The Eleventh Workshop on E-Business (WEB 2012)

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Paper Abstracts

(by Sessions)

SESSION 1A: 9.10AM-10.30AM (SALON 9-11)

A SALES FORECASTING MODEL FOR CONSUMER PRODUCTS BASED ON THE INFLUENCE OF ONLINE WORD-OF-MOUTH

Ching-Chin Chern, Fang-Yi Sheng, Chih-Ping Wei, and Yu-Neng Fan
National Taiwan University

Sales forecasting is one of the most critical parts of business procedure. For those products with irregular and unseasonal sales trends, the forecasting accuracy of traditional techniques is not acceptable and it is necessary to construct a new forecasting method. Prior research shows that there is a strong relationship between product sales and online word-of-mouth but the extent of word-of-mouth impact are different among different review categories. This study aims to understand how electronic word-of-mouth affects product sales by analyzing online review properties, reviewer characteristics and review influences. This new point of view on electronic word-of-mouth contributes to the sales forecasting research in two folds. First, a novel classification model which involves polarity mining, intensity mining and influence analysis is proposed with a framework to understand the difference between review categories. Second, the word-of-mouth review influence is then used in the sales forecasting model. The proposed online-word-of-mouth-based sales forecasting model is evaluated by using real data from a well-known cosmetic retailer chain in Taiwan. The experimental results demonstrate that the proposed model is especially suitable for products with abundant online reviews and outperforms the traditional time series forecasting models in most of the consumer product categories.

EXPLORING THE ECONOMIC VALUES OF ONLINE USER RATINGS WITH ADVERTISING SPENDING ON BOX-OFFICE SALES

***Young Jin Lee*, University of Wisconsin at Green Bay**

Previous studies have attempted to evaluate the sales impact of online consumer product ratings most frequently with cross sectional data without marketing variables. Therefore, they do not effectively address endogeneity problems from unobserved heterogeneity and traditional simultaneity. Also, the studies can hardly assess the economic values of online user reviews as a variety of social media for a marketing purpose, without limitations. Using a novel panel data of online consumer movie ratings in a social network site and ad spending on movies, we exploit a fixed effects two-stage estimator to address the issues of endogeneity with relevant instruments in the user level data. This framework enables us to evaluate properly the box office sales impacts of online user ratings and postrelease ad spending separately. The results show that, on average, $500,000 increases in weekly postrelease ad spending can improve subsequent box office sales by 10.5%. That is the equivalent effects of doubling the number of rating posts or a 0.12 star increase in the average user rating on a 10 star scale in a week.

Is Your Social Media Strategy Effective? An Empirical Study of the Factors Influencing the Success of Facebook Campaigns

***Guido Soonius,* KPMG, The Netherlands**
***Ting Li,* Erasmus University, The Netherlands**

Companies increasingly use social media channels to interact with their users. However, the factors determining the success of these social media strategies are often lacking. In this paper, we collected a unique set of social media campaign data from four companies and empirically examined the factors that determine the success of social media campaigns on Facebook and discuss their impacts on firms' social media strategy. The factors that determine the success of these campaigns are important, as these campaigns will ultimately determine the success of a company on social media. This is the first study that demonstrates the importance of campaign posting and firms' social media strategy success. We found five factors are important to the success of Facebook campaigns. (1) The number of campaigns posted in a given day should be kept to a minimum. (2) Including photos increases campaign total reach, but videos and links do not seem to matter. (3) Campaigns focusing on getting Likes and Polls increase campaign total reach. (4) Campaigns posted between 14:00-15:00 decrease total reach significantly. (5) Campaigns posted on Monday, Tuesday and Wednesday have the highest total reach, whereas the ones posted during the weekend show a much lower total reach.

IS IT YOU OR THE MESSAGE: WHY DO PEOPLE PASS ALONG MICRO-BLOGGING MESSAGES

***Bin Zhu and Byron Marshall,* Oregon State University**

While the content of a marketing message plays a crucial role in people's decision to pass it along to their friends, it is highly possible that a potentially interesting message is ignored because people receive too many messages. On the other hand, a not-so-interesting message may capture attention because of the characteristics of the sender. This research-in-progress study proposes to investigate how the senders' characteristics impact the message forwarding behavior of message recipients and to study how the senders' characteristics and message content interact. We will use data collected from twitter.com to test several hypotheses. The results from this study will not only contribute to the theoretic development in viral marketing strategies but also will provide insight to practitioners who want to enhance the impact of their micro-blogging activities.

SESSION 1B: 9.10AM-10.30AM (CRYSTAL B)

'SHARE' ON SNS AND GET REFERRAL REWARD?

Yi Liu, **ETH Zurich**
Chee Wei Phang, **Fudan University**
Chuan-Hoo Tan, **City University of Hong Kong**
Juliana Sutanto, **ETH Zurich**

Social sharing buttons are added by more and more e-commerce websites in the last two years in order to better facilitate online consumers to share online contents/products with others. Moreover, referral rewards are offered by some e-commerce websites to motivate online consumers to share. However, there is still no answer on whether online consumers like to share online product information via Social Networking Sites (SNS) or communication channels which are of high "addressability" (e.g. Instant Messenger, Email), and whether they prefer to get the referral rewards. In addition, the visibility of the referral reward information may affect online consumers' decisions on which referral reward strategy to choose. Drawing on the theories of motivation crowding and social capital, focus group interviews are conducted and 2x2 between-subject laboratory experiment is carried out to answer these questions.

ARE EMOTICONS SIGNALS FOR EMOTIONAL STATE? AN EXPLORATION OF TWEETS DURING THE 2011 EGYPT REVOLUTION

Chris Bang and H.R. Rao, **University at Buffalo**

Social Network Services such as Twitter are growing by leaps and bounds among online services. Millions of people, all around the world, share their opinions on different aspects of life every moment, by posting their tweets. Twitter can be suitable to understand emotions of people about social issues. Since, tweet messages only can be interpreted when the message is read, we suggest that emoticons can be a proper tool to understand emotions in tweet messages without interpreting the message. Our research attempts to provide an understanding of how emoticons represent the actual emotional state and to understand differences between emoticons and actual emotions during the major protest in Egypt during the 2011 revolution.

ON SELF-SELECTION BIASES IN ONLINE PRODUCT REVIEWS

Nan Hu, **University of Wisconsin Eau Claire**
Paul Pavlou, **Temple University**
Jie Zhang, **University of Texas at Arlington**

Online product reviews help consumers infer product quality, and their mean (average) rating is often used as a proxy for product quality. However, we identify two self-selection biases that may render the mean rating a biased estimator, which should not be used to either infer a product's own quality in absolute terms or to compare relative quality across products. Empirical data from multiple websites and a field study clearly

demonstrate a positively-skewed, asymmetric, bimodal (“J-shaped”) distribution of online product reviews. To shed light on the nature and role of self-selection biases in online product reviews and the observed J-shaped distribution, we analytically derive the dynamic process by which self-selection biases in online product reviews affect how consumers make purchasing and reviewing decisions, and how their decisions shape the distribution of online product reviews over time. The relative role of the two self-selection biases in the dynamic process of shaping consumer product quality expectations and affecting purchasing decisions are analytically and empirically examined. Empirical results reveal that consumers do realize the two self-selection biases and attempt to correct for them; however, consumers cannot perfectly account for the proposed self-selection biases because of bounded rationality. Due to bounded rationality, consumer surplus suffers from both self-selection biases.

A SOCIAL NETWORK ANALYSIS OF DIFFERENCES BETWEEN EXPLORATION AND EXPLOITATION IN OSS DEVELOPMENT

Orcun Temizkan and Ram Kumar, **University of North Carolina Charlotte**

Open source software (OSS) development is a type of software development which mainly depends on voluntary contributions of software developers. OSS research has recently studied the social network structure of software developers as a determinant of project success at the project level. However, it has not recognized the fact that projects could consist of different types of activities. Developers who engage in project activities that are innovation or exploration-oriented may be networked differently compared to those who are engaged in implementation or exploitation-oriented project activities. We compare and contrast the social network structure of developers who engage in exploration-oriented activities with those of developers who engage in exploitation-oriented activities.

SESSION 1C: 9.10AM-10.30AM (CRYSTAL C)

UNDERSTANDING MARKET REACTIONS TO CLOUD COMPUTING INITIATIVES IN ORGANIZATIONS: AN EVENT STUDY APPROACH

Insoo So, Dongwon Lee, and Jae-Nam Lee, **Korea University**
Young Bong Chang, **Ulsan National Institute of Science and Technology**

In this study, we seek to identify complementary conditions under which firms are likely to achieve significant returns on cloud computing investment based on market expectation. Employing the event study methodology, we analyze 234 firm-level cloud computing announcements between 2005 and 2011. Our results indicate that the market positively reacts to the firm’s cloud computing initiative. Our findings also indicate that market reactions to cloud computing initiatives are contingent on three key characteristics of cloud computing business, such as firm-specific, resource-specific, and vendor-specific factors. These results can be used as useful references for understanding whether and in what ways cloud computing contributes to the firm’s business value.

Exploring Spot Market Users' Willingness-To-Pay For Service-Level Agreements In Cloud Computing

***Richard Shand and Yinping Yang*, Institute of High Performance Computing, Agency for Science, Technology and Research (A*STAR), Singapore**

***Jianhui Huang and Robert J. Kauffman*, Singapore Management University**

Since it was launched in December 2009, Amazon.com's spot market for IT services has become an alternative to its fixed-priced, on-demand IT services market for users who wish to leverage their budgets and specify their service-level preferences. Due to the price volatility of the spot market for cloud computing services though, potential users are subject to the risk of service interruptions. At the same time, cloud management brokers, who act as middlemen and aggregators for cloud computing service resources, have been able to replace spot resources with service-level agreement (SLA)-based services at a lower cost. In this research, we investigate the key variables that affect spot market users' willingness-to-pay for SLA-based cloud computing services. Leveraging our empirical analysis of historical spot market prices for cloud computing service risk, we propose a model that includes key market and user variables that impact a user's willingness-to-pay for SLA-based cloud computing services. This research-in-progress paper presents the design of an experiment that can empirically investigate these issues.

Cloud-Computing Based Mobile Algorithmic Trading Services

***Junwei Ma and Chaoran Zhou*, Southwestern University of Finance and Economics**

***Zhangxi Lin*, Texas Tech University**

Average investors tend to make poor invest decisions because of their bounded rationality and limited access to market information while information overload is getting worse in these years because of the advancement of information technology. To help investors analyze massive market data and implement optimization trading strategies timely, we propose a trading support scheme namely Mobile Algorithmic Trading Services (MATS) which incorporates real time data collection, analytics and automated trading modules based on algorithmic trading, cloud computing technologies and mobile security trading. Now we have a conceptual design for MATS and identified the theoretical research problems in implementing a feasible system. A prototype MATS is being developed for conducting experiments to study the research problems.

Towards Enterprise Architecture for Cloud Computing Environments

George Feuerlicht, University of Technology, Sydney & University of Economics, Prague

Soeren Schneider and Leon Tranter, University of Technology, Sydney

It is widely accepted that Enterprise Architecture (EA) provides the necessary framework for the management of IT resources in organizations. Recent EA research focuses on the application of the principles of service-oriented computing with the objective to improve alignment of the IT with business objectives of the organization. However, most EA approaches are primarily focused on modelling and

managing on-premise IT resources and do not satisfactorily address situations where infrastructure and enterprise applications are sourced from external providers in the form of cloud services. There is evidence that many organizations are lacking architectural pre-requisites for cloud computing and are unable to take full advantage of this new approach. In this paper we discuss existing architectural frameworks focusing on ITIL and COBIT and their applicability in the context of cloud computing. We identify the limitations of existing EA frameworks and the need for enhancements to address the requirements of cloud computing.

SESSION 2A: 10.45AM-12.05PM (SALON 9-11)

TOWARD PROFIT-DRIVEN CHURN MODELING WITH PREDICTIVE MARKETING ANALYTICS

***Thomas Verbraken*, KU Leuven**
***Stefan Lessmann*, University of Hamburg**
***Bart Baesens*, KU Leuven**

Predictive analytics (PA) is concerned with methods to build and assess data-driven forecasting models. It is routinely used to aid decision making in various applications. We argue that current practices in PA-based decision support are not well aligned with managers’ requirements. This issue is illustrated for churn management, where prediction models are used to estimate the likelihood of customer churn. Whereas some progress has been made to assess churn models on the basis of profitability and thus in a way consistent with business goals, these goals are ignored in the actual model building step. Through testing four hypotheses, we show that concentrating on model assessment is insufficient. We also show that a profit-based model building approach yields significantly higher profits than current churn modeling practices. The main implication following from our results is that prediction models should be built in awareness of the decision task they are meant to support.

MARKETING INTELLIGENCE, PRODUCT COST AND PRICE DISCRIMINATION IN A DUOPOLY

***Fredi Eruysal and Aris M. Ouksel*, University of Illinois at Chicago**

Sophisticated information technology tools enabled novel and relatively cheap ways to collect and analyze vast amount of customer information. Accumulation of customer specific information empowers firms to offer customized products at different prices for different segments. Firms that invest in Business Intelligence (BI) can produce products that match customer needs better as they have superior marketing intelligence. They might charge a premium for customized products. Obviously, a firm investing in BI incurs additional cost due to new technologies, applications, and more complex business processes. Therefore, firms' product cost increase. However, this is oftentimes ignored in current studies. We plan to study how different product cost structures affect market share, price, and consumer welfare in a game-theoretical price discrimination model with two competing firms over a population of customers with distinct brand loyalty.

USE OF IMPLICIT USER FEEDBACKS TO SUPPORT SEMANTIC-BASED PERSONALIZED DOCUMENT RECOMMENDATION

***Yi-Cheng Ku*, Providence University**
***Yen-Hsien Lee*, National Chiayi University**
***Chun-Yi Lin*, Providence University**

With the development of the Internet and digitalized documents, data and information can be easily transferred, exchanged, and shared online. However, this easy access to information has burdened the Internet surfers with the risk of information overload. To help Internet surfers effectively retrieve the information they need from millions of documents, the support provided by the document recommendation system is becoming indispensable. In this study, we design and evaluate an Implicit-feedback-based Concept-Expansion document recommendation (ICE) technique. To address the difficulty in the acquisition of relevance feedbacks, our proposed technique intends to analyze users' browsing behavior to determine their interests for making appropriate document recommendations. With the use of a domain concept heterarchy, ICE adopts the spreading activation model (SAM) to expand the concepts existing in the documents of interest, and recommends the focal users those documents that contain more potential concepts that might also appeal to them. For the comparative purpose, a laboratory experiment was conducted to evaluate the system performance of ICE with three compared benchmark techniques (i.e. ECE, keyword-based and random-based). The results of experiment show that our proposed ICE approach is more effective than the random-based and the keyword-based document recommendation systems. Although there is no significant performance difference between ICE and ECE, the ICE is expected to cost users less effort. Overall, the findings of this study have provided some interesting implications for improving the quality of document recommendation systems.

DEVELOPING A MODEL OF NEGATIVE SELLING EXPERIENCES IN ONLINE AUCTION MARKETPLACES

***Heshan Sun*, University of Arizona**
***Kangning Wei*, Shandong University**

Despite the fact that online selling is growing at an unprecedented rate, online sellers receive relatively little attention from information systems researchers. This research bridges this gap by investigating online sellers' behavior. Specifically, this research is focused on negative selling experience, in light of the fact that addressing negative selling experience can make an online marketplace more attractive to sellers. Because negative online selling experience has not been systematically studied, this research employs a Grounded Theory method. Using raw data from eBay.com, the authors inductively develop a framework that depicts negative online selling experience. Four factors —payment problem, communication ineffectiveness, buyers' unfriendly behavior, and product quality dispute— are believed to induce seller's defensive behavior. This framework can be easily extended to incorporate other related factors such as trust and continuance intention to study relevant topics such as online sellers' intention to continue use of an online marketplace. This research has research and practical implications.

SESSION 2B: 10.45AM-12.05PM (CRYSTAL B)

TWO-SIDED MESSAGES ABOUT PLANNED OBSOLESCENCE LOWER THE INTENT TO BUY

Frank Goethals, Shamel Addas, and Isabelle Fagnot
IESEG School of Management (LEM-CNRS)

Many ICT vendors deliberately cut their products' lifespan to force consumers to repeatedly buy new product versions. However, many consumers are unaware of such planned obsolescence strategies. This paper identifies planned obsolescence as a new form of psychological contract violation and investigates the effects of atypical two-sided messages about planned obsolescence on consumers' beliefs and buying intentions. Through a repeated measures survey design we are able to show the negative effects of such communication about planned obsolescence on trust and intent to buy in the short ànd the longer run. We also find that the drop in intent to buy depends on gender, the importance an individual gives to friendship, as well as the weighted average decrease in intent to buy of an individual's friends. Communicating planned obsolescence can be related to inoculation practices, which opens up many avenues for further research.

RE-EXAMINE PRICE DISPERSION: HOW BIASED ARE LISTING PRICES?

***Kexin Zhao*, UNC Charlotte**
***Xia Zhao and Jing Deng*, UNC Greensboro**

Price dispersion is a widely used indicator of market efficiency. However, many prior studies use listing prices to measure price dispersion, which might lead to a biased estimation. In this study, we use both listing prices and transaction prices to examine price dispersion. Using the luxury handbags as an example, we find that price dispersion measured using transaction prices is only 34% of price dispersion measured using listing prices. We also investigate product, seller, and market characteristics that drive price dispersion in online markets.

SUCCESSFULLY BIDDING FOR ONLINE PROJECTS: THE IMPACT OF PROJECT-FOCUSED MESSAGES

***Nikos Korfiatis*, Goethe University Frankfurt**
***Claudia Loebbecke and Stefan Cremer*, University of Cologne**

When searching for projects on online platforms, potential bidders (providers) have minimum search costs and therefore can bid for new projects quite easy and fast. To strengthen their profile, they typically complement their actual bid with a cover letter. This letter contains either a rather project-focused and bid-specific message or it is more general, trying to enhance the provider's profile more generally. In this paper, we study if and how the message complementing a provider's bid affects his chance to win a project via an online project platform. Based on data collected from the platform getacoder.com, we study more than

13,000 bids from over 900 projects. In brief, we find that bids with a project-focused message are more likely to be selected by a client. Referring to the importance of the communication strategy during the negotiation phase, we complement Gefen and Carmel (2008), who – using a similar approach – investigated mainly the impacts of location and reputation on winning projects offered online.

TRANSFORMATION OF E-BUSINESS: A NEW STRATEGY ON THE CASHBACK PLATFORM

***Yi-Chun Ho*, University of Washington**
***Yi-Jen Ho*, University of California Irvine**

This paper investigates the impact of the cashback mechanism on merchants' marketing strategy. Through reimbursing a portion of the transacted amount to consumers in a form of cashback, merchants are able to exercise the second-degree price discrimination on still-nascent cashback platforms. We develop an analytical framework which endogenizes consumers' heterogeneous price sensitivity into utility formation. A moderating effect, derived from merchants' brand image, on price sensitivity is also included in our model. Our preliminary results indicate that the structure of the cashback market, in terms of each merchant's market share, depends on market parameters and merchants' choice in commission rate. We derive the equilibrium and find the optimal profit-sharing scheme under different market structures. Our finding provides guidance to practitioners on how to optimally choose commission and cashback rate under different market settings. Managerial implications for understanding brand power are discussed.

SESSION 2C: 10.45AM-12.05PM (CRYSTAL C)

MOTIVATIONS FOR ELECTRONIC WORD-OF-MOUTH COMMUNICATIONS

***Vic Matta*, Ohio University**
***Anand Jeyaraj*, Wright State University**
***Raymond Frost*, Ohio University**

Shopping sites, such as Amazon, encourage consumers to create online reviews for products. They build trust by allowing consumers to rate those reviews, creating reputation systems for reviewers. These reviewers work long hours, without pay, to provide a valuable service to their fellow consumers. Reviewers with the 10,000 highest ratings are given greater prominence, and showcased as top reviewers. At best some receive complementary products to review – all of which is hardly sufficient for long hours of skilled work. What exactly motivates this extraordinary effort? What exactly do these reviewers really get in return? How does the reputation system of helpfulness votes affect their case? This study extends prior research on motivations for inter-personal Word-of-Mouth (WOM) communication, by proposing a research agenda based on Social Exchange Theory (SET) and Motivation Crowding Theory (MCT) to explain the benefits and/or value received by the reviewers that motivates them to write product reviews. This study purports that

SET can explain these motivations as intrinsic, extrinsic, or hybridized; it also purports that MCT impacts intrinsic values held by reviewers in terms of crowding-out (in) the desire to communicate.

EXAMINING SELF-DISCLOSURES ON SOCIAL NETWORK SITES

***Jongtae Yu and Paul Jen-Hwa Hu,* University of Utah**
***Tsang-Hsiang Cheng,* Southern Taiwan University of Science and Technology**

This study integrates the affective and cognitive approaches to provide a fuller depiction of individuals' voluntary self-discloses on a social networking site (SNS). Building on the rational choice theory and affect theories, we propose a factor model that explains people's self-discloses on SNSs and empirically test that model with data collected from 558 business students who enrolled at a major university located in southern Taiwan. Our results show that the proposed model offers adequate explanatory power; specifically, both affect toward self-disclosure and affect toward SNSs have positive impacts on the perceived benefits of self-disclosure, which in turn influence self-disclosure.

DETERMINANTS OF PURCHASING SHAREWARE

***Jongtae Yu,* University of Utah**
***Chengqi Guo,* James Madison University**

The system utility shareware offers nearly full scale performance for experience by the individual subscriber. Despite the free usage, this technology has various restrictions including expiration date and limited functionality. Due to the uniqueness of such experience, previous studies of adoption determinants do not suffice for explaining how individual users decide to continue or discontinue product subscription. This study aims to investigate how the try-before-use factor psychologically impacts users' decision making regarding final shareware adoption. Another theoretical inquiry is the dual adoption phases of shareware – before trail adoption and after trial adoption. The former phase describes what make people select specific shareware applications among many alternatives; the latter phase explains why people decide to subscribe after the trial. These phases have not been sufficiently explored by the existing studies. As a research-in-progress study, this paper attempts to establish its theoretical foundation, develop an appropriate research methodology, and propose the antecedents to shareware adoption.

EFFECT OF REPUTATION MECHANISMS AND RATINGS BIASES ON TRADERS' BEHAVIOR IN ONLINE MARKETPLACES

***Riyaz Sikora,* University of Texas at Arlington**
***Liangjun You,* Coppin State University**

Rating mechanisms are becoming an essential tool for online shoppers. There have been many reputation mechanisms proposed in the literature that try to mitigate the sometimes adverse effects of strategic behavior of the traders to alter their true reputation scores. At the same time, several studies have shown the presence of bias (often unintentional) in product ratings and their harmful effect on buyers and product sales. To date there has not been any work done that studies the effect of reputation mechanisms and ratings biases on the behavior of buyers and sellers in an online marketplace. In this paper we use the concept of replicator dynamics to study the evolution of different types of sellers and buyers who use three different reputation mechanisms. Our results indicate that over time buyers gravitate towards using the adaptive model and in most scenarios the strategic and dishonest sellers are replaced by honest sellers.

SESSION 3A: 2.20PM-3.40PM (SALON 9-11)

WHAT SHOULD BE CONSIDERED TO ATTRACT CHARITY WEBSITE VISITORS?

Dong-Heon Kwak, Shuyuan Deng, Daniel Neely, and Huimin Zhao
University of Wisconsin-Milwaukee

Websites play various important roles for modern charity organizations. However, website research in the IS field has largely focused on for-profit organizations only. As a first effort of its kind, this study investigates key antecedents of the popularity of a charity website using a large set (3,292) of objective data obtained through Web content mining or from third-party agents. Two reputational variables (status and rating of endorsed source) and four informational variables (annual report, audited financial statements, Form 990, and privacy policy) are examined as predictors of the number of unique visitors. The study produces interesting findings, which have important implications to both research and practice.

AN ANALYSIS OF POST CONTRIBUTIONS IN THE HACKER COMMUNITY

***Alex Tsang and Wei Thoo Yue*, City University of Hong Kong**
***Michael Chau*, The University of Hong Kong**

We are interested in how the posters in the hacker community contribute and exchange information. Text-mining techniques have been used to learn about the quality nature of the posts. We found that the knowledge exchanges in the hacker community are both interesting and complex. We uncover some interesting knowledge exchange behavioral patterns between initial post contributor and post repliers (initiators vs. followers). Namely, popular threads, i.e., threads with more replies, actually generate lower quality discussions in replies. On the other hand, we observe a higher percentage of quality replies with less popular threads. The results show that thread popularity does not immediately imply valuable discussions. In fact, threads with lower initial post quality are often associated with higher quality yet less popularity discussions

HOW DOES THE DISTRIBUTION OF WORD-OF-MOUTH ACROSS WEBSITES AFFECT ONLINE RETAIL SALES?

***Wenqi Zhou and Wenjing Duan*, George Washington University**

Consumers consistently resort to online Word-of-Mouth (WOM) as an effective remedy for the lack of physical trials in online shopping. Nevertheless, they are confronting relatively different levels of search costs for WOM information depending on the distribution of WOM across websites. This study investigates the sales impacts of dispersion of WOM volume and variation of WOM valence by using sales and WOM data of software programs from Amazon and download.com. Our results suggest that, conditional on the total number of WOM conversations from retailing websites and third-party websites, less evenly distributed WOM leads to more sales. And it is even more beneficial for a product's sales if having this less dispersed WOM distribution skewed towards retailing websites. In addition, more consistent consumer evaluations across websites encourage online purchasing decisions. By comparing the volume dispersion and variance variation, we find that receiving one hundred reviews of 5-star average rating on Amazon leads to sales almost six time more than receiving fifty reviews of 5-star average rating on Amazon and another fifty reviews of 5-star average rating on download.com.

SESSION 3B: 2.20PM-3.40PM (CRYSTAL B)

ENABLING BELIEFS, SATISFACTIONS, AND INFORMATION SECURITY COMPLIANCE IN MANDATORY TECHNOLOGY SETTINGS

***Vipan Devgan*, Trident University International**
***Wenli Wang*, Robert Morris University**
***Yajiong Xue*, East Carolina University**

Employees are great assets to help reduce information security risks. Employee compliance with information security rules and regulations of an organization is the key to strengthening information security. It is crucial for organizations to understand factors affecting information security policy (ISP) compliance to improve employee ISP compliance behavior. To understand compliance behavior this study identifies the antecedents of employee compliance with the information security policy of an organization. Specifically, this study aims to understand the effects of satisfactions, normative beliefs, and self- efficacy on user compliance with mandatory information security policy. Results show that satisfaction with IS technology, self-efficacy to comply, and normative beliefs significantly affect an employee's ISP compliance intention, and such intention significantly affects ISP compliance behavior. Enabling beliefs of Information Security (IS) technology, management, and ISP compliance supporting higher objectives significantly affect an employee's satisfaction, but not all satisfactions affect ISP compliance intention. Only satisfaction with IS technology affects ISP compliance intention; neither satisfaction with management interventions of ISP compliance nor satisfaction with ISP compliance supporting higher objectives affects ISP compliance

intention. This study shed light on the roles of enabling beliefs, satisfactions, self-efficacy, and normative beliefs in an organization's effort to encourage compliance with information security policy.

AN ECONOMIC MODEL TO EVALUATE INFORMATION SECURITY INVESTMENT BEHAVIOR FOR RISK SEEKING DECISION MAKERS

***Sanjaya Mayadunne and Sungjune Park*, University of North Carolina Charlotte**

***Nam-Ki Kim*, Chonnam National University**

This paper analyzes the information security investment decisions made by a risk seeking firm and compares them to ones made by a risk neutral firm. An expected utility approach is taken to determine the optimal investment in information sets of varying value and vulnerability. We find that risk seekers will prioritize investments based first, on the value of the information set subject to loss and then, on its vulnerability. We further determine that the risk seeking firm will under certain conditions invest a larger amount in protecting a set than the risk neutral firm. Finally we show that for a group of information sets of equal value and similar vulnerabilities both the risk seeking and risk neutral decision makers will display similar diversification strategies.

THE IMPACT OF FIRM CHARACTERISTICS AND IT GOVERNANCE ON IT CONTROL MATERIAL WEAKNESSES

Peiqin Zhang, Kexin Zhao, and Ram Kumar

University of North Carolina Charlotte

This study aims to examine the impact of firm characteristics and IT governance on IT material weaknesses (ITMWs). Under the Sarbanes-Oxley (SOX) 404, all accelerated filers (companies with market capitalizations of $75 million or more) are mandated to disclose their internal control material weaknesses (MWs). If the MWs are IT related, we refer to them as ITMWs. Based on general internal control research, we propose a model to examine the impact of both firm characteristics and IT governance on ITMWs. We are in the process of data collection for multiple years using SEC 10-K filings to empirically test the model.

ACTIVE REAL TIME INTERNET USAGE WARNINGS: A COUNTERMEASURE FOR CYBERLOAFING

Jeremy Glassman, Marilyn Prosch, and Benjamin Shao

Arizona State University

With the proliferation of connectedness in the society, the separation of personal time from work time has become more difficult. It has now become common for employees to use the computing resources of their organization for personal reasons during working hours, which poses concerns in terms of security, privacy, and productivity loss. The goal of this study is to discuss and investigate the effectiveness of a possible countermeasure to this problem by using a technical solution that utilizes one's psychological morals of situational awareness to encourage behavior compliance with the organization's Internet use policy.

SESSION 3C: 2.20PM-3.40PM (CRYSTAL C)

THE ROLE OF RESILIENCE IN INFORMATION SYSTEMS IN HOSPITALS

***Insu Park*, University of Memphis**
***Raj Sharman and H. R. Rao*, University at Buffalo**

This study develops a conceptual model to provide an understanding of how resilience of hospital employees under stressful situations, affect information systems (IS) effectiveness. Specifically, we investigated employees' psychological and business resilience that might underlie IS effectiveness. Our conceptual model was assessed using a sample of 203 hospital employees. Overall, our results supported the hypothesized relationships: (1) employees' individual resilience was positively related to IS satisfaction, and (2) business resilience was positively related to net benefit. This paper also contributes to the literature on business continuity from a resilience perspective. The results call for hospital management attention to the importance of addressing hospital employees' resiliencies related to IS effectiveness.

DESIGN OF E-HEALTH SERVICE FEATURES FOR BETTER SUSTAINABILITY: A CASE STUDY OF NATIONAL TAIWAN UNIVERSITY HOSPITAL

***Hsin-Lu Chang and Yalin Tsai*, National Chengchi University**

Due to today's rapidly aging society, the demand of e-Healthcare has dramatically increased and quickly become one of the fastest growing areas of healthcare today. How to design a sustainable e-Health service has therefore become a critical issue in the e-Health industry. Based on the concept of fit, this research attempts to find the fit between e-Health service features and patient preference and proposes that high levels of fit contribute to e-health sustainability. We conducted a case study, where data was collected from the e-Healthcare program at the National Taiwan University Hospital. The result of the study shows critical e-Health service features that satisfy the needs of different patient segments. Our findings also coincide with our pervious proposition that e-health service is more sustainable when there is an existing fit between service features and patient preference.

ONLINE HEALTHCARE COMMUNITIES: A LITERATURE REVIEW AND CLASSIFICATION

***Victoria Kisekka and Raj Sharman*, University at Buffalo**

Online Healthcare Communities (OHCs) have become rich sources of health information. And for patients with chronic conditions, disease-specific online communities facilitate knowledge sharing, exchange of support, and coping with symptoms. The proliferation of these communities has led to a plethora of research on OHCs and this has presented the need to classify this growing body of knowledge. This research in progress reviews a decade of studies in OHCs and provides a classification of this literature. The literature reviewed thus far falls into one of 3 categories: information use, user needs, and OHCs usage outcomes. Our findings suggest that users benefit from OHCs usage. In the context of user needs, it appears that the most sought-after information is health education information relevant to the disease community. We have identified that there is a need for examination of information quality on OHCs and validation of the varied findings on this topic. Lastly, the reviewed literature thus fur suggests that little is known about provider-only and provider-patient OHCs. This is, therefore, another area that needs more attention.

GRAMMAR FOR AGENT-BASED EMERGENCY RESPONSE SYSTEMS

Rohit Valecha, Kirti Sudumrekar, and Raj Sharman

University at Buffalo

A large number of emergency response systems (ERS) have been developed post 9-11 to facilitate efficient response. However, these systems are developed in isolation to each other, and consequently are hard to interoperate. As a solution to this problem, in this paper, we develop a multi-agent conceptual modeling grammar for emergency response systems (MLERS) using design science principles. Our grammar adapts Agile Integration Modeling Language (AIML). Our grammar also includes security related constructs that are not found in other agent modeling languages.

SESSION 4A: 3.40PM-5.00PM (SALON 9-11)

CROSS-CHANNEL SERVICES: ENABLING MULTICHANNEL RETAILERS TO COMPETE ON THE INTERNET?

***Manuel Trenz and Daniel J. Veit*, University of Mannheim**

The growth potential of the online channel puts pressure on traditional retailers to expand their business to the internet. While the online channel offers many opportunities to retailers, especially in terms of price discrimination, multichannel retailers fear that exploiting these possibilities might cannibalize their offline business. Therefore, they mostly apply the same prices online and offline. This strategy however, makes it hard for multichannel retailers to compete with pure play retailers online. Previous literature calls for an empirical investigation of this challenge. We suggest that multichannel retailers can exploit their offline infrastructure to compete online by offering cross-channel services such as in-store pick up or in-store repair for online orders. Furthermore, different levels of such services offer a unique value to customers and influence their willingness to pay. Based on marketing and customer behavior theories, we expect this influence to be moderated by product and customer characteristics. We suggest an experimental setup to test our hypotheses. The expected results help to understand how the internet transforms the retail industry and which role the offline channel can play in e-business transactions. The study shows how business transactions can be improved by connecting electronic and offline channels and delivers practical suggestions for multichannel retailers' online strategy.

COMPUTER NETWORKS, THE INTERNET, AND GREEN IT: MANAGING COMPUTER NETWORKS EFFECTIVELY

***Chetan Kumar*, California State University San Marcos**
***Shubho Bandyopadhyay*, University of Florida**

Computer networks have evolved considerably since their introduction in the 1960s. The Internet is the largest computer network in history and it continues to expand rapidly. We have witnessed a tremendous growth in the amount and range of information available on the Internet. At the same time, there is huge potential for improving the performance of the Internet. The popularity of the Internet has also resulted in a significant impact on energy consumption. The Environmental Protection Agency (EPA) and other agencies have suggested useful measures to improve efficiency of vast data centers that power the Internet. This, and other environmentally sustainable computing practices, may collectively be described as green Information Technology (IT). Computer networks have a significant energy resource impact in the form Internet usage and its data centers. Therefore managing computer networks effectively is key to greening IT. In this study we review different methods for managing computer networks and green IT strategies. These include mechanisms to effectively allocate resources in multi-server computer networks. We also propose a number of research directions for improving computer network performance. Research in these areas of computer network management and green IT practices is likely to benefit all Internet players as well as the environment.

TEST OF THEORY OF CONSTRAINTS IN ADMINISTRATIVE PROCESS -- AN EXAMPLE FROM GOVERNMENT PROCUREMENT

***Christopher Knaggs and Stephen Pollard*, Trident University International**
***Wenli Wang*, Robert Morris University**

The Theory of Constraints (TOC) has been extremely successful in manufacturing oriented organizations; however, its use in administrative processes has been very limited and tentative (Balderstone & Mabin, 2000). This research tested the effectiveness of TOC in one of the largest Federal Government contracting organizations. For the thirteen TOC implemented divisions there was an average of a 46% improvement in contract award rates over a two-year period while in the three control divisions the improvement was only 8%. The number of constraints lifted, waste elimination measured in Process Cycle Efficiency, and information transparency measured in visibility have shown significant positive impacts on award rate, whereas other factors important in TOC implementation in manufacturing such as priority compliance, buffering, and work-in-process have no significant impact on award rate.

PUSH OR PULL? DESIGN OF CONTENT DELIVERY SYSTEMS

***Hong Guo*, University of Notre Dame**
***Sean Marston*, Western Kentucky University**
***Yuwen Chen*, University of Rhode Island**

Advances in information technology, especially the expansion of cellular and WiFi networks, are dramatically changing how people consume digital content. These changes in user access behavior and the diversity of digital content available on the Internet challenge how firms should design their content delivery systems. This paper addresses this challenge by identifying the key factors for the design of content delivery systems (content fit, delivery delay, and processing cost) and explicitly modeling their interactions. We investigate three content delivery systems – push, pull, and optional, and solve for firms' optimal content delivery decisions. Our findings suggest that firms should offer more flexibility to consumers for content delivery when consumers know the content fit well by allowing the users to pull content or delegating the choice of push or pull delivery to the users. When firms have better knowledge about content fit and the processing cost differential between the push and pull mechanisms is low, it is optimal for firms to adopt a push system.

SESSION 4B: 3.40PM-5.00PM (CRYSTAL B)

UNDERSTANDING BLOG PARTICIPATION GROWTH USING THE BASS MODEL

***Thomas Ngniatedema*, Kettering University**
***Chinmay Sharma and Raj Sharman*, University at Buffalo**

In this information age, weblogs have grown in popularity. Increasingly, blogs have become important tools for information dissemination and for advertising by many companies. Building on an existing three-segment diffusion model, we propose a three-segment diffusion model to study blog participation growth. Three heterogeneous groups are identified: enthusiasts, who are risk-takers that adopt the blog first; mimics, who are risk-averse and follow other groups; and abandons, who initially adopt the blog before quitting, with attempt to influence the second to follow their behavior. Our analysis reveals how the influence power of enthusiasts and abandons exert on the mimics and how the later group affects the peak diffusion rate.

AN EXPLORATORY STUDY ON E-LEARNING FAILURES: AN ORGANIZATIONAL LEARNING PERSPECTIVE

***Tsai-Hsin Chu and Chih-Chia Hsu*, National Chiayi University, Taiwan**

Learning through a technology platform has become more and more popular for organizations to promote knowledge management or improve their staffs' working ability. Recent research suggests that there are many critical success factors that help e-learning implementation to be successful. However, these factors can't fully explain the reason why e-learning fails. An e-learning implementation can be a kind of organization learning because the organization members have to alter the old ways of learning into a new

learning model. It requires the members to adjust their mindset and action strategies to adapt themselves to the learner-centered learning. Through the lens of organizational learning, we can unfold the secrets of e-learning failure by revealing the blindness embedded in organizational contexts, where the e-learning technology is introduced. This research-in-progress study examines the e-learning failure of an organization as a case study. The espoused theory and theory-in-use will be analyzed to clarify the learning barriers of the e-learning system adoption. The findings will conclude the potential theory-in-use and blindness to explain the e-learning implementation failure.

EXPLORING ONGOING SENSEMAKING AND POST-ADOPTION BEHAVIORS OF E-LEARNING USAGE

***Tsai-Hsin Chu and Wei-Lun Lee*, National Chiayi University, Taiwan**

Organizations have been using e-learning systems to improve employees' training. Recent studies used critical successful factors (CSFs) and users' intention of technology usage to explain e-learning adoption, but they cannot explain users' diverse behavior after implementation. Some research suggests that users may generate distinct interpretations about a technology which results in their distinct reactions to the technology. In this study, we apply the sense-making perspective to explain users' post-adoption behavior under different working situations. Our investigation is anchored on a longitudinal case study of an e-learning system adoption, and we are seeking a satisfying answer to the research question: How could users' sensemaking explain the technology adoption behavior? Specifically, two questions are investigated: (1) What sense did users make of the e-learning technology in different work practices? (2) How did the change of users' sensemaking explain users' technology adoption? Our findings suggest that users' post-adoption could be ongoing adaptations in which users continuously interpreted the technology when they tried to assimilate the technology into their work practices. In this study, although users had similar sensemaking in the initial adoption, they had different understandings and showed different responding behavior to the technology in the transition and routine stages of adoption. This study also reveals the track behind users' unpredictable behaviors which are considered improvisational by the designers who may be unaware of the users' work practices.

SESSION 4C: 3.40PM-5.00PM (CRYSTAL C)

FACTORS INFLUENCING MOBILE VALUE-ADDED SERVICES CONTINUANCE: A SERVICE-DOMINANT LOGIC PERSPECTIVE

***Kai Wang*, National University of Kaohsiung**

When using mobile value-added services (MVAS), subscribers play the roles of not only technology user but also service consumer. To understand the factors that lead to MVAS continuance, it is necessary to consider determinants beyond traditional adoption and continuance antecedents, which primarily focus on the influence of technology excellence. Based on the service-dominant logic from the service marketing discipline, this research extends continuance research by integrating both technology-oriented and service-

oriented perspectives. Our results confirmed that technology excellence and service experience serve as important antecedents of MVAS continuance intention. Additionally, we found that the service experience mediates the influence of technology excellence on MVAS continuance intention. Further analysis also demonstrated the role of service experience in mediating the influence of service quality on continuance intention. The findings and theoretical implications are discussed.

MOBILE APP DEVELOPMENT: NATIVE OR WEB?

***Adrian Holzer*, University of Lausanne**
***Jan Ondrus*, ESSEC Business School**

The mobile application market has generated significant interest in the business community. One major issue when developing mobile applications is the fragmentation of the mobile device market. This fragmentation and the fierce competition between the different mobile platforms (e.g., iOS, Android, Windows, Blackberry) preclude mobile application portability between operating systems. Therefore, companies have to evaluate what development strategies are suitable for them: i) mobile native apps, ii) web apps, or iii) hybrid apps. In order to address this issue, this short research-in-progress paper presents the first steps towards the design of a decision support system (DSS) to evaluate these different mobile application development strategies. Using a design science approach, this research effort establishes a list of relevant criteria to differentiate the current strategies. As each strategy has benefits and drawbacks, we provide a preliminary step towards the creation of a prescriptive model to enable better decision-making while making trade-offs possible.

E-COMMERCE METRICS: A DECADE IN REVIEW

Pallavi Singh, Srikanth Venkatesan, Raj Sharman, and Srikanth Parameswaran
University at Buffalo

This paper is a survey of the literature in the area of e-commerce. More specifically it reviews the literature from the perspective of metrics used to evaluate e-commerce websites. The paper provides readers with a classification of the literature. The organization of the paper follows this classification. We also identify common dependent variables and their antecedents used in Information Systems literature and show how they have been measured by various studies. We found that there is a good consensus on the metrics of e-commerce with typical IS success measures, with the exception of trust which is an antecedent of customer loyalty.