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Bargaining over Data: When Does Making the Buyer More Informed Help? (p. 1)

Jyotishka Ray, Syam Menon, Vijay Mookerjee

Data are critical to decision making for many businesses, and there is a growing market for proprietary data that can improve business decisions. It is not surprising, therefore, that a growing list of companies is generating substantial revenue by selling proprietary data collected as part of their doing business. Because data are an experience good, their true valuation remains uncertain to both sellers and buyers. As a result, firms often resort to bargaining to arrive at a mutually acceptable arrangement. We consider the situation where the seller can offer a data demonstration to the buyer to reduce the valuation uncertainty. A data demonstration can increase the buyer's willingness to pay; however, it also puts the seller at an information disadvantage in the bargaining process. Interestingly, we find that there are circumstances under which the presence of the seller's outside option can trigger a demonstration with complete information, even if the buyer does not underestimate data value. We also find that sellers need to offer different demonstration strategies—sometimes to just correct underestimation bias and sometimes to correct bias and reduce uncertainty. If the development of the demonstration comes at a cost, we find that it is optimal for the seller to provide demonstrations that are only partially informative when the seller's outside option is moderately high. Because having an outside option can help in the bargaining process, sellers should actively try to identify an outside option as a prebargaining step.

Words Matter! Toward a Prosocial Call-to-Action for Online Referral: Evidence from Two Field Experiments (p. 16)

Jaehwuen Jung, Ravi Bapna, Joseph M. Golden, Tianshu Sun

The underlying premise of referral marketing is to target existing ostensibly delighted customers to spread awareness and influence adoption of a focal product among their friends who are also likely to benefit from adopting the product. In other words, referral programs are designed to accelerate organic word-of-mouth (WOM) exposure using financial incentives. This poses a challenge, in that it mixes an intrinsically motivated process (stemming from the desire to share a customer's delight with a product or a service) with an extrinsic trigger in the form of a financial incentive. In this paper, we demonstrate how firms can benefit from framing calls-to-action for referral programs in such a way as to move closer to the original intent of organic, intrinsically motivated WOM marketing, and yet at the same time reap the benefits of using a financial incentive to increase referral rates. In particular, via two large-scale randomized field experiments involving 100,000 customers each, we show the efficacy of a prosocial call-to-action over some of the more commonly used calls-to-action observed in practice. Additional mechanism-level analysis confirms the importance of an altruistic element in generating a higher quality of advocacy and reducing referral frictions.

An Empirical Analysis of Seller Advertising Strategies in an Online Marketplace (p. 37)

Haoyan Sun, Ming Fan, Yong Tan

Online marketplaces, such as Taobao, Amazon, and eBay, are increasingly adopting innovative business models such as paid advertising as an important revenue source. We study the effectiveness of two popular advertising tools, sponsored search and social media endorsement, in increasing online traffic and sales for online sellers at a retail e-commerce platform. We find that both sponsored search and social media endorsement can significantly increase traffic for sellers, with sponsored search being more effective than social media endorsement. However, only sponsored research has a positive and significant impact on sales. The two strategies also have differential effect on sellers with low and high reputations. Our findings are of great importance, as they provide additional insights into how these advertising tools can work more effectively in increasing traffic and sales for sellers with different reputation levels, thus providing important implications to guide the strategic choices for sellers as well as the platform.

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Electronic Health Records and the Logics of Care: Complementarity and Conflict in the U.S. Healthcare System (p. 57)
Sean Hansen, A. James Baroody

The U.S. healthcare system has experienced rapid growth in the adoption and use of clinical health information technology, such as electronic health record (EHR) systems. In a field as complex and pluralistic as healthcare, the introduction of these sweeping information technology platforms is transforming the practices, roles, interdependencies, and communication mechanisms that connect a heterogeneous mix of stakeholders. In this study, we assess the impact of EHR adoption and use on the practices in the U.S. healthcare system and the diverse ways of thinking and acting that those practices reflect. Building on our field study of diverse healthcare stakeholders, we propose a mechanism for how information system (IS) use can influence the institutional dynamics of the healthcare system. We argue that this theoretical framework may be fruitfully applied to other national healthcare systems and other classes of enterprise IS. In addition, the study offers a number of practical insights for IS designers and policy makers as EHR system use expands and evolves in the coming years.

Consumption and Performance: Understanding Longitudinal Dynamics of Recommender Systems via an Agent-Based Simulation Framework (p. 76)
Jingjing Zhang, Gediminas Adomavicius, Alok Gupta, Wolfgang Ketter

We develop a general-purpose agent-based simulation and modeling approach to analyze how user–recommender interactions affect recommender systems in the long run. Our explorations show that, over time, user–recommender interactions consistently lead to the longitudinal performance paradox of recommender systems. In particular, users' reliance on recommendations, while helping users discover relevant items, actually hurts the future diversity of items that are recommended and consumed as well as slows down the system's learning pace (i.e., the rate of predictive accuracy improvement). We also demonstrate unique benefits of certain hybrid consumption strategies—that is, that take advantage of both popularity- and personalization-based recommendations—in facilitating improvements in consumption relevance over time. Because users' consumption strategies can significantly influence the longitudinal performance of recommender systems, it is important for designers to analyze the histories of a system's recommendations and users' choices to infer and understand users' consumption strategies. This would enable the system to anticipate users' consumption behavior and strategically adjust the system's parameters according to its long-term performance objectives.

Trade-Offs in Online Advertising: Advertising Effectiveness and Annoyance Dynamics Across the Purchase Funnel (p. 102)
Vilma Todri, Anindya Ghose, Param Vir Singh

In this study, we capture the trade-off between effective and annoying display advertising. We investigate both the enduring impact of display advertising on consumers' purchase decisions and the potential of persistent display advertising to stimulate annoyance in consumers. Additionally, we study the structural dynamics of these advertising effects by allowing them to be contingent on the latent state of the purchase funnel in which each consumer resides. The findings, based on the hidden Markov model that we propose, demonstrate that a tension exists between generating interest and triggering annoyance in consumers; whereas display advertising has an enduring impact on transitioning consumers farther down the purchase funnel, persistent display advertising exposures beyond a frequency threshold can have an adverse effect by increasing the chances that consumers will be annoyed. Investigating the dynamics of these annoyance effects, we reveal that consumers who reside in different stages of the purchase funnel exhibit considerably different tolerance for annoyance stimulation. Our findings also reveal that the format of display advertisements and the level of diversification of ad creatives as well as consumer demographics moderate consumers' thresholds for annoyance elicitation. For instance, advertisers can reduce annoyance elicitation as a result of frequent display advertising exposures when they diversify the display ad creatives shown to consumers as well as when they use static rather than animated display ads.

Sustaining a Good Impression: Mechanisms for Selling Partitioned Impressions at Ad Exchanges (p. 126)
Sameer Mehta, Milind Dawande, Ganesh Janakiraman, Vijay Mookerjee

At an ad exchange, impressions are sold to advertisers in real time through an auction mechanism. The traditional mechanism at these exchanges selects a single advertiser whose ad is displayed over the entire duration of an impression, that is, throughout the user's visit. We argue that such a mechanism leads to an allocative inefficiency. Our goal in this paper is to address this efficiency loss by offering mechanisms in which multiple ads can be displayed sequentially over the lifetime of the impression. We consider two plausible settings—one where each auction is individually rational for the advertisers and another

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where advertisers are better off relative to the traditional mechanism over the long run—and derive an optimal mechanism for each setting. Under the former mechanism, whereas the ad exchange always benefits relative to the traditional mechanism, the advertisers can either gain or lose—we demonstrate both these possibilities. The optimal mechanism for the latter setting is a mutually beneficial mechanism in that it guarantees a win–win for both the parties relative to the traditional mechanism over the long run. Happily, for both the mechanisms, the allocation of ads and the payments from the advertisers are efficiently computable, thereby making them amenable to real-time bidding.

Is the Grass Greener? On the Strategic Implications of Moving Along the Value Chain for IT Service Providers (p. 148)

Anandasivam Gopal, Sabari Rajan Karmegam, Balaji R. Koka, William M. Rand

Information technology (IT) service providers that offer both customized and routinized IT services (help-desk services, software services, business process outsourcing, consulting services) are often advised to consider moving up or down the value chain. Such advice is couched in language that emphasizes the revenue possibilities that exist higher up the value chain (moving from software outsourcing to packaged software, for instance) or volume that exists lower down in the value chain. However, the reality for firms that have attempted such moves is more ambiguous—many highly successful service providers have tried to move out of their niche and failed. Why? We address this question of why service providers may fail when they move up or down the value chain using agent-based modeling. We create a set of representative IT service firms, endow them with different types of resources and capabilities, and model the profitability implications of moves up and down the value chain in the presence of competitors. We run a series of simulations using these representative firms to see when such moves along the value chain are likely to be successful and when they are not. We find that firms moving up the value chain are successful only when such moves are accompanied by significant resource changes. In contrast, firms moving down the value chain are likely to be successful only if such moves are accompanied by learning capability arising out of higher absorptive capacity. Not surprisingly, we find that moves along with the value chain without significant investments in resources and capabilities, for the most part, end in failure.

When the Bank Comes to You: Branch Network and Customer Omnichannel Banking Behavior (p. 176)

Mi Zhou, Dan Geng, Vibhanshu Abhishek, Beibei Li

Banks today have been increasingly reducing their physical presence and redirecting customers to digital channels, and yet, the consequences of this strategy are not well studied. This research investigates the effects of banks' branch network changes (i.e., branch openings and branch closures) on customer omnichannel banking behavior. Using a proprietary data set from a large commercial bank in the United States, this paper shows the asymmetric effects of branch openings and branch closures on customer omnichannel banking behavior. In particular, it finds that branch openings increase customers' branch transactions. However, the first branch opening leads to a migration of complex transactions to the branches, which might result in a net decrease in online banking in the short term. As consumers interact more with the physical channel, there is a gradual synergistic increase in customers' transactions via online banking as well as alternative channels due to a learning spillover effect. This learning spillover effect goes from easy online inquiries to more complex online transactions as additional branches open. On the contrary, branch closures result in a favorable migration pattern from the branch channel to online banking. This pattern, however, could be reversed once the last branch closes within the customer's residential neighborhood.

Social Networks, Funding, and Regional Advantages in Technology Entrepreneurship: An Empirical Analysis (p. 198)

John Sibley Butler, Rajiv Garg, Bryan Stephens

With the increased penetration of digital technologies into entrepreneurship, the traditional need for proximity to specific locations or large amounts of funding for infrastructure development has diminished. Instead, digital entrepreneurs now pursue locations that provide more opportunities for funding (rounds) and greater social network support. Analyzing data for entrepreneurial ventures that were successful in receiving some external funding, we found that the number of funding rounds per year plays a significant and positive role in influencing start-up creation in that location—interestingly, amount of funding does not. Furthermore, local social network density creates stickiness to that location, thus negatively influencing entrepreneurs' willingness to relocate. If entrepreneurs do relocate to create a start-up after a short

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delay, larger social network density (in a new location) positively affects start-up creation decision in that location. Additionally, we find that midcareer individuals (such as millennials) are more likely than early-career or late-career stage individuals to create a successful technology start-up. Also, entrepreneurs are less likely to relocate for an Internet-based start-up but are likely to move if they have larger social network density in the new location. This research enhances our understanding of the factors that influence decisions to launch a start-up in a particular location and provides policy implications for creating a rich entrepreneurial ecosystem in a city.

Platform Pricing and Investment to Drive Third-Party Value Creation in Two-Sided Networks (p. 217)

Burcu Tan, Edward G. Anderson, Jr., Geoffrey G. Parker

Many two-sided platforms, such as eBay, iOS, Android, and Twitter, invest in developer integration tools, such as modular interfaces, interactive development environments, application programming interfaces, and help desks, in order to reduce the cost and improve the functionality of third-party content developed for the platform. Although these integration tools are crucial to platform success, they are costly to create, and therefore, managers need to understand where and when to deploy them. In particular, when the necessary integration investment is high, the advice to subsidize one side of a two-sided market while charging the other may not hold. This means that integration investment should be carefully coordinated with market pricing decisions. In general, higher levels of investment by hardware/software platforms into integration become desirable when the platform (1) has access to a large pool of content providers and consumers, (2) is able to develop integration tools that are highly effective in reducing third-party development costs, and (3) operates in high-consumer value markets. However, there are nuances. For example, business to business platforms can make investments in integration to facilitate participation by both sides of the market. We find that such investments are complements, not—as one might expect—substitutes.

Bloatware and Jailbreaking: Strategic Impacts of Consumer-Initiated Modification of Technology Products (p. 240)

Hasan Cavusoglu, Huseyin Cavusoglu, Xianjun Geng

Should a firm selling consumer electronics devices, such as smartphones, bundle these devices with bloatware? If consumers can remove bloatware by jailbreaking these devices, how should the firm adjust its prices and even its decision of bloatware inclusion? This research provides managerial insights for firms considering bloatware and policymakers regulating such practices. We show that it is not always optimal for a firm to sell a bloatware-included product. Furthermore, our analysis reveals that even if the firm can make it harder for consumers to jailbreak, the firm is not always better off by doing so. Consumers do not necessarily benefit from the reduced cost of jailbreaking either. Because the firm passes part of the bloatware revenue to consumers in the form of a lower price, whenever bloatware inclusion benefits the firm, consumers actually also benefit.

Financial Returns to Firms' Communication Actions on Firm-Initiated Social Media: Evidence from Facebook Business Pages (p. 258)

Sunghun Chung, Animesh Animesh, Kunsoo Han, Alain Pinsonneault

Our paper shows that firm-initiated social media can contribute significantly to the value of firms. The findings provide a rationale for firms to invest heavily in their social media while countering those who question the value of social media. Using a sample of 63 South Korean firms across industries over a three-year period, we find that a firm's social media actions yield significant financial returns, and the magnitude of these financial returns depends on the types of communication actions: that is, a firm's (broadcasted) posts versus its responses to customer messages. Our conceptual framework and empirical methodology can help firms more accurately gauge the ROI of their social media investments and tailor their efforts accordingly. Specifically, our results suggest that promptly responding to customer complaints is a key to increasing customer satisfaction and firm performance. Taken together, our study provides guidance for firms on how to optimize their social media strategies to extract greater value from social media.