use both the traditional fundraising techniques and the services provided by OSPNS, those in the second market implement the traditional method only. We derive analytical conditions under which the first setting provides better outcomes than the second one can generate.

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Perceived Risk for Multiple Services in the Consumer Buying Cycle 309

Lawrence F. Cunningham, University of Colorado Denver, USA

James Gerlach, University of Colorado Denver, USA

Michael D. Harper, University of Colorado Denver, USA

Deborah L. Kellogg, University of Colorado Denver, USA

This study compares consumer perceived risk between five e-service delivery systems and their traditional, non-Internet counterparts over each stage of the buying cycle. Using a survey methodology, the authors find that in general consumers perceive e-services as riskier than traditional services. The difference in perceived risk, which the authors define as the Internet risk premium, is significant for each service and each stage of the buying cycle. There is a spike in perceived risk at the purchase stage in the buying cycle for each of the five services. This pattern is also evident in the four services with traditional delivery systems. Perceived risk affects the consumer throughout the buying cycle and is not alleviated in the information search stage. Different risk factors drive perceived risk at various stages in the buying cycle. The authors provide both research and managerial implications of these findings.

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Modeling and Governance of Procurement as a Service Responsive to Business Events 324

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The procurement as business discipline and function of equipping process has started the process of transformation from an administrative competence and necessity to a strategic capability (Kyte, 2006). To be efficient its processes have to be interoperable in the processing, semantic and technological way with other functions and processes of the business system; end-to-end process integration of the business system should be obtained. It is important to fully understand and document user requirements before development of the procurement (business) process. This results in the need for the development of a defined, articulated, communicated and managed model of procurement process. On the level of conceptual system modeling (business process owner's perspective) (ZIFA, 2010) this article shapes a new procurement model, in form of business service with appertaining processes, activities and other services necessary for its accomplishment. At logical and physical modeling level (designer's and builder's perspective) (ZIFA, 2010) service oriented perspective (SOA) has been considered, as well as Web services as technological concept for the implementation of the shaped procurement service model at the conceptual level of the system. Application of the shaped model requires organizational, process and system changes of the business system, that is, procurement function must develop the culture of service provider, avoiding the role of corporate purchasing controller. Event-Driven Business Process Management (EDBPM) is nowadays an enhancement of BPM by new concepts e.g. Event Driven Architecture (EDA). In this paper The position and the role of business service modeling within entire business process management (BPM) discipline has been established as well.

Chapter 20

Staying Competitive in the Political Unrest and Global Financial Crisis: Perspective of a Thai Healthcare Organization 336

William Wall, Shinawatra University, Thailand

Global competition today is a complex dimension to add in the success of a healthcare organization. Providing state of the art technology along with the manpower and management skills to bridge boundaries and cultures, confronts today’s healthcare organizations with challenges that, while on the surface may appear simple, may also prove to be a bigger challenge to their success and survival than the medical care they are actually providing. This study is a follow up to an earlier study conducted on a major healthcare organization in Thailand posing the question of how the current political unrest in Thailand and the global financial crisis has affected their global competitiveness. An inductive approach was utilized for a method of determining competitiveness. The resulting qualitative analysis of that data addresses issues of threats to maintaining global competitiveness, providing superior quality care with competitive and reasonable pricing of sub-specialty and high acuity services and work effectively through strategic alliances. In the case of the healthcare organization in this study, their global competitiveness is threatened potentially by the global recession and most recently, the political instability in Thailand. Reputation and the ability to provide comfort and hospitality at the same time as providing excellent medical care and facilities give them both economy of scale to provide reasonable pricing and a uniqueness in the medical care provided. This uniqueness and quality in service attracts strategic alliances and allows for retention of competitiveness in global markets.

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