



Information Systems Research

Publication details, including instructions for authors and subscription information:
<http://pubsonline.informs.org>

Research Spotlights

To cite this article:

(2020) Research Spotlights. Information Systems Research 31(2):iii-vii. <https://doi.org/10.1287/isre.2020.0942>

Full terms and conditions of use: <https://pubsonline.informs.org/Publications/Librarians-Portal/PubsOnLine-Terms-and-Conditions>

This article may be used only for the purposes of research, teaching, and/or private study. Commercial use or systematic downloading (by robots or other automatic processes) is prohibited without explicit Publisher approval, unless otherwise noted. For more information, contact permissions@informs.org.

The Publisher does not warrant or guarantee the article's accuracy, completeness, merchantability, fitness for a particular purpose, or non-infringement. Descriptions of, or references to, products or publications, or inclusion of an advertisement in this article, neither constitutes nor implies a guarantee, endorsement, or support of claims made of that product, publication, or service.

Copyright © 2020, INFORMS

Please scroll down for article—it is on subsequent pages



With 12,500 members from nearly 90 countries, INFORMS is the largest international association of operations research (O.R.) and analytics professionals and students. INFORMS provides unique networking and learning opportunities for individual professionals, and organizations of all types and sizes, to better understand and use O.R. and analytics tools and methods to transform strategic visions and achieve better outcomes. For more information on INFORMS, its publications, membership, or meetings visit <http://www.informs.org>

Research Spotlights

<https://doi.org/10.1287/isre.2020.0942>

Copyright: © 2020 INFORMS

Does Identity Disclosure Help or Hurt User Content Generation? Social Presence, Inhibition, and Displacement Effects (p. 297)

Jingchuan Pu, Yuan Chen, Liangfei Qiu, Hsing Kenneth Cheng

How will disclosing users' identities affect their content-generation activities? Will this identity-disclosure policy in one section also change users' behaviors in the other section? We answer these questions by using a natural experiment where a large corporate online community chose to disclose users' identities in one section (the focal section) but not the other (the neighbor section). Our analyses show that, in the focal section, disclosing identity increases social presence and inhibits users' willingness to generate content, resulting in greater effort spent per content but smaller content volume. Moreover, identity disclosure in the focal section has a strong displacement effect: Users generate more pieces of content but decrease their effort per content in the neighbor section, where they remain anonymous. The intensity of these effects depends on users' pursuit of volume- and effort-based image. For the managers of online communities, disclosing users' identity information inevitably changes their content-generation activities, and the unintended displacement effect cannot be overlooked. Practitioners can adjust these effects by changing reward systems and how users earn image from content generation. Given that many websites rely on users' voluntary content generation, the effects of relevant policies should be comprehensively evaluated.

Flexible and Committed Advertising Contracts in Electronic Retailing (p. 323)

Dengpan Liu, Subodha Kumar, Vijay S. Mookerjee

Many advertising agents offer flexible advertising contracts wherein firms have the flexibility of adjusting their level of advertising during the advertising campaign, whereas some agents also offer committed contracts wherein firms do not have this flexibility. Based on our analysis, we would recommend that e-retailing firms choose the flexible contracts, which give them the flexibility of adjusting their advertising spending during the advertising

campaign and make them better off. We also send a clear message to e-retailers that their leverage of engaging in flexible competition is contingent on the size of their operational costs. In particular, as operational costs decrease, they should be more mindful of engaging in the flexible competition. However, from the standpoint of advertising agents (e.g., Facebook.com), because firms' advertising efforts are lower in flexible than committed competition, we would recommend that the advertising agents adopt differential pricing schemes under the two modes of competition. In particular, the agents need to offer discounts to the e-retailers signing flexible advertising contracts so as to step up the advertising competition. In addition, our findings also provide the advertising agents with guidance on how to determine the optimal value for the discounts to be offered.

The Voice of the Customer: Managing Customer Care in Twitter (p. 340)

Reza Mousavi, Monica Johar, Vijay S. Mookerjee

In recent years, managing customer sentiment—particularly on social media—has become crucial as more customers use social media to seek help from firms. Therefore, we strive to determine an optimal strategy to manage customer sentiment on social media sites (digital customer care) such as Twitter. We also aim to identify factors and external events that can influence the effectiveness of digital customer care. Using Twitter data about digital customer care of the Big Four telecommunications firms (AT&T, Verizon, Sprint, and T-Mobile), we find a clear separation in digital customer care among these firms. The quality of digital customer care that customers expect varies across firms. Customers of higher priced firms (e.g., Verizon and AT&T) expect better customer care. We further find that good digital customer care is not merely a matter of responding to customer tweets. Rather, it is an effort-intensive activity in which customer tweets need to be carefully examined and adequately addressed. Furthermore, seemingly unrelated events (such as signing an exclusive contract with a celebrity) can impact digital customer care. Our study has important implications for decision

makers as it can help firms determine the optimal strategy to influence customer sentiment.

Turning Liabilities of Global Operations into Assets: IT-Enabled Social Integration Capacity and Exploratory Innovation (p. 361)

Terence J. V. Saldanha, Arvin Sahaym, Sunil Mithas, Mariana Giovanna Andrade-Rojas, Abhishek Kathuria, Hsiao-Hui Lee

Can information technology help to overcome the liabilities of globalization and cultural diversity, particularly when it comes to creation of exploratory innovations? This study answers in the affirmative. The authors argue that firms face difficulties in producing exploratory innovations because knowledge is often distributed across cultures and geographies. However, information technologies (IT) that promote social integration can help firms by overcoming the difficulties arising from global operations. In particular, the authors study the role of IT-enabled social integration capacity in affecting firm exploratory innovation. Analyzing data from 120 public U.S. manufacturing firms from 2003 to 2014, they find that social integration capacity has positive joint effects with global cultural diversity and with global geographical dispersion on exploratory innovation. In other words, firms can leverage social integration capacity to achieve greater exploratory innovation by turning the globalization liabilities into assets.

Onward and Upward? An Empirical Investigation of Gender and Promotions in Information Technology Services (p. 383)

Nishtha Langer, Ram D. Gopal, Ravi Bapna

Is there a gender bias in promotions at information technology (IT) companies? Do women get an equal lift in their promotion prospects from performance improvements, work experience, and training as men? These are pertinent and important questions affecting today's IT human capital. We analyze data from a leading IT services firm using robust econometric techniques to suggest that, contrary to expectations, women are more likely to be promoted. Although we do not find any evidence of overt discrimination, our findings, however, are far more nuanced and imply that there may be covert discrimination against women in IT when it comes to promotions: Compared with men, women realize less benefit from performance gains than men, less benefit from tenure within the focal firm, but *more* benefit from training. Although our analysis is limited to the lower rungs of the organizational hierarchy, we propose several actionable managerial and policy insights that can potentially make IT firms more inclusive and attractive to women: more parity in the effect of performance improvements and work

experience on promotions and using training as a signaling mechanism that can identify and encourage stellar women as they navigate the promotional ladder in IT firms.

An Economic Analysis of Product Recommendation in the Presence of Quality and Taste-Match Heterogeneity (p. 399)

Zhan (Michael) Shi, T. S. Raghu

Platform-provided recommendation is ubiquitous in online markets. This paper analyzes the equilibrium implications of platform recommendation as an intervention that shifts (a portion of) consumer search effort and demand from the rest of the market to the recommended products. Our analysis provides the theoretical basis for determining which types of products the platform should recommend to optimize total producer profits or consumer surplus. We find that the quality and taste-dispersion dimensions can interact to affect the overall effectiveness of product recommendation strategies, and, in general, recommendation strategies based on observed price or sales signals cannot guarantee the optimal outcome.

Your Hometown Matters: Popularity-Difference Bias in Online Reputation Platforms (p. 412)

Marios Kokkodis, Theodoros Lappas

We study a new source of bias in online review platforms that originates from the popularity difference between the traveling reviewer's hometown and destination. Through analyzing a large set of restaurant reviews from a major online reputation platform, we find empirical evidence that popularity difference affects both the assigned rating and the text-encoded sentiment of a review. When reviewers travel to a less popular location than their hometown, they review with a negative predisposition. To the contrary, when reviewers travel to a more popular location than their hometown, they review with a positive predisposition. As a result, a restaurant's ratings skew lower if the restaurant tends to attract guests from more popular locations, whereas they skew higher if the restaurant tends to attract guests from less popular locations. This effect on ratings alters the probability that an average customer will consider a restaurant by up to 16%. Finally, our study guides managers to improve the design of their ranking systems.

Unemployment and Worker Participation in the Gig Economy: Evidence from an Online Labor Market (p. 431)

Ni Huang, Gordon Burtch, Yili Hong, Paul A. Pavlou

The gig economy comprises a large portion of the workforce in today's economy. The gig economy has

low barriers to entry, enabling flexible work arrangements and allowing workers to engage in contingent employment, *whenever*, and in some cases, such as online labor markets, *wherever*, workers desire. Many of the workers seek and complete work via digital platforms. However, there is a lack of understanding into the participation in such platforms. The growth of the gig economy has been partly attributed to technological advancements that enable flexible work environments. In this study, we consider the role of an alternative driver, economic downturns, and associated financial stressors in the offline economy, for example, unemployment. Our analysis combines data from a leading online labor market and various archival sources such as the Bureau of Labor Statistics. We find local economic conditions significantly impact the intensive and extensive margins of labor supply in online labor markets. And such impacts are heterogeneous across different county characteristics. Given the prominence of the gig economy, we believe more research is needed to understand gig-economy participation. It is notable that policy makers recently started to look at related issues, proposing laws to protect the gig workers, such as the recent California Assembly Bill 5.

Cross-Platform Spillover Effects in Consumption of Viral Content: A Quasi-Experimental Analysis Using Synthetic Controls (p. 449)

Haris Krijestorac, Rajiv Garg, Vijay Mahajan

To inform product release and distribution strategies, research has analyzed cross-market spillovers in new product adoption. However, models that examine these effects for digital and viral media are still evolving. Given resistance to advertising, firms often seek to promote their own viral content to boost brand awareness. However, a key shortcoming of virality is its ephemeral nature. To gain insight into sustaining virality, we develop a quasi-experimental approach that estimates the backward spillover onto a focal platform by introducing a piece of content onto a new platform. We posit that introducing content to the audience of a new platform can generate word of mouth, which may affect its consumption within an earlier platform. We estimate these spillovers using data on 381 viral videos on 26 platforms (e.g., YouTube, Vimeo) and observe how consumption of videos on an initial “lead” platform is affected by their subsequent introduction onto “lag” platforms. This spillover is estimated as follows: For each multiplatform video, we compare its view growth after being introduced onto a new platform to that of a synthetic control based on similar single-platform videos. Analysis of 275 such spillover scenarios reveals that introducing a video onto a lag platform roughly doubles its subsequent view growth in the lead platform. This

positive cross-platform spillover is persistent, bursty, and strongest in the first 42 days. We find that spillover is boosted when the video is consumed more in the lag platform, when the consumption rate peaks earlier in the lag platform, and when the lag platform targets a foreign market. Our findings suggest that firms can sustain the popularity of their viral content by introducing it onto additional platforms (e.g., Vimeo) after posting it on a focal platform (e.g., YouTube). As a result of their posting on the latter platforms, firms can expect subsequent view growth on the focal platform to roughly double. The aforementioned benefits persists for up to five lag platforms. Platforms should also consider that a positive cross-platform spillover may help platforms reinforce each other’s usage, rather than cannibalize each other.

Hiding Sensitive Information when Sharing Distributed Transactional Data (p. 473)

Abhijeet Ghoshal, Jing Hao, Syam Menon, Sumit Sarkar

Although retailers recognize the potential value of sharing transactional data with supply chain partners, many remain reluctant to share. However, there is evidence that the extent of sharing would be greater if information sensitive to retailers can be concealed before sharing. Extant research has only considered sensitive information at the organizational level. This is rarely the case in reality; the retail industry has adapted their offerings to region-wide differences in customer tastes for decades. Differences in customer characteristics across regions lead to region-specific sensitive information in addition to any at the organizational level. This is the first paper to propose an approach to solve this version of the problem. Region-level requirements increase the size of an already difficult (NP-hard) problem substantially, making adaptations of existing approaches impractical. We present an ensemble approach that draws intuition from Lagrangian relaxation to conceal sensitive patterns at the organizational and regional levels with minimal damage to the data set. Extensive computational experiments show that it identifies optimal or near-optimal solutions even when other approaches fail, doing so without any loss in recommendation effectiveness. This mitigates potential risks associated with sharing and should increase data sharing among partners in the supply chain.

Content Growth and Attention Contagion in Information Networks: Addressing Information Poverty on Wikipedia (p. 491)

Kai Zhu, Dylan Walker, Lev Muchnik

Open collaboration platforms have fundamentally changed the way that knowledge is produced,

disseminated, and consumed. Although the community governance and open collaboration model of Wikipedia confers many benefits, its decentralized nature can leave questions of information poverty and skewness to the mercy of the system's natural dynamics. In this paper, we leverage a large-scale natural experiment to gain a causal understanding of how exogenous content contributions to Wikipedia articles affect the attention that they attract and how that attention spills over to other articles in the information network. We find a positive feedback loop: Content contribution leads to significant and long-lasting increases of attention and future contribution. Unfortunately, this also suggests that impoverished regions of information networks are likely to remain so in the absence of intervention. However, our analysis reveals a potential solution. Articles in impoverished regions of information networks are particularly positioned to benefit from the phenomenon of attention spillovers. Using a simulation that is calibrated with real-world link traffic of the Wikipedia network, we show that an *attention contagion policy*, which focuses editorial effort coherently on impoverished regions, can lead to as much as a twofold gain in attention relative to unguided contributions.

A Theory of Multilevel Information Privacy Management for the Digital Era (p. 510)

France Bélanger, Tabitha L. James

It is increasingly important to understand how privacy decisions are made because information is frequently perceived as a commodity that is mismanaged. While the preponderance of information privacy research focuses on individual-level privacy concern and personal self-disclosure decisions, we propose that a more versatile multilevel description is required to enable exploration of complex privacy decisions that involve co-owned (i.e., group) information in increasingly sophisticated digital environments. We define the concepts of group and individual information privacy, “we-privacy” and “I-privacy” respectively, as the ability of an individual or group to construct, regulate, and apply the rules for managing their information and interaction with others. We develop the theory of multilevel information privacy, which uses the theory of communication privacy management and the developmental theory of privacy as foundations for a social rule-based (i.e., normative) process of making privacy decisions that evolves over time with experience. We contend that technology complicates the privacy decision-making process by adding unique environmental characteristics that can influence the social identity assumed for a particular privacy decision, the estimation of costs and benefits of information disclosure, and

application and evolution of the information privacy norms.

Understanding Physicians' Online-Offline Behavior Dynamics: An Empirical Study (p. 537)

Liuan Wang, Lu (Lucy) Yan, Tongxin Zhou, Xitong Guo, Gregory R. Heim

Online healthcare platforms allow physicians and patients to communicate in a timely manner. Yet little is known about how physicians' online and offline activities affect each other and, consequently, the healthcare system. We collected data from both online and offline channels to study physicians' online-offline behavior dynamics. We find that physicians' online activities can lead to a higher service quantity in offline channels, whereas offline activities may reduce physicians' online services because of resource constraints. We also find that the more offline patients that physicians serve, the more articles the physicians will likely share in online healthcare platforms. These findings are of great importance to practitioners and policy makers. Our work provides evidence that online healthcare platforms supplement offline services and thus lessen the concern that physicians' participation in online healthcare platforms will negatively influence offline healthcare services. Our findings also indicate the need for the improvement of online-offline coordination and better system design.

Online Display Advertising Markets: A Literature Review and Future Directions (p. 556)

Hana Choi, Carl F. Mela, Santiago R. Balseiro, Adam Leary

Display advertising is a \$50 billion industry in which advertisers' (e.g., P&G, Geico) demand for impressions is matched to publishers' (e.g., Facebook, *Wall Street Journal*) supply of them. An ideal match is one wherein the publisher's ad impression is assigned to the advertiser with the highest value for it. Intermediaries (e.g., Google) facilitate this match between advertisers and publishers by managing data and providing optimization tools and algorithms for serving ads. Although these markets exhibit high allocative efficiency, we argue there is considerable scope for improvement. We demonstrate this scope by summarizing the state of knowledge about display advertising, organizing the summary by the various agents in the display advertising ecosystem. We then propose specific areas for improvement to enhance the decision outcomes for the market participants (e.g., how display ads should be valued, targeted, priced, and allocated). In doing so, we take an interdisciplinary view, connecting diverse streams of theoretical and empirical research in information systems, marketing, economics, operations, and computer science. By providing this integrated view, we hope to bring

attention to the outstanding research opportunities in this economically consequential and rapidly growing market.

The Importance of Interactions Between Content Characteristics and Creator Characteristics for Studying Virality in Social Media (p. 576)

Yue Han, Theodoros Lappas, Gaurav Sabnis

Why does a social media post go viral? Two approaches to understand this mystery are content-based research and creator-based research. Both content characteristics and creator characteristics have been examined for their influence on virality. But the relationships between them are rarely discussed. We propose an extension to our existing conceptual framework to study the interactions between content and creator variables. We demonstrate the significance of the interactions using data from 800,000 tweets. We find that by adding content–creator interactions, the predictive power of the model improves significantly, which underlines the importance of the interactions for studying virality in social media. We also provide insights for managers on shaping their social media presence and strategy to use social media popularity for marketing and brand building.

When to Play Your Advertisement? Optimal Insertion Policy of Behavioral Advertisement (p. 589)

Subodha Kumar, Yinliang (Ricky) Tan, Lai Wei

Digital advertisements offer a full spectrum of behavioral customization for timing and content capabilities. The existing research in display advertising has predominantly concentrated on the content of advertising; however, our focus is on optimizing the timing of display advertising. In practice, users are constantly adjusting their engagement with content as they process new information continuously. The recent development of emotional tracking and wearable technologies allows platforms to monitor the user's engagement in real time. The proposed optimal policy regarding the timing of behavioral advertising is based on a threshold policy with a trigger threshold and target level. Analogous to the familiar idea of "price discrimination," the methods we propose in this study allow the platforms to maximize their revenue by "discriminatory" customization of the timing and length of the advertisement based on the behavior of individual users. Finally, we quantify the benefits of the proposed policy by comparing it with the practically prevalent policies (i.e., preroll, midroll, and a mix of the two) through a simulation study. Our results reveal that, for a wide range of settings, the proposed policy not

only significantly increases the platform's profitability but also improves the completion rate at which consumers finish viewing the advertisement.

From Lurkers to Workers: Predicting Voluntary Contribution and Community Welfare (p. 607)

Marios Kokkodis, Theodoros Lappas, Sam Ransbotham

In an online community, users can interact with fellow community members by voluntarily contributing to existing discussion threads or by starting new threads. In practice, however, the vast majority of a community's users (~90%) remain inactive (lurk), simply observing contributions made by intermittent (~9%) and heavy (~1%) contributors. Our research examines increases and decreases of types of user engagement in online communities, characterizing user engagement based on trace user activity or lack of activity. Some lurkers later become workers (i.e., engaged in the community), but some will not. Differentiating lurkers who can be engaged from those who cannot enables managers to anticipate and proactively direct their resources toward the users who are most likely to become or remain workers (i.e., heavy contributors), thereby promoting community welfare. Our research, based on analysis of 533,714 posts from an online diabetes community, can thus guide managerial interventions to increase online community welfare.

Ad-Blockers: A Blessing or a Curse? (p. 627)

Manmohan Aseri, Milind Dawande, Ganesh Janakiraman, Vijay S. Mookerjee

With the rise of ad-blockers, firms are worried about the loss of revenue. A simple solution like denying web access to ad-block users seems intuitive; but it can lead to a significant drop in the popularity of the website, which can eventually lead to a further decline in the user base. This paper addresses the ad-blocking problem faced by websites and proposes a solution, and using it can increase a website's revenue. Overall, the presence of an ad-blocker at a user's end reveals that the user is very sensitive to ads. Similarly, the absence of an ad-blocker at a user's end reveals that the user is less sensitive to ads. This information about the ad-sensitivity of users is revealed to the website because the ad-blockers are detectable by the website. Using this extra information about the users' ad-sensitivity, the website can discriminate users by showing fewer ads to highly ad-sensitive users and by showing more ads to less ad-sensitive users. This discrimination ability increases the website's revenue.