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Research Spotlights

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Research Commentary: A Systematic Framework for Multilevel Theorizing in Information Systems Research (p. 203)

Meng Zhang, Guy G. Gable

Can research be effectively conducted with increased realism without compromising credibility? To understand the causes and consequences of information technologies and related human behaviors, researchers usually develop simple linear models. Many such models treat human individuals or collectives as isolated from their external environment and as homogeneous. The authors argue that research models need to consider the situations where humans interact frequently and closely with their external environment and with each other and where humans show significant differences. The authors assert that existing approaches to modeling are inadequate to understand information technologies and human behaviors that are shaped by an increasingly complex digital environment. As an alternative, the authors recommend that researchers consider a multilevel perspective, developing richer, more realistic models of information technologies and human behaviors. By synthesizing the literature of research methods, the authors propose a set of practical guidelines for developing models from a multilevel perspective.

The insight for management: The credibility of managerial insights depends partly on the research methods that are used to generate the insights; a multilevel perspective represents an advanced research method to conduct research and, therefore, the proposed guidelines may be used in research conduct to improve the credibility of managerial insights.

Logic Pluralism in Mobile Platform Ecosystems: A Study of Indie App Developers on the iOS App Store (p. 225)

Yixin Qiu, Anandasivam Gopal, Il-Horn Hann

Since the opening of the iOS App Store in 2008, tremendous entrepreneurial opportunities have been created for indie app developers, thanks to the small scale of the mobile application and the business infrastructure provided by the platform owner Apple. However, the opportunities notwithstanding, challenges also follow. This study examines how indie app entrepreneurs, under the cultural and technological influence of

Apple, operate on the iOS App Store where they constantly juggle between adhering to the professional standards of software engineering while also navigating through the competitive pressures of the iOS market. This is not unlike other scientific or creative endeavors where professionals face the need to balance market imperatives and the internal standards for quality. We study how when both imperatives coexist, it is important that developers manage these opposing forces through compromising or revising the practices they identify with, or grafting practices from the opposite perspective. We study these processes in the context of app development, ideation, and marketing on the iOS App Store using a series of interviews with indie app developers and qualitative analyses. The insights from this paper inform managers of platform ecosystems such as the iOS App Store about the challenges faced by app indie developers, while also helping developers understand how their peers may be addressing these diverging imperatives.

Online Cash-back Shopping: Implications for Consumers and e-Businesses (p. 250)

Yi-Chun (Chad) Ho, Yi-Jen (Ian) Ho, Yong Tan

Cashback shopping, an affiliate marketing which incentivizes consumers to purchase by reimbursing them with a certain portion of the transactional amount in a form of cash back, has not only become the most popular digital channel for bargain shoppers but also received substantial acceptance among online merchants. Nevertheless, its economic impact on consumers and e-businesses is still unclear. Can consumers really save money by doing cashback shopping? Should a merchant adopt single-homing or multi-homing strategy when affiliating with cashback sites? Which type of merchants should embrace such a novel practice and which should not? Our results, consistent with several real-world observations, have three useful implications for both consumers and practitioners. First, we find that under some conditions the seemingly *low* post-cashback price is actually *high*, relative to the uniform price in the absence of cashback shopping. An important implication is that all consumers in such cases would end up paying more under the cashback mechanism. Second, it is in a merchant's best interest to affiliate with multiple sites and the resulting competition improves overall market efficiency. Finally,

merchants who are disadvantageous in brand valuation should target price-sensitive consumers by strategically offering cashback deals, whereas advantageous merchants (such as Apple) should refrain from engaging in a price war.

Cosearch Attention and Stock Return Predictability in Supply Chains (p. 265)

Ashish Agarwal, Alvin Chung Man Leung, Prabhudev Konana, Alok Kumar

Online investor data, such as correlated searches, provide an active measure of investor attention and is much more granular than traditional publicly available data in finance. We investigate a novel application of correlated online searches in predicting stock performance across supply chain partners. We identify publicly traded supply chain partners using Bloomberg data and construct cosearch networks of supply chain partners based on the weekly coviewing pattern of these firms on Yahoo! Finance. Our analyses show that the cosearch intensity across supply chain partners helps determine cross-return predictability. When investors of a focal stock pay less attention to its supply-chain partners as revealed through cosearches, we can use lagged partner returns to predict the future return of the focal stock. Our simulated trading strategy using returns of supply chain partners with low coattention generates a significant and positive return above the market returns and performs better than the previously established trading strategy using returns of all supply chain partners. Thus, we illustrate the economic value of capturing and analyzing publicly available online investor search data for investment decisions.

Information Feedback, Targeting, and Coordination: An Experimental Study (p. 289)

Matthew J. Hashim, Karthik N. Kannan, Sandra Maximiano

In our paper, we study whether knowledge about others' extensive free-riding leads to more free-riding? This question is relevant to contexts where the "everybody else is doing it and so I am doing it" attitude exists. To evaluate the effect of information regimes, we study various policies. Specifically, we compare how information about the contributions affects outcomes when the information is targeted to subgroups of free-riders as opposed to contributors. We compare these information regimes against the commonly used scheme in practice of randomly providing the information. We find that randomly providing information to free-riders and contributors is no different than not providing information at all; and more importantly, average contributions improve with information targeted to those subgroups. These insights are helpful in designing appropriate policies to contexts where

the "everybody else is doing it" attitude is prevalent. These may include not just piracy contexts but also open innovation, crowdfunding, and even other social/behavioral contexts such as teen drinking.

The Impact of Institutional Distance on the Joint Performance of Collaborating Firms: The Role of Adaptive Interorganizational Systems (p. 309)

Maggie Chuoyan Dong, Yulin Fang, Detmar W. Straub

Today firms are using interorganizational information systems (IOSs) to collaborate widely across the value chain and in an ever-expanding geographic landscape. The difference between these firms' respective institutional environments, which we call institutional distance in our study, has become a prominent challenge in this case. Common wisdom suggests that institutional distance does not comprise knowledge sharing between two firms using IOS. However, our findings suggest that this statement is not always true. We collected dyadic data from 141 distinct buyer/supplier channel relationships in four industries, finding that the cognitive dimension of the institutional distance not only reduces knowledge sharing through IOS between firms but also compromise the ability to convert shared knowledge to firm performance. The normative dimension only reduces knowledge sharing through IOS. The regulative dimension, however, has no harm to knowledge sharing through IOS whatsoever. We find that IOS adaptability could be a viable solution to the challenge of institutional distance because it can strengthen IOS-enabled knowledge sharing as well as mitigate the negative effect of institutional distance on such sharing.

The insight for management: institutional distance can cause trouble to interfirm knowledge sharing through IOS, thereby hurting firm performance. The collaborating firms should develop adaptive IOS to solve this problem.

Anonymizing and Sharing Medical Text Records (p. 332)

Xiao-Bai Li, Jialun Qin

When sharing patient health data, organizations are required to comply with the privacy rule specified in the Health Insurance Portability and Accountability Act (HIPAA). A strict implementation of the HIPAA's Safe Harbor privacy rule, however, may be inadequate for protecting privacy or preserving data quality. This study addresses the privacy protection and data utility issues when sharing medical text records. The authors provide evidence from real-world medical text data that the HIPAA's Safe Harbor rule for de-identifying data can be under-protective (i.e., de-identified data having high disclosure risk) in some cases and over-protective (i.e., resulting in poor data utility) in others. The authors propose and develop a new technique

for anonymizing and sharing medical text records. The experiments on several real-world data sets show that the proposed new technique offers better privacy protection and data utility than the Safe Harbor rule does. The new technique will alleviate patients' concerns about loss of privacy and increase their willingness to share their data for medical research and health-care analytics. The proposed approach will also reduce organizations' concerns about potential privacy violations and enable organizations to safely share and release high-quality data for legitimate research and analysis.

How High Should We Go? Determining Reservation Values to Negotiate Successfully for Composite Software Services (p. 353)

Sherry X. Sun, Jing Zhao, Sumit Sarkar

Service computing, and attendant service composition activities, are being fueled by the emergence of software service marketplaces. For example, salesforce.com's AppExchange and Microsoft's Windows Azure Marketplace provide platforms where software service providers can list their services (i.e., component services). Other firms can leverage these marketplaces to develop customized products (e.g., composite services) using the components from these providers. Service users and providers often have conflicting interests, e.g., a user would want to pay as little as possible for a service while a provider would want to charge as much as possible. Negotiation can help users and providers explore what is possible at the time of a service request and develop agreements acceptable to both parties. Extant automated negotiation methods require the specification of reservation values for all quality of service attributes such as response time, availability, price, data quality, etc. We develop a multi-objective optimization methodology that determines the reservation values a user (or broker) should use for each component service based on the user's minimum requirements for the composite service. Our method improves the effectiveness of automated negotiations when developing new value-added services, thus injecting more flexibility to the development of software services.

Coping Responses in Phishing Detection: An Investigation of Antecedents and Consequences (p. 378)

Jingguo Wang, Yuan Li, H. Raghav Rao

Phishing attacks impose significant threats to businesses and individuals. It remains largely unclear how users' knowledge learned and efficacy raised effectively transfer to outcomes in phishing detection. The authors investigate the role of coping responses in phishing detection, and find that coping adaptiveness positively impacts detection effort and accuracy.

Surprisingly, coping adaptiveness and detection effort have different effects on false positives as compared to false negatives: detection effort fully mediates the effect of coping adaptiveness on false positive rate, but has no impact on false negatives unlike coping adaptiveness. The results also show that perceived detection efficacy increases coping adaptiveness. Partially mediated by phishing anxiety, perceived phishing threat decreases coping adaptiveness.

The insight for management: It would be important, during the training, to bolster employees' coping skills in phishing detection. One note of caution in phishing training is that such training may alter individuals' threat appraisal in regard to phishing attacks and unnecessarily boost phishing anxiety. Furthermore, how users effectively use the time may be more important than the total amount of time spent in recognizing phishing emails.

Price of Identical Product with Gray Market Sales: An Analytical Model and Empirical Analysis (p. 397)

Zhongju Zhang, Juan Feng

What happens when consumers have at their fingertips an unauthorized online marketplace (also known as a gray market) where they can purchase genuinely branded products at attractive prices? How should brand owners operating in separate markets respond to potential market leakage? We demonstrate that the higher price in one market transfers part of the consumer demand into the gray market, thus influencing the demand in the low-priced market as well. Additionally, an increase in the price gap resulting from differential pricing in the two markets leads to higher gray market sales, and under certain conditions, a higher firm profit. The key takeaways for the brand owner include (1) accurately track product flows in the value chain and estimate the probabilities of market leakage and (2) design a nimble price discrimination strategy to effectively manage the magnitude and severity of sales from unauthorized channels.

Designing for Diagnosticity and Serendipity: An Investigation of Social Product-Search Mechanisms (p. 413)

Cheng Yi, Zhenhui (Jack) Jiang, Izak Benbasat

Many e-commerce platforms have focused on improving their search engines or recommender systems to support personalized search based on users' search keywords or past behavior. However, consumers' information search can be heavily influenced by diverse user-generated content and is often adaptive. Hence, it is important to understand how to design search features to facilitate both search following users' desired criteria and serendipitous discoveries that are not expected but can satisfy users' latent needs. This

paper focuses on two distinct product search cues based on user-generated content, product tags and socially endorsed people. The authors constructed an experimental website using real data from one of the largest social-network-based product-search websites in China. Findings from their experiment show that product tags facilitate users to locate and evaluate relevant alternatives, whereas the integration of product tags and access to socially endorsed people enables users to conduct even more serendipitous searches.

The insight for management: Facilitating a diagnostic and serendipitous search process can effectively enhance consumers' satisfaction about purchase decisions, and this can be achieved by featuring both product tags and widely endorsed community members.

**Information Technology, Revenues, and Profits:
Exploring the Role of Foreign and Domestic
Operations** (p. 430)

Sunil Mithas, Jonathan Whitaker, Ali Tafti

How does information technology (IT) enable firms to globalize their operations and achieve higher foreign

profits? We use archival data for multinational firms publicly-traded in the United States for the years 1999–2006, and find indirect evidence for the role of IT to help firms achieve higher foreign profits through revenue growth rather than cost reduction. Our findings suggest that foreign responsiveness plays a more important role in generating foreign profits than does value chain structure. Our exploratory analyses for the effect of IT on domestic revenues and profits suggest some evidence for equalization of returns across foreign and domestic operations. Among additional results, we find that research and development (R&D) is positively associated with foreign revenues and foreign profits with an effect greater than that of IT, and advertising is positively associated with foreign revenues with an effect greater than that of IT. However, IT contributes less to the increase in foreign costs than do R&D and advertising. These findings can help managers decide how to allocate discretionary expenditures to achieve foreign and domestic revenues and profits, and the role of revenue versus cost mechanisms to realize foreign profits.