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Research Spotlights

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Research Spotlights

On the Longitudinal Effects of IT Use on Firm-Level Employment (p. 6)

Hilal Atasoy, Rajiv D. Banker, Paul A. Pavlou

The effect of information technology (IT) on employment is a crucial question in today's economy given the increased digitization of work. To analyze the relationship between IT use by firms and their employment, the authors examine the role of IT use in the firm's total number of employees over time. The data set comes from the emerging economy of Turkey, and it represents firms of different sizes and industries. The firm's IT use consists of enterprise applications, such as enterprise resource planning (ERP) and customer relationship management, and the use of Web applications, such as e-banking and e-government. The authors find a positive effect of IT use on firm-level employment, which varies across IT applications over time. Interestingly, the effects of enterprise applications materialize after two years, whereas the effects of Web applications are realized in the current year. The long-term effects of the use of enterprise applications on firm-level employment are more pronounced in larger firms, with higher average wages, and in high-technology industries.

The insight for management: IT can enable increased firm-level employment, and this can mostly be attributed to IT investments in enterprise applications, such as ERP.

Rate or Trade? Identifying Winning Ideas in Open Idea Sourcing (p. 27)

Ivo Blohm, Christoph Riedl, Johann Füller, Jan Marco Leimeister

Information technology has enabled organizations to source ideas for new products and services in an open fashion through idea competitions, crowdsourcing communities, or the lead user method. These approaches frequently lead to a magnitude of diverse ideas from which organizations need to identify the most promising ones. In this paper, we compare two leading mechanisms for open idea evaluation: a multidimensional rating scale and a preference market. In an experiment with 120 participants, we find that the rating scale is easier to use than the preference market and that this difference in usability enables users to evaluate the quality of the ideas more accurately. This effect of usability becomes stronger when

users perceive the evaluation task as being highly variable and when users evaluate ideas that are more difficult to read. Overall, we find that rating scale users evaluated the ideas about 15% more accurately than preference market users. Our results indicate that organizations should use a multidimensional rating scale for open idea evaluation and that the usability of those information technology-based systems is critical given the difficult nature of the idea evaluation task.

Comparing Open and Sealed Bid Auctions: Evidence from Online Labor Markets (p. 49)

Yili Hong, Chong (Alex) Wang, Paul A. Pavlou

Online labor markets are web-based platforms that enable buyers to identify and contract for information technology (IT) services with service providers using auctions. In this article, we compare open versus sealed bid auctions in online labor markets to identify which format is superior in terms of obtaining more bids and a higher surplus for the buyer. For service providers, compared to *competition uncertainty* (difficulty in assessing the intensity of the competition from other competing service providers), *valuation uncertainty* (difficulty in assessing the cost to execute a project) has a more important role in determining their bids. Specifically, valuation uncertainty leads service providers to bid higher to shield themselves from the "Winners' Curse."

The insight for management practice: In contrast to conventional wisdom that "the more bids the better" and the industry practice of treating sealed bid auctions as a premium feature, our results suggest that the buyer surplus gained from the reduction in valuation uncertainty enabled by open bid auctions outweighs the buyer surplus gained from the higher competition uncertainty enabled by sealed bid auctions. Thus, open bid auctions are a superior auction design in online labor markets.

Mandatory Standards and Organizational Information Security (p. 70)

Chul Ho Lee, Xianjun Geng, Srinivasan Raghunathan

Policy makers in both private and public sectors increasingly mandate information security standards on organizations with the intention to protect both

business and consumer assets. But do higher standards always lead to stronger information security? This paper explains through a game-theoretical study that, while a higher standard can directly force a firm to invest more in regulated security controls, it may inadvertently and indirectly incentivize the firm to invest less in unregulated security controls. In addition, standard compliance may alleviate a firm's financial liability when a breach happens, thus further indirectly disincentivizing the firm from investing for stronger security. We identify when and how the indirect effects dominate the direct one, under which a higher standard weakens information security. Furthermore, how the regulated and unregulated controls link to each other—in serial or in parallel—critically impacts the trade-off between the direct and indirect effects. We also show that a firm that cares more about security may react to a higher standard by surprisingly reducing its overall security even when a firm that cares less does not. We also discuss the implications of this research for policy makers and social welfare.

Managing Citizens' Uncertainty in E-Government Services: The Mediating and Moderating Roles of Transparency and Trust (p. 87)

Viswanath Venkatesh, James Y. L. Thong,
Frank K. Y. Chan, Paul J. H. Hu

Many countries are implementing electronic government (e-government) to improve public service delivery. A major challenge is to manage citizens' apprehension in adopting e-government and increase the use of e-government services. The authors investigate the impacts of (1) two means of uncertainty reduction—i.e., transparency and trust; (2) information quality; and (3) delivery channel characteristics, on citizens' usage intentions, actual use, and satisfaction with e-government services. Based on a longitudinal data set comprising 4,430 Hong Kong citizens who reflected on two e-government services: government websites and online appointment booking with government agencies, they find that transparency and trust play central roles in reducing citizens' apprehension and increasing usage intentions that then increased use and satisfaction with e-government services. While transparency and trust can be fostered by creating favorable user beliefs about information quality and the service delivery channel, they also further enhance the impacts of such user beliefs on citizens' usage intentions.

The insight for management: Transparency and trust are at the core of citizens' evaluation of e-government services; hence, governments should foster transparency and trust through a careful design of information quality and service delivery channel to increase the utilization and satisfaction with e-government services.

The Double-Edged Sword of Backward Compatibility: The Adoption of Multigenerational Platforms in the Presence of Intergenerational Services (p. 112)

Il-Horn Hann, Byungwan Koh, Marius F. Niculescu

Nowadays, platforms diffuse in the market in a multigenerational pattern with simultaneous versions co-existing alongside each other. In this paper, we investigate how intergenerational services/applications impact the adoption decision of consumers facing multigenerational platforms. Using data on mobile Internet platform adoption and services consumption for the time period of 2001–2007 from a major wireless carrier in an Asian country, we show that intergenerational services that connect subsequent generations of platforms essentially engender backward compatibility with two opposing effects. While an intergenerational service may accelerate the migration to the subsequent platform generations, it may also, perhaps unintentionally, provide a fresh lease on life for earlier generation platforms due to the continued use of earlier generation services on newer platform generations. Our results offer guidance to platform and services providers alike. Platform providers learn how backward compatibility impacts the co-diffusion of multiple generations of the platform, which in turn impacts their costs when quality assurance and tech support efforts are spread across many generations. Such insights influence both product design and retirement. In addition, backward compatibility influences the size of the installed base for each platform generation, affecting the resource allocation strategies of services providers.

Research Note: When Do Consumers Value Positive vs. Negative Reviews? An Empirical Investigation of Confirmation Bias in Online Word of Mouth (p. 131)

Dezhi Yin, Sabyasachi Mitra, Han Zhang

Are positive or negative reviews more likely to be considered helpful by consumers? Since negative reviews have a greater impact on product sales than positive reviews, conventional wisdom suggests that negative reviews should also be considered more helpful, but existing research provides contradictory findings. We propose that consumers form initial beliefs about a product on the basis of the average and dispersion of its ratings, and that this initial belief plays a vital role in their subsequent evaluation of reviews. Using a unique panel data set from Apple's App Store, we find that consumers favor reviews that deviate less from the product's average rating, and that this confirmation bias is attenuated for products with a high dispersion of ratings. An important insight from our results is that both positive and negative reviews can be perceived to be more helpful depending on the product's average rating. To reduce review readers' confirmatory tendencies and to focus their attention on review quality, we

advise review websites to tweak how helpfulness votes are solicited, and to promote certain negative reviews even if they are not voted to be as helpful as positive reviews.

Research Note: Cloud Computing Spot Pricing Dynamics: Latency and Limits to Arbitrage (p. 145)
Hsing Kenneth Cheng, Zhi Li, Andy Naranjo

Amazon's Elastic Compute Cloud (EC2) is the major cloud service provider that offers basic computing and storage resources at relatively low prices. Amazon EC2 spot instances allow customers to bid on unused Amazon EC2 capacity and run those instances for as long as their bid exceeds the current spot price, giving customers using spot instances significant price discounts. A conundrum arises when one examines Amazon EC2 spot prices as the western EC2 center spot prices are consistently and significantly higher than those of the eastern center across all computing platforms. The consistently positive price differentials between the west and the east centers presents a seemingly clear arbitrage opportunity for cloud computing customers and raises a fundamental question about the market efficiency of cloud computing, which cannot be systematically attributed to either the supply or demand of Amazon EC2 cloud computing services. In this research, we show that network latency, defined as the total elapsed time from the time a request is sent via the Internet to the time receiving a response, is the key factor contributing to the persistent positive spot price differentials. Our study is the first to provide convincing evidence to explain this intriguing and perplexing cloud computing market efficiency issue.

Research Note: Information Technology, Customer Satisfaction, and Profit: Theory and Evidence (p. 166)
Sunil Mithas, M. S. Krishnan, Claes Fornell

Do information technology (IT) investments improve customer satisfaction and firm profitability? If so, is this effect more because such investments help improve perceived quality or perceived value? These are important questions for senior managers to justify and realize value from IT investments which constitute a large part of firms' discretionary expenditures. Using data on 109 U.S. firms, we find that IT investments have a positive association with customer satisfaction; however, the strength of the relationship varies across the 1994–1996 and 1999–2006 periods. Specifically, IT investments had a more positive influence on customer satisfaction for the 1994–1996 period than for the 1999–2006 period. Conversely, IT investments had a positive effect on profits in the 1999–2006 period but a negative effect in the 1994–1996 period. Additional analyses showing that IT investments had a stronger effect on perceived quality than on perceived value provide an explanation

for some of the observed effects of IT on customer satisfaction and profits. Together, these contributions and implications provide new insights to assess returns on IT investments by focusing on customer satisfaction, an important intangible and leading measure of firm performance, stock returns, and stock risk.

Research Note: In CARSs We Trust: How Context-Aware Recommendations Affect Customers' Trust and Other Business Performance Measures of Recommender Systems (p. 182)
Umberto Panniello, Michele Gorgoglione, Alexander Tuzhilin

Most of the work on Context-Aware Recommender Systems (CARSs) has focused on demonstrating that the contextual information leads to more *accurate* recommendations. Little work has been done, however, on studying how much the contextual information affects the business performance. In this paper, we study how including context in recommendations affects customers' trust, sales, and other crucial business-related performance measures. To do this, we delivered content-based and context-aware recommendations through a live controlled experiment with real customers of a commercial European online publisher. We measured the recommendations' accuracy and diversification, how much customers spent purchasing products during the experiment, quantity and price of their purchases, and the customers' level of trust. We have shown that collecting and using contextual information in recommendations affects business-related performance measures, such as company's sales, by improving accuracy and diversification of recommendations, which in turn improves trust and, ultimately, business performance results.

Research Note: Using Expectation Disconfirmation Theory and Polynomial Modeling to Understand Trust in Technology (p. 197)
Nancy K. Lankton, D. Harrison McKnight, Ryan T. Wright, Jason Bennett Thatcher

Trust-in-technology refers to trust in the technology artifact instead of trust in people. People develop trust-in-technology by first developing initial trusting expectations while starting to use the technology, and then by comparing technology performance during a subsequent usage period against initial expectations. This study's main research objective is to better understand how trust-in-technology expectations and the subsequent comparison called disconfirmation affect trusting intention. Managing expectations is an important component of system implementations because unmet expectations (i.e., negative disconfirmation) can undermine organizational attempts to exploit information technology (IT). We collected data from three technology usage contexts that differ in expectation

maturity, or the length of the introductory period. We find that only when expectations are more mature (the introductory period is longer) does positive disconfirmation negatively influence trusting intention. When expectations are less mature (the introductory period is shorter), positive disconfirmation positively influences trusting intention.

The insight for management: Expectation maturity matters in determining how technology trust expectations and disconfirmation influence trusting intentions. Managing positive disconfirmation can be achieved by creating implementation teams made up of staff members from across the company, and introducing performance enhancements more gradually.