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Research Spotlights

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Research Commentary: Diversity of the Information Systems Research Field: A Journal Governance Perspective (p. 5)

Thomas F. Burgess, Paul Grimshaw, Nicky E. Shaw

When information systems (IS) researchers investigate the sociotechnical knowledge production system they work within, then their research usually emphasizes the technical to the detriment of the social. We answer novel questions: how diverse is the IS research field; and do social and demographic diversities relate to the knowledge structure formed by grouping journals together when their papers cover similar topics? We use data from websites listing editorial advisory board members for 52 journals governed by the IS research community. Networks of individuals and journals are mapped out from the interlocks formed when two individuals serve on the same board; and individuals sit on two or more boards. We show how the membership network linking journals parallels how topics of papers group journals together. Journals are further identified as comprising a business-related core and a computing-related periphery that differ demographically. Overall we show that the IS field has low demographic diversity and journal boards are dominated by male, U.S.-affiliated researchers. This paper helps IS practitioners and academics to better understand the identity of the IS research field by providing data on social networks, knowledge structures, and demographics for members of the IS research community that hold important IS journal governance roles.

Providing a Window of Opportunity for Converting eStore Visitors (p. 22)

Amit Bhatnagar, Arun Sen, Atish P. Sinha

When should an online salesperson approach a consumer visiting an online store? That could depend on how and when the consumer is drawn to the store. The authors show that there is a *window of opportunity*, during which the salesperson should target the site visitor. That time window is determined based on the online advertising tool the consumer uses to arrive at the site—banner ad or search engine ad—as well as on the day and time of arrival, and the order of visit. The authors develop a model based on clickstream data obtained from a major online vendor and show that the online tool used influences the consumer's search duration and purchase likelihood not

only for the first visit, but for subsequent visits as well. When the consumer leaves the site and returns later, the search duration of the second visit is influenced by the search duration of the first visit. The model can also be used to determine the bid price strategy for search engine ads. Consumers respond differently to banner ads and search engine ads and, therefore, it is important for a retailer to choose an appropriate mix of online advertising tools.

Politics and Information Technology Investments in the U.S. Federal Government in 2003–2016 (p. 33)

Min-Seok Pang

We study how politics affects information technology (IT) investments in the U.S. federal government. We find that when both the U.S. Senate and the House of Representatives are controlled by the President's ruling party, federal agencies are predicted to invest approximately 8.32% more in new IT development and modernization than when the opposition party holds the majority in both chambers. We also find that when the head of a federal agency is not confirmed by the Senate for more than one year, the share of new IT development is 4.97% lower than otherwise. Our analysis also shows that the more ideologically extreme a federal agency is, the more it spends in IT maintenance. This study offers several policy implications. We show that political gridlocks are detrimental to organizational capabilities of federal agencies by constraining capacity-building IT investments. If the federal government is to be agile, flexible, and efficient, so should federal IT management. We propose that the rank of the U.S. Chief Information Officer (CIO) be elevated to that of a cabinet-level secretary and their authority and responsibilities over government-wide IT management be expanded, so that the U.S. CIO can play a spearheading role in the digital transformation of the federal government.

Technology Mergers and Acquisitions in the Presence of an Installed Base: A Strategic Analysis (p. 46)

Qiu-Hong Wang, Kai-Lung Hui

Why do information technology (IT) vendors such as Microsoft and Oracle offer substantial price premiums to acquire competitor firms selling similar products?

In addition to obtaining new technologies or increasing market shares, could they be looking for other strategic benefits from the acquisitions? If so, what is the nature of these strategic benefits? The authors answer these questions by analyzing the benefits of mergers and acquisitions (M&A) in a competitive IT market. When a new product arrives unexpectedly and an installed base of old product exists, M&A provides many new options for the acquirer to sell its products and price discriminate consumers. In particular, the acquirer may shelf the old product or delay selling the new product in some markets. It could even price discriminate consumers perfectly without identifying them. Surprisingly, M&A can sometimes help consumers enjoy the new product earlier and increase social welfare relative to the competitive market.

The insight for management: M&A offers strategic benefits in terms of product portfolio planning and pricing. Firms must deliberate the nature of their products and the dynamic change in consumer preferences to realize such strategic benefits. Competition need not be good and M&A can be beneficial to consumers.

A Theory of Responsive Design: A Field Study of Corporate Engagement with Open Source Communities (p. 64)

Matt Germonprez, Julie E. Kendall,
Kenneth E. Kendall, Lars Mathiassen, Brett Young,
Brian Warner

Corporations are increasingly engaging with open source communities to design and develop software. Open source communities are becoming part of how corporations operate and at the core of this engagement are new opportunities for knowledge sharing and technology exchange in the production of for-profit software artifacts. Hewlett-Packard engages with open source communities in the design of print drivers, Citrix in the design of hypervisors, and NYSE Technologies in the design of messaging middleware. This corporate engagement centers on innovation, knowledge, methods, and technologies intended to strengthen a corporation's design and development practices. As these engagements evolve, it is important for practitioners to understand their associated managerial complexities. To explore this, the authors performed a three-year study investigating the design and development of software as enacted through corporate engagement with open source communities. We called this *responsive design*. In the study, we conducted over 80 interviews from 40 organizations to understand why and how corporations engage with open source communities.

As insights for management, the study reveals how corporations actively manage their interconnections

with open source community members; employ opportunistic behaviors to strategically leverage the engagement; and work to stabilize corporate-communal engagements for reasons of long-term sustainability.

Extending the Concept of Control Beliefs: Integrating the Role of Advice Networks (p. 84)

Lionel P. Robert Jr., Tracy Ann Sykes

Organizations spend millions of dollars to implement new information systems with the aim of increasing employee efficiency and effectiveness through the utilization of these new systems. Unfortunately, this rarely occurs. Recently, co-workers have been shown to be not only an important source of technical help, but in many cases a preferred option to the more formal help desk services provided by organizations. Yet, to be able to fully leverage this help we need to understand how it complements existing organizational factors like formal training programs and help desk support. To accomplish this, we conducted a three-month study of a new enterprise system involving 112 employees in one business unit of an organization. We found that because co-workers have similar jobs, attended similar training programs, and are familiar with both the user and the organizational support services they were not only able to provide direct advice on how to employ new systems but also provide advice on how to exploit the other organizational resources available to new users. In fact, without the help from co-workers other organizational resources have little effect on an employee's ability to use new systems to accomplish vital tasks on behalf of their organizations.

Electronic Commerce, Spatial Arbitrage, and Market Efficiency (p. 97)

Hemang Subramanian, Eric Overby

A seller in Florida may have the perfect product for a buyer in Oregon, but their geographic separation may prevent them from transacting. This creates an opportunity for a spatial arbitrageur to purchase the product from the Florida seller at a depressed price, transport it to Oregon, and then sell it to the buyer for a profit. We study how electronic commerce affects these spatial arbitrage opportunities. Using data from the wholesale used vehicle industry from 2003 to 2010, we find a nuanced effect. Electronic commerce decreases the number of spatial arbitrage opportunities by improving buyers' and sellers' ability to locate and transact with each other directly, but it increases the percentage of opportunities that are exploited by helping arbitrageurs find and exploit opportunities that they might otherwise miss. Using spatial arbitrage activity to measure market efficiency allows to identify these effects, which would not be visible using traditional measures such as price dispersion.

The insight for management: Markets are becoming more efficient not only because electronic commerce helps buyers and sellers transact across distance (which balances supply/demand geographically) but also because electronic commerce improves arbitrageurs' ability to quickly exploit arbitrage opportunities that inevitably still arise (which *rebalances* supply/demand geographically).

Popularity or Proximity: Characterizing the Nature of Social Influence in an Online Music Community (p. 117)

Sanjeev Dewan, Yi-Jen (Ian) Ho, Jui Ramaprasad

What drives online music purchasing decisions? Do consumers choose based on the overall popularity of a song or artist? Or does the decision have more to do with what their social network friends are listening to? For answers, we turned to a music blog aggregator site, studying a feature that allows users to observe other users' music preferences. Our analysis finds robust evidence for both popularity and proximity influence. Popularity influence is more important for narrow-appeal music than mainstream music. And the two types of influences can be substitutes for each other. Basically, popularity cues drive consumption decisions, until a friend has listened to a song—at which point proximity influence takes over. So what does this mean for managers of online platforms? Website creators should prominently display regular “most popular” lists. This is especially important for niche or narrow-appeal music. Users should also be rewarded for their social engagement with friends. These results have implications for any “long tail” market (where niche content can be as important as best sellers) as users benefit from both popularity and proximity influence in deciding what content to consume—even when, where, and how to consume it!

Cost-Effective Quality Assurance in Crowd Labeling (p. 137)

Jing Wang, Panagiotis G. Ipeirotis, Foster Provost

Crowdsourcing platforms are increasingly used by many firms, ranging from small startups to Fortune 500 companies, for on-demand data curation at low cost and with high throughput. However, workers on crowdsourcing platforms are often non-experts whose answers can be noisy. To achieve the desired level of quality, it is a common practice to ask multiple workers to work on the same task. In this paper, we propose a set of adaptive task allocation strategies that assign a different number of workers to each task to better utilize the available worker resources. Experimental results on both simulated and real data show that our allocation strategies are able to reduce the labeling expense by 15%–50%. We also introduce two novel metrics to objectively evaluate the performance

of crowdsourced workers. In particular, the worker value metric directly measures the monetary value contributed by each worker toward meeting the quality requirements.

The insight for management: For firms that require human labor for data annotation, the implementation of the adaptive schemes can significantly reduce the labor cost. Also, the introduced worker value metric provides the employers a basis for the design of fair and efficient compensation schemes.

Coalition-Based Pricing in Ascending Combinatorial Auctions (p. 159)

Martin Bichler, Zhen Hao, Gediminas Adomavicius

In this paper we aim to design highly efficient ascending combinatorial auctions. Bidders in larger ascending combinatorial auctions face a substantial coordination problem, which has received little attention in the literature. The coordination problem manifests itself by the fact that losing bidders need to submit nonoverlapping package bids which are high enough to outbid the standing winners. We propose an auction format, which leverages the information that the auctioneer collects throughout the auction about the preferences of individual bidders and suggests prices for the members of losing bidder coalitions, which in total would make a given coalition winning. We model the bidder's bundle selection problem as a coordination game, which provides a theoretical rationale for bidders to agree to these prices, and highlights the role of the auctioneer in providing relevant information feedback. Results of extensive numerical simulations and experiments with human participants demonstrate that this type of pricing substantially reduces the number of auction rounds and bids necessary to find a competitive equilibrium, and at the same time significantly increases auction efficiency in the lab. This rapid convergence is crucial for the practical viability of combinatorial auctions in larger markets.

Managerial Incentives and IT Strategic Posture (p. 180)

Ling Xue, Gautam Ray, Xia Zhao

How to motivate corporate executives to implement more information technologies (IT) than their competitors? Can managerial incentives provided through executive compensation motivate corporate executives to adopt a more proactive posture in IT strategy? In this study, the authors evaluate a panel dataset comprising 1,492 unique U.S. firms over the time period of 1999–2009 that contains 9,509 firm-year observations. They find that compensation components designed to incentivize corporate executives to enhance firm performance (i.e., performance incentives) are not sufficient to motivate a proactive posture in IT strategy. However, compensation components designed to incentivize

corporate executives to strategically take risks (i.e., risk incentives) can effectively motivate a proactive strategic posture in IT strategy. Moreover, risk incentives are more effective in motivating a proactive IT strategic posture in the firm's secondary business areas than in its primary business areas.

The insight for management: managerial risk aversion can nullify the motivating effect of performance incentives, necessitating the use of risk incentives to drive proactive IT strategies, especially in the secondary business areas with more opportunities of risk taking.