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Introduction to the Special Issue

Social Media and Business Transformation: A Framework for Research

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Social media are fundamentally changing the way we communicate, collaborate, consume, and create. They represent one of the most transformative impacts of information technology on business, both within and outside firm boundaries. This special issue was designed to stimulate innovative investigations of the relationship between social media and business transformation. In this paper we outline a broad research agenda for understanding the relationships among social media, business, and society. We place the papers comprising the special issue within this research framework and identify areas where further research is needed. We hope that the flexible framework we outline will help guide future research and develop a cumulative research tradition in this area.

Key words: social media; business; transformation; research framework

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1. Introduction

Social media are fundamentally changing the way we communicate, collaborate, consume, and create. They represent one of the most transformative impacts of information technology on business, both within and outside firm boundaries. Social media have revolutionized the ways organizations relate to the marketplace and society, creating a new world of possibilities and challenges for all aspects of the enterprise, from marketing and operations to finance and human resource management. In particular, social media have been integral to recent advances in relational inference about consumer preferences (Hill et al. 2006, Aral et al. 2009, Trusov et al. 2010), novel peer-to-peer and targeted marketing techniques (Aral and Walker 2011, 2012), and demand prediction (Asur and Huberman 2010, Bollen et al. 2011). The transformative power of social media extends beyond marketing and aspects of consumer behavior. Increasingly, social media are also transforming the way businesses relate to workers, allowing them to build flexible relationships with remote talent (Archak 2010), to crowd source new ideas (Di Gangi and Wasko 2009), or to engage in micro outsourcing (Goldman et al. 2011, Paolacci et al. 2010). Within organizations social media have the potential to transform the exchange

of knowledge and expertise (Benbya and Van Alstyne 2010) and thus to accelerate innovation and the development of new products (Zwass 2010). Social media have disrupted entire industries (e.g., news and publishing; Dellarocas et al. 2013, Kwak et al. 2010) and are redefining others (e.g., retail; Byers et al. 2012). What we have seen has barely scratched the surface of what is coming and what is possible.

This special issue was designed to stimulate innovative investigations of the relationship between social media and business transformation. The far-reaching consequences of social media inspire research spanning many disciplines including economics, marketing, computer science, sociology, and strategy. The cross-functional and cross-disciplinary nature of the research activity suggests a central role for information systems (IS) scholars in the social media domain, given the longstanding tradition of the IS field to pursue such questions. This epistemological diversity is reflected in the diversity of papers comprising the special issue, not only in terms of the methodological frameworks used but also in the units of analysis employed. In this paper we outline a broad research agenda for understanding the relationship between social media and business transformation. We place the papers comprising the special issue

within this research framework and identify areas where further research is needed.

2. An Organizing Framework for Social Media Research

The framework we propose is intended to help guide research into social media and business transformation across disciplines. It identifies four broad thematic areas of research across three distinct but overlapping units of analysis. The concepts that we highlight are specific but also intentionally broad and flexible, because social media is a moving target. The relevant concepts and strategic drivers in social media research are inherently malleable and rapidly changing. We therefore sketch areas of research that we believe will be important over time, but we avoid focusing on the particular technologies or concepts that may be in vogue today.

The social media landscape can be conceptualized as an intersection of *activities* that producers and users of social media can undertake and the *level of analysis* at which these activities can be investigated. *Activities* can be categorized into four broad areas that describe how producers and consumers create and use social media:

- *Design and features* describes how consumers, firms, and organizations use specific social media features; and how platforms, organizations, and governments design, implement, standardize, and regulate these features to enable and constrain the use of these technologies to achieve organizational and societal goals.

- *Strategy and tactics* describes how consumers, platforms, firms, and governments broadly use social media (e.g., form relationships and curate information) and create social media strategies (e.g., product development, pricing, partnership, marketing, and acquisition) that best meet their needs or achieve their individual or societal goals.

- *Management and organization* describes how consumers, platforms, firms, and governments structure, manage, and allocate the processes, human resources, financial assets, and technology needed to develop, deploy, use, and interact with social media to meet their needs or achieve their goals.

- *Measurement and value* describes how consumers, platforms, firms, and governments create, measure, allocate, or appropriate the value or welfare generated by the use of social media.

Three self-explanatory *levels of analysis* can then be used to characterize research from a particular perspective:

- *Consumers and society*, e.g., individuals who use and cocreate social media and the societal implications that social media engender.

- *Platforms and intermediaries*, e.g., the individual, firm, or governmental actors that build, operate, maintain, and innovate on social media platforms (e.g., Twitter, Facebook, and Pinterest).

- *Firms and industries*, e.g., the firms or industries that use and interact with social media (e.g., GM or the software industry).

The framework and key research questions at each intersection of an activity and level of analysis are depicted in Table 1.

3. Current Research and Future Trends

Research on social media has accelerated dramatically in the last few years. Some areas of research are rapidly developing, whereas others are nascent or nonexistent. By selectively surveying current work and positioning its contributions within our proposed framework alongside those of the papers in this special issue, we hope to sketch a landscape of research opportunities and challenges. The framework is intended to structure our knowledge of the landscape, to point out emerging bodies of work, and to suggest where future work could fill the gaps in our understanding of social media and business transformation.

3.1. Design and Features

The design of social media enables and constrains their use and, therefore, creates the socio-technical foundation on which the strategies, management, and value derived from social media are built. We categorize social media design as the first and, perhaps, most basic element of our proposed research framework.

3.1.1. Users and Society. The features and functionality designed into social media affect how users interact, coordinate, cooperate, form relationship networks, and curate and share information (Sundararajan et al. 2013). The ways in which features enable and constrain user behavior provide the building blocks on which social processes and norms of interaction are built. These dynamic social processes, in turn, govern how social media affect the outcomes of individuals and shape how society is impacted by social media innovation.

Aral and Walker (2011) have examined how firms can create word-of-mouth peer influence and social contagion by designing viral features into their products and marketing campaigns. Using experimental evidence in a large social network, they show that viral features generate econometrically identifiable peer influence and social contagion effects. In this issue, Dou et al. (2013) expand on this emerging topic. They examine how firms can optimize the strength

Table 1 An Organizing Framework for Social Media Research

		Activities			
		Design and features	Strategy and tactics	Management and organization	Measurement and value
Levels of analysis	Users and society	How do users interact with social media features? How does feature design affect their use, interaction with one another, satisfaction, and ability to derive value from social media?	How can users optimize their use of social media? Which objectives do users pursue in using social media? How can they create relationships, curate information, broaden their reach, and maximize their influence?	How do users organize within communities and social media? How does community organization emerge? What are the effects of community organization and management on user contribution, participation, satisfaction, etc.	What are the benefits and costs of social media? How can we measure consumer surplus generated by social media? What is the nonmonetary value that social media create (e.g., equality, health, violence, civic engagement)?
	Platforms and intermediaries	How do platforms and intermediaries design social media features? How do specific features and designs help platforms attract users, create engagement, enable and constrain user behavior, and increase revenue?	How can platforms maximize their influence and revenue? What are the product development, pricing, partnership, marketing, and acquisition strategies that achieve the best results? Should platforms be open or closed, standardized or ad hoc?	How should platform operators organize internally? How should platforms create, manage, and instill culture within their ecosystems? Which skills, talent, or human resources should platform operators develop? How should platforms create incentives to guide social media activities?	What is the value added by platforms? What are sensible valuations for platforms? How can we measure the value of platform ecosystem partners and ecosystems? How can value be allocated across the ecosystem to optimize incentives?
	Firms and industries	How should firms interact with specific platform features to maximize their benefit? What features should firms design into their home-grown social media initiatives?	What types of social media initiatives work best for what firms? How should firms interact with public social media? What combinations of home-grown and public social media initiatives should firms pursue? How should firms respond to social media crises?	How should companies organize, govern, fund, and evolve their social media capabilities? What skill and culture changes are needed to best adapt to a social world? Which skills, talent, or human resources should firms develop? How should firms create incentives to guide social media activities?	How do we measure the short- and long-term bottom line and intermediate outcomes of social media for firms? How do social media add value to firms? What industry-wide efficiencies have been (can be) attained via social media?

of network effects by simultaneously adjusting the level of social media features embedded in software together with the right network seeding and pricing strategies. They find a complementarity between seeding and social media features under complete information, but that this complementarity does not hold under different assumptions about the level of seeding disutility from price discrimination in cases of incomplete information. These findings suggest how feature design impacts social media use in the consumer population and imply different optimal firm strategies in different contexts.

Also in this issue, Zeng et al. (2013) investigate how users' status, similarity, and desire to differentiate affect their user-generated content (UGC) production and network relationship formation on platforms such as Flickr. They study how features such as photo tagging affect and are affected by relationship formation on social media platforms. The fact that status and differentiation may play a role in how consumers form relationships in social media and how those relationships in turn affect their tagging behavior on photo sites like Flickr demonstrates the fundamental

role that social media play in shaping the evolution of interaction and the development of social structure. Understanding how social media design impacts interaction and social structure is critical because these social processes affect the very fabric of society.

Hildebrand et al. (2013) provide field experimental evidence from a European car manufacturer's brand community that shows that community feedback on user-generated product designs creates lower variety, lower self-satisfaction, lower product usage, and lower valuations for user-designed products. These findings describe, perhaps counterintuitively, how features that encourage interaction and feedback can actually thwart the original goals of such design choices in social media development.

These papers all demonstrate that social media features can have powerful and, at times, surprising effects on product use and individual and community outcomes. They are excellent examples of the potential research opportunities that exist at the intersection of design science and sociological and economic investigations of the impact of social media on firms,

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markets, and society. The emergent behaviors identified by these studies demonstrate that our intuitions may not always correctly predict social media's consequences. They remind us that sophisticated modeling and empirical observation of the interaction between social media design and use are essential to our understanding of this important new phenomenon.

3.1.2. Platforms and Intermediaries. Platform providers also have to think deeply about design. The interfaces, policies, and features that they provide not only structure how users interact, but also how third parties can provide add-on features and applications that extend a platform's functionality. There is a long tradition of research on platform strategy (Gawer and Cusumano 2002). Prior work has examined platform competition (Eisenmann et al. 2006), platform openness and innovation (Boudreau 2010), and platform pricing and product design in two-sided markets (Parker and Van Alstyne 2005). Research on social media platform design presents interesting new opportunities to examine how platforms can structure user interaction and ecosystem development.

In this issue, Claussen et al. (2013) examine one particular lever of platform design that can affect ecosystem development: incentives for third-party developers. Their analysis of a natural quasi-experiment created by a Facebook feature rule change shows that incentives can inspire developers to produce more engaging applications by restricting how features can be used. They also show how such feature-related policies affect how users evaluate and use applications and the applications' eventual success.

The conclusions of Hildebrand et al. (2013) in this issue also have implications for platform design. Building feedback and interaction into user-generated design communities can have counterintuitive—and potentially counterproductive—effects on the variety and quality of user designs. This has implications not only for the design choices made by firms and platforms, but also for the design constraints that platforms impose on third-party developers and end-user innovation.

3.1.3. Firms and Industries. Firms and industries use social media features to promote themselves, to communicate with consumers and society, and to cocreate new features and add-ons that can contribute to the evolution of social media itself. In this issue Dou et al. (2013) analyze firms' comanagement of features and targeting strategies in an analytical model that characterizes complementarities that may arise between them. In particular, they consider how firms can optimize the level of social media functionality built into their software, including communication

features (e.g., chat, avatar interaction), collaboration and cocreation features (e.g., wikis, content editing, tagging), peer referral functions, and reputation building. They show that embedding additional social media features to enable different types of engagement and interaction can enable firms to optimize the strength of network effects at the utility level. They tie this process to the seeding strategies with which firms can market their software and find complementarities between the two strategies under certain conditions. When these conditions are not met, however, the firm's optimal strategy changes.

As this study demonstrates, the emerging area of social media design—and specifically feature design and use—constitutes an important pillar of social media research. The work in this special issue suggests particular directions for future research in this area. Understanding how social media features enable and constrain social and economic phenomena is critical to understanding the effects of social media on society.

For example, Aral and Walker (2011) and Dou et al. (2013) examine the relationship between social media features and network effects. Both study how social media features affect consumers' utility by influencing the degree to which adoption by consumers' peers affects their own utility for the product. Furthermore, they highlight the importance of local network effects: the importance of one's direct peers rather than adoption by consumers at large (Sundararajan 2007). Network effects can have dramatic implications for consumer demand, competition, and firm strategy (Shapiro and Varian 1998). That social media can so directly move the needle on such a powerful economic lever demonstrates why studying social media is so critical to our understanding of the role of IT in business and society.

More research on how social media design affects relationship formation, interaction, network structure, and social and economic phenomena like network externalities and the value and use of products is needed to ensure that our understanding of the role of technology in society remains up to date and precise.

3.2. Strategy and Tactics

Social media have fundamentally transformed the relationship among firms, employees, and consumers. They have changed the norms of behavior at various levels and have introduced a bewildering range of new opportunities and challenges. All stakeholders must, therefore, learn how to optimally use this new set of tools to meet their respective objectives. Research opportunities abound at multiple levels.

3.2.1. Users and Society. Social media are making individuals publicly visible as never before. Almost

every person is now practically forced to engage with social media in one way or another, even if it is just to maintain one's resume on LinkedIn or to listen and respond to what others are saying about him or her in other social media. Dutta (2010) argues that every business person must now have a personal social media strategy. We agree and believe that a deeper understanding of what such a strategy entails represents a promising research opportunity.

Social media are transforming the way in which jobs and talent get matched. The emergence of career-oriented social networks, such as LinkedIn and Xing, is an important example of how things are shifting. This development raises important practical and theoretical questions with respect to how individuals should strategically behave to maximize their chances of obtaining the career results they seek. For example, Garg and Telang (2011) find that an individual's weak network ties on LinkedIn are especially helpful in generating job leads, whereas strong ties play an important role in generating job interviews and job offers. This is a nascent field of research and one where our field has a lot to contribute.

Firms are increasingly deploying social media internally, to enhance their knowledge management and intra-firm collaboration efforts (Benbya and Van Alstyne 2010). Such deployments have implications not only for firm performance but also for the ways in which employees should behave to optimize their career trajectories. In this issue, Wu (2013) studies the impact of introducing a social networking tool within the consulting division of a large information technology firm. The tool was primarily meant to help consultants locate people with specific expertise within the firm. The study shows that the tool's introduction also transformed individuals' network positions over time and that these network positions exhibited significant correlations with both job performance and job security. Specifically, the study finds that people who were connected to diverse networks were more able to generate billable revenue, whereas people who have more intense social communications were less likely to be laid off.

Wu's paper suggests that the implementation of social media within firms introduces new norms of employee behavior and creates new career opportunities and challenges, whose deeper understanding can benefit from further research. Another important and, as yet, underresearched area relates to the optimal social media tactics for consumers. As just one example, it is commonly believed that status is a valuable asset in most communities, online and offline. Moreover, the actions one takes on social media platforms may reasonably be assumed to impact one's status. Given this, how should individuals choose their actions? These actions might extend from simple

choices, like whom to friend or follow, to more costly and consequential decisions, like what content to create and on which platforms one should be most active.

3.2.2. Platforms and Intermediaries. Social media platforms fighting for profitability and growth are faced with a wide range of strategic considerations. Just to name a few: How can platforms maximize their influence and revenue? What are the product development, pricing, partnership, marketing, and acquisition strategies that achieve the best results? Should platforms be open or closed, standardized or ad hoc? Many of these questions are special cases of questions studied by the field of platform (or two-sided market) economics (Eisenmann et al. 2006, Godes et al. 2009, Evans 2011). This field studies firms that, like social media, add value by providing the infrastructure that brings together two or more groups of affiliated customers (e.g., in the case of Facebook, these would be users and advertisers). Research in this space can benefit from past work in platform economics but can, of course, also explore questions where social media platforms introduce unique elements that enrich that discourse.

3.2.3. Firms and Industries. Whereas firms had grown accustomed to pushing their messages to consumers through well-defined marketing and sales channels (as well as completely controlling communications with employees), they have now become mere nodes in complex networks where messages are propagated, attenuated, and amplified by users themselves and where employees are often active participants. This new environment represents a shift that requires the development of new firm strategies and tactics (Godes et al. 2005).

This emerging literature has investigated the use of social media as a tool for awareness building, persuasion, and the achievement of other marketing objectives. For example, Chen and Xie (2008) demonstrate the strategic benefit of online reviews to the firm. Kumar et al. (2012) propose a method to optimally employ social media marketing as a promotional and customer-loyalty-building tool. In this issue, Goh et al. (2013) study the firm's tactics with respect to content production on Facebook.

An important set of related questions is *how* firms should communicate with customers and employees via social media. In this issue, Miller and Tucker (2013) expose some of the subtleties of this question. The common wisdom is that, when firms actively manage their Facebook pages by regular posts, this induces more user-generated content. In their empirical study of hospital Facebook pages, however, Miller et al. find that this is due to an increase in postings from hospital employees, rather than from clients

(patients). They further elaborate on the type of firm postings that are more likely to induce responses from different types of users. For example, they find that untargeted general observations or postings that showcase firm achievements tend to incite more responses from employees than from clients.

The study by Miller and Tucker (2013) suggests that there exists a great deal of complexity and subtlety in terms of how firms should interact with their various constituencies through social media. We feel that there is potential for interesting follow-up work that looks at similar questions across different industries and that looks deeper into the questions of what type of firm communication provokes what type of response.

Another interesting set of questions relates to the firm's ability to leverage social networks to induce and hasten adoption of their products and services. In this issue, Dou et al. (2013) explore some of the complexities of trying to engineer word-of-mouth effects in social networks. They point out that market seeding, an established method for jump-starting word-of-mouth in networks, might result in consumer backlash when paying users become aware of the fact that some users have received the product for free. There are, thus, limits to the extent to which seeding can be beneficial. They further consider how firms can build network effects by adjusting the level of embedded social media features in their products, in conjunction with network seeding. The strategic use of social media (viral) product features is a relatively new development that connects marketing and product design and is a nice example of how two previously distinct business functions are brought together by the advent of social media (see the related discussion of this paper in §3.1).

We feel that there is need and opportunity for additional work in this space as the network dimension has introduced substantial new complexity into the processes of product and service propagation and adoption. Beyond conceptual advances, businesses need a new arsenal of computational tools that can help them optimize the parameters of their strategies.

In this vein, in one of the special issue papers Fang et al. (2013) propose a set of methods for building predictive models of adoption probabilities in social networks. Accurate models of adoption are crucial in a variety of network interventions, ranging from targeted marketing to political campaigns. Adoption decisions are, in turn, affected by a multitude of factors, including social influence, homophily, and structural equivalence. Building accurate predictive models of adoption probabilities is a nontrivial endeavor, to which Fang et al. (2013) make important contributions.

The above papers focus on questions of tactics. There are also important higher-level questions that

relate to a firm's overall social media strategy. Through social media, firms can enhance and transform their processes in virtually every business function, from public relations and marketing to customer support to product development to internal knowledge management and recruiting (Gossieaux and Moran 2010). It is thus important to research what types of social media initiatives work best for firms of different industries, sizes, and cultures; what functional areas are best suited to transformation through social media; and what combinations of home-grown and public social media initiatives work best (Chui et al. 2012). Moreover, it will become increasingly important for firms to appreciate how best to integrate their social media strategies with their overall corporate strategy. We did not receive such papers in this special issue. It is our view that there is a dearth of scholarly work focused on understanding high-level social media firm strategies. We see this as an attractive opportunity for future research.

3.3. Management and Organization

Social media introduce new management and organization questions at virtually every level of analysis. Of all parts of our framework we feel that this is, perhaps, one of the most underresearched, and an area where our research community can produce much needed, high-impact work in years to come.

3.3.1. Users and Society. Through social media, users form new emergent forms of user-centric organizations, such as self-help networks (e.g., Patients-LikeMe), knowledge communities (e.g., Quora.com), shopping networks (e.g., Groupon), etc. It is becoming important to understand how users self-organize and manage such communities, and how different ways of organization and management affect outcomes, such as community growth, levels of user participation, and user satisfaction. There is already a sizeable body of research in this area coming from sociology (Kraut and Resnick 2012 provide an excellent overview), but the range of questions is broad, and there are still several promising directions for future research. Topics in this space include how to incentivize participation and contribution, how to regulate member behavior, how to deal with newcomers, how to get a new community off the ground, etc.

3.3.2. Platforms and Intermediaries. Social media platforms themselves are organizations that need to be properly managed. For example, some people partly attribute the success of Facebook in becoming the dominant social network to good management practices, similarly pointing to management mistakes as key factors for the failure of other competing platforms, such as Friendster and Myspace.¹ Social

¹ See, for example, <http://techcrunch.com/2011/06/28/sean-parker-on-why-myspace-lost-to-facebook/>.

media platforms raise important management questions, such as how to plan for and manage rapid growth, how to properly balance the need for revenue growth with privacy concerns, how to organize for constant experimentation, how to listen to and respond to the user base, etc. As before, there is little scholarly attention currently devoted to these topics; we consider this a wide-open opportunity for high-impact research.

3.3.3. Firms and Industries. From the firm side, social media are often initiated and moderated by certain functional departments, such as marketing or public relations, and are often outsourced to external service providers. However, customers often do not distinguish between functional divisions within a company but increasingly expect the firm to be able to respond (regardless of whether they face a service problem), want to express their brand enthusiasm, offer advice for product improvements, or need answers for technical questions. Making full use of the business potential of new media (as well as avoiding its pitfalls) thus requires organizational conditions that reflect the transformational potential of active contributions by customers, the potentially wide-ranging effects of negative customer articulations, and their interdepartmental perspective.

There is, currently, little understanding with respect to the best ways in which companies should organize and manage social media. There is no consensus with respect to how responsibility for social media should be allocated within organizations, how social media activities should be funded and governed, what should be outsourced, and what broader changes with regard to an organization's structures, processes, leadership, training, and culture are needed to harness the potential of this transformative force. There is no established path of activities that lead a company down the path of "social readiness," and there are no widely accepted industry-specific best practices.²

Leaders of organizations worldwide need principled guidance in all of the above questions. We believe that this is an area that offers great opportunities for high-impact research in the near future.

3.4. Measurement and Value

What surplus might social media create for consumers, firms, and platforms? Researchers have addressed a number of these important questions,

but there remain significant challenges both in the conceptualization of social media value and in its measurement.

3.4.1. Users and Society. Measuring the impact and value of social media on individuals warrants a great deal of additional attention. Researchers in many fields (e.g., management, economics, political science) have reached some consensus that social media, in many cases, affect consumer choices (Chevalier and Mayzlin 2006, Liu 2006, Chintagunta et al. 2010, Chen et al. 2011). Left out of this analysis, however, has been an assessment of the *quality* of these choices. For example, Godes and Silva (2012) argue that, as more online reviews arrive for a product, the diagnosticity of a review declines, leading to worse decisions. Their result suggests that the marginal benefit of reviews may decline; however, they do not address the magnitude of the absolute benefit. Zhang and Godes (2012) investigate how relationship formation in an online social network affects decision quality. They show that the formation of weak ties initially hurts decision quality and only leads to better decisions once the user has sufficient experience in the community.

The above papers highlight several challenges and opportunities. First, how should we measure the impact? What measures might serve as proxies for "decision quality" or its improvement? Godes and Silva (2012) and Zhang and Godes (2012) use reported rating. They argue that, conditional on controls for dynamics, heterogeneity, etc., the residual information in these ratings is a good proxy for decision quality. However, such ratings are not available for all decisions. Alternatively, one expects the measurement of decision quality by direct methods to be subject to recall, self-presentation, and selection bias. One might imagine a number of possible solutions to this problem. One promising direction is the expanding use of experimentation, where objective measures of decision quality (selecting the "right" option) may be assessed.

Second, much of the extant research has addressed the relationship between social media and consumer choices in *purchase contexts*. We argue for the broadening of the research scope beyond purchases. In this issue, Wu (2013), for example, studies an internal social media tool introduced to facilitate the identification of expertise inside a consulting firm. She finds that the intervention improved—through different mechanisms—both billable hours and job security. More generally, Wu (2013) demonstrates that social media may have both a *direct effect* (improving the outcomes of decisions) and a *strategic effect* (changing the decisions). Much of the extant literature has focused primarily on direct effects but would benefit

² The little information that exists on these topics currently comes from consulting firm white papers. For example, Owyang (2011): Social Business Readiness—How Advanced Companies Prepare Internally, Research Report, Altimeter Group; and, Owyang and Li (2011): How Corporations Should Prioritize Social Business Budgets, Research Report, Altimeter Group.

from an additional focus on strategic effects. In particular, we note that the dissemination of social media encourages consumers to consider actions they have never considered before. A narrow focus on decision quality in the pursuit of evidence for social media impact may constrain researchers' abilities to capture the deepest effects. Moreover, this broader definition of "value" and "impact" implies further complications for the identification of adequate measures.

We conclude with a caveat related to strategic manipulation of social media. Two important questions arise: (i) Were such manipulation to occur, would it lead to suboptimal outcomes? Mayzlin (2006) argues that the predominance of "honest" social media ensures that manipulated social media *does not* have an adverse effect. Dellarocas (2006) finds, similarly, that manipulation may not lead to the dissolution of the informative value of online reviews. The second question is at least as important: (ii) Does manipulation occur? Mayzlin et al. (2012) provide evidence of manipulation in a comparison of the distributions of reviews across platforms that are, and are not, able to screen out nonpurchasers. The research community would benefit from work that identifies and estimates the scale of manipulation as well as the impact of this manipulation on consumer welfare.

3.4.2. Platforms and Intermediaries. It is important that platforms themselves are recognized as strategic actors and, thus, that an analysis of the impact of social media takes into account the impact on platforms. We look forward to research into, and measurement of, the drivers of value for these social media platforms. This requires the development of adequate proxies for platforms' objective functions. Traditional accounting and/or financial markets measures may be appealing. However, in the short run, most platforms will not have such measures available. We might consider instead the number of users (or active users). Traditional media firms track ratings—eyeballs—as their critical metric. Analogously, social media platforms typically earn revenues in proportion to the number of impressions they serve, and thus a similar measure might be useful. To our knowledge, no such measure has been proposed.

Relatedly, how should one measure the competitive landscape among platforms? What is the market structure for social media? In traditional industries, this is a difficult but solvable problem. Well-established methods exist to identify which cars compete with the Toyota Prius, for example. Applied to social media, it is less clear. As one platform experiences increased usage, what impact does this have on others? To what extent do the platforms serve as substitutes or complements? The unique ecosystems emerging in social media render our extant mental models obsolete.

3.4.3. Firms and Industries. What has been the impact of social media on firm and industry *outcomes*? These outcomes might be measured via either accounting or financial market metrics. In the present issue, Goh et al. (2013) study the relative impact of firm- and user-created social media on firm profits. They find that, in general, the latter have a bigger effect. Also in this issue, Rishika et al. (2013) model customer visit frequency and customer profitability as a function of their participation in a firm's social media activities. They find that this participation leads to an increase in both of these important firm-level outcomes.

There is increased interest in the relationship between social media and firm valuation. Luo (2009) and Tirunillai and Tellis (2012) demonstrate that online reviews and chatter, respectively, are leading indicators of stock-market performance. In the current issue, Luo et al. (2013) show that market returns of technology firms can be predicted by social media. They also show that the predictive power of social media metrics may be greater than that of search metrics.

The above analyses, again, focus primarily on social media's *direct effects* and less so on their *strategic effects*. To what extent do firms make different choices as a result of social media? How might these different choices lead to better outcomes? Godes (2012) shows that, as social interactions expand, firms may produce higher- or lower-quality products. The critical moderator is the nature of the impact of social media: When social media expand awareness (change beliefs), firms produce lower-quality (higher-quality) products. It would also be important to investigate the impact of social media on the broader set of firm actions beyond quality and promotion. Such actions include, for example, pricing and channel policies.

Finally, we note that one practical challenge facing the social media researcher is identification. The inclusion of social media measures, such as activity, valence, and ratings, as explanatory variables for firm outcomes (sales, profits, etc.) may raise concerns about correlated unobservables, endogenous network formation, and simultaneity (Hartmann et al. 2008, Aral 2011). Possible econometric solutions include the use of panel data to control for unobserved heterogeneity (Nair et al. 2010, Zhang and Godes 2012), difference-in-difference methods (Chevalier and Mayzin 2006), matched sample estimation (Aral et al. 2009), and instrumental variables (Chintagunta et al. 2010).

A particularly thorny problem for social media researchers is selection bias. For example, when studying the impact of consumer engagement with social media (e.g., posting on Facebook, sharing a video on YouTube, etc.) on consumer or firm-level outcomes,

assumptions about the exogeneity of this engagement may not be warranted. One may address this via experimentation (Aral and Walker 2011, 2012). When available and appropriately implemented, this often yields cleanly identified results. However, experimentation is not always possible. A second, and increasingly popular, approach is propensity score matching (Rosenbaum and Rubin 1983), which controls for confounding effects caused by the nonrandom application of the treatment, which, in this setting, is social media participation (Aral et al. 2009). In this issue, Rishika et al. (2013) make use of both approaches.

3.5. Concluding Remarks

In conclusion, we see the outcome of this special-issue process both as a validation of the importance of social media research and as a striking reminder of how many questions remain unanswered and, in many cases, unaddressed. One glance at the titles or abstracts of the papers in this issue confirms one's prior belief that the social media landscape is rich, highly varied, and complex. It is our hope that these papers, and the framework (Table 1) that they gave rise to, might serve as an initial roadmap to foster many more journeys into this exciting yet little-understood terrain.

4. Special Issue Process

In July 2011, an *Information Systems Research* announcement on ISWorld and other outlets invited scholars from around the world to submit papers for a special issue titled "Social Media and Business Transformation." In light of the far-reaching impact of social media on business organizations, the call encouraged submissions addressing all lenses of inquiry into the nature of this relationship (strategic, organizational, behavioral, economic, technical, etc). We, further, encouraged papers encompassing a variety of theoretical and methodological perspectives.

Our senior editor and associate editor boards reflect the fact that this is a highly cross-disciplinary research area. In particular we note, and applaud, the participation of several members of the marketing discipline in the editorial boards.

Submissions were due in January 2012. A total of 85 manuscripts were received. As a first pass, all three senior editors evaluated each of the submissions to assess its fit with the special issue's focus. After this assessment, 75 manuscripts were selected for further peer review. Each manuscript was assigned to an associate editor from the Special Issue Board who, in turn, engaged two or three reviewers. At the conclusion of this peer review, a total of 15 manuscripts were chosen for further revision.

Authors receiving a first-round revision decision were invited to present their papers at the Special

Issue Workshop at the University of Maryland in June 2012. The goal was to provide feedback at the mid-point in the revision cycle when there was still time to adjust the revision strategy. All of the editorial review board members, *Information Systems Research* senior editors, and selected others were invited to attend the workshop.

After the workshop, authors documented the key points of guidance that they received and how they intended to incorporate this guidance. The handling senior editor worked with the authors to resolve any conflicts between the original review package and the workshop feedback.

The authors resubmitted their papers by August 2012, including a consolidated response document covering both the original review package and advice from the workshop. Eventually, 10 papers were accepted for publication in the special issue.

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