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Innovation Contests, Open Innovation, and Multiagent Problem Solving
Christian Terwiesch, Yi Xu

Innovation contests have become increasingly popular and provide a means for companies to solicit innovation from the outside world. Well-known contests include InnoCentive's innovation challenges and various X prizes for breakthrough innovations in medicine and personal transportation. But why and how do these new forms of innovation work? We find that innovation contests can save costs, but can also produce otherwise unattainable innovations. The reason for this is that contests reach out to a wide network of potential problem solvers, generating variety and creativity. In the past, companies have shied away from using contests because of the belief that contests depress the efforts of the participating inventors; that is, if an inventor believes to have a low chance of winning the contest, she has little incentive to spend a lot of time on it. But, as we show, the benefits of the large and diverse network of problem solvers can easily outweigh the effort depression from the contest, making the contest the best way to innovate. We also demonstrate that using creative award structures such as performance contingent awards (e.g., a royalty-based award) can further enhance the attractiveness of innovation contests.

Optimizing Product Line Designs: Efficient Methods and Comparisons
Alexandre Belloni, Robert Freund, Matthew Selove, Duncan Simester

Since academic researchers first proposed conjoint analysis in the early 1970s, it has been a widely used market research technique, with thousands of commercial applications. Firms can use conjoint data to estimate the market share and profitability of alternative product line designs, enabling them to reject poor designs in favor of those that are more likely to be successful. Firms might also ask the question: "What is the best possible design?" Previous research has proposed alternative methods for answering this question by searching for designs that maximize the predicted earnings of a new product line. We compare these methods using both simulated data and a sample of real data collected for a producer of laptop computer bags. The results indicate that several relatively simple methods consistently find near-optimal product line designs. The methods require little computation time and are simple enough to be implemented by marketing managers with only a moderate level of technical expertise.

The Influence of Situational Learning Orientation, Autonomy, and Voice on Error Making: The Case of Resident Physicians
Zvi Stern, Tal Katz-Navon, Eitan Naveh

Understanding the factors contributing to employee errors is essential for every organization seeking to improve performance. These errors do not depend entirely on the individual employee but also reflect the organizational context within which employees work, something the manager can control. In this paper, we study resident physicians' medical treatment errors and explore three organizational factors that may mitigate the tendency to err: (1) *situational learning orientation*, which refers to the organizational emphasis on employee improvement and search for knowledge and feedback; (2) *employee autonomy*, which means that employees have the freedom and discretion to plan, schedule, and carry out the job as they see fit; and (3) *employee voice*, which represents employee ability to send feedback upward to the organizational hierarchy. Paradoxically, our results suggest that situational learning orientation was associated with the highest numbers of errors. However, when combined with high autonomy and employee voice, learning orientation was associated with the lowest number of errors. The implication for managers is that to reduce the number of errors, they should target all three factors. Aiming to improve one of the factors without focusing in parallel on the two others is likely to increase the number of errors.

Videoconferencing in the Field: A Heuristic Processing Model
Carlos Ferran, Stephanie Watts

Attendees of videoconferences must work harder to interpret the information delivered during the conference than they would have had to if they had attended face-to-face. This affects how attendees process the information delivered via videoconference in the following way: people attending videoconferences tend to be more influenced by heuristics (i.e., rules of thumb)—such as how much they like the speaker—and less by how good they think the speaker's arguments are. Our field research on medical professionals, based on dual-process cognitive theories, offers

guidelines for understanding when videoconferencing is most appropriate and for improving the design of videoconferencing equipment. For example, videoconferencing may not be appropriate for decision making when some stakeholders are present face-to-face and others attend via video, because these two groups are likely to process information differently. It also suggests that videoconferencing equipment may be improved by the addition of features that reduce cognitive workload, such as support for turn taking, audio localization, and personal distance location. Finally, videoconference presenters may want to emphasize the use of heuristic cues to increase the influence of their message.

Service Adoption and Pricing of Content Delivery Network (CDN) Services
Kartik Hosanagar, John Chuang, Ramayya Krishnan, Michael D. Smith

A variety of content providers, differing in terms of the type of content they deliver (e.g., video versus text), traffic patterns (e.g., smooth versus bursty user traffic), and other factors, use content delivery networks (CDNs) to distribute content on the Internet. Usage-based billing is the dominant form of CDN pricing, but there is limited consensus on how usage should be metered. For example, some CDNs meter total bits delivered in a given time window ("volume-based pricing"), while others monitor bursts in traffic that is akin to pricing based on peak utilization ("percentile-based pricing"). Similarly, some provide volume discounts while others charge volume premiums. We find that percentile-based pricing is more profitable than volume-based pricing when content providers have very different levels of traffic burstiness. The reason is that volume-based pricing cannot efficiently account for differences in traffic volume and burstiness across content providers. Consequently, the policy will either offer volume discounts that undesirably reward subscribers with bursty traffic or impose volume premiums that unnecessarily penalize those with high volume but nonbursty traffic. We envision that despite the efficiency of percentile-based pricing, it will face some resistance among subscribers because of its complexity and lack of transparency. CDNs should therefore offer percentile-based billing only when there are significant differences in burstiness across potential subscribers.

Revenue Management with Limited Demand Information
Yingjie Lan, Huina Gao, Michael O. Ball, Itir Karaesmen

Revenue management (RM) has had a major impact on the airline industry and, as a result, is now being applied across a broad range of other industries. To date, the majority of successful RM implementations have required a reasonably accurate estimate of customer demand. Likewise, research models usually require, as an input, a characterization of demand. In situations where demand patterns are stable and historical demand information is available, this requirement can be met. On the other hand, in the case of new products or situations where, for a variety of reasons, demand patterns might deviate substantially from past history, characterization of demand is difficult, if not impossible. In this paper, we develop RM methods, whose only requirement consists of upper and lower limits on demand within various customer (price) classes. Our methods lead to practical policies that are simple to compute, competitive with existing ones when given equivalent information and robustly effective when demand patterns are unstable or demand information is inaccurate.

Revenue Ranking of Discriminatory and Uniform Auctions with an Unknown Number of Bidders
Aleksandar Saša Pekeč, Ilia Tsetlin

Auctions are widespread in business transactions. Auctions are not only used in direct sales to customers (such as millions of auctions conducted daily at eBay.com), but are commonplace in the financial industry (e.g., T-bills, IPOs), government sales (privatization, oil and mineral rights, spectrum licenses, etc.) and are becoming a standard transaction format in many supply chains and distribution channels. Auctions come in a variety of formats and there is often uncertainty about the level of competition. Two predominant pricing rules are "pay-as-bid," where every winning bidder pays his bid (i.e., discriminatory pricing), and "uniform pricing," where every winning bidder pays the same price. Although the emerging conclusion of existing research is that uniform pricing yields greater revenues in auctions with risk-neutral bidders, we show that when uncertainty about the number of bidders is substantial the opposite is true: the bid-taker should prefer discriminatory pricing. Such uncertainty arises naturally in electronic marketplaces, where bidders are often anonymous to their rivals. Our findings suggest that in these and similar situations it is better to price discriminate than to charge a uniform price.

When Rational Sellers Face Nonrational Buyers: Evidence from Herding on eBay
Uri Simonsohn, Dan Ariely

Decisions makers, from consumers to investors to employers, are often able to observe the decisions of others prior to making a decision themselves. We study a likely mistake that may lead observers to

"herd" when they should not: neglecting the role that nonsalient factors had on observed decisions. Examining the behavior of eBay bidders, we find that they herd onto auctions whose popularity is not indicative of quality, but rather, of their (nonsalient) lower starting prices. Even after such auctions' prices are no longer low, bidders continue to prefer them, hurting their odds of winning and raising the price they end up paying. This bias provides an incentive for sellers to start their auctions well below the cost of the item being offered, effectively buying misleading signals. This may explain the otherwise puzzlingly common tendency of eBay sellers to start auctions for valuable items at $1 or less. From a managerial perspective, the phenomenon we identify is relevant for avoiding mistakes in situations ranging from deciding how much weight to place on the quality of a job applicant's previous employer to whether to imitate a successful business idea or strategy. From a marketing perspective, it provides guidance in terms of how and when it is particularly beneficial to induce early choosers to prefer one's product.

Choice Interactions and Business Strategy
Pankaj Ghemawat, Daniel Levinthal

Strategic decision making is generally conceived as focusing on a few critical choices that have far reaching implications for a firm's performance. But what constitutes a "few"? Managers sometimes refer to an 80-20 rule by which 20% of the activity accounts for 80% of the profits. Is there something analogous to this for strategic decision making? The answer hinges on the relationship among the various strategic choices at hand. When choices are interdependent (e.g., the choice of a marketing strategy depends on the choice of distribution system), strategic decision making must take more factors into account. Alternatively, if the impact of a strategic choice (e.g., marketing strategy) is independent of other choices, the strategic planning process can be greatly simplified since such independent choices can be made on a standalone basis. But, by the same token, it is particularly important to get such choices right because there is no possibility of mitigating the problems associated with getting them wrong by making adjustments along other dimensions. By recognizing this phenomenon, managers can better identify those dimensions of policy choices that are most critical to their strategic planning efforts.

Look Before You Leap: Market Opportunity Identification in Emerging Technology Firms
Marc Gruber, Ian C. MacMillan, James D. Thompson

The choice of which market to enter is one of the most profound decisions in the creation of a new technology firm, affecting its core identity, its evolution, and the value creation potential it can strive to exploit. Because technological competences are often configurable to serve customers in a variety of different markets, it is possible for entrepreneurs to identify multiple market opportunities prior to the first market entry of their emerging firms, and if they elect to do so, to therefore have a choice of which market to enter first. The findings of this study indicate that a key practice serial entrepreneurs have learned is to construct a choice set of market opportunities before deciding which one to pursue in new firm creation, i.e., they take the time to identify multiple opportunities and closely "look before they leap." The results also show that entrepreneurs can derive considerable performance benefits from constructing a choice set of market opportunities. Although market search activities involve some challenges and costs, the consequences of not identifying a market that offers more favorable conditions can be profound. In particular, when they neglect to explore alternative options, entrepreneurs run the risk of rushing products to inferior markets.

Integrating the Number and Location of Retail Outlets on a Line with Replenishment Decisions
Hussein Naseraldin, Yale T. Herer

A typical company faces the challenge of determining how many retail outlets to open in the market, where to locate them, and what the inventory level should be at each retail outlet. While the first two decisions are strategic in nature and taken at an early stage, the last decision is operational and is taken on a period-by-period basis. For simplicity, managers typically make these decisions sequentially: first, resolving the strategic decisions, and second, resolving the operational decisions subject to the strategic decisions. However, we show that such simplification results in costly and inefficient decisions. In this paper, using a stylized model, we show how to make better decisions by integrating the strategic and operational decisions. In particular, we show that when managers consider inventory when choosing the number and location of retail outlets, they open fewer retail outlets. Our results can help managers of retail companies make more effective strategic planning decisions.