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ORIGINAL EMPIRICAL RESEARCH

An exploratory study of business-to-business online customer reviews: external online professional communities and internal vendor scorecards

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Abstract This research examines the increasing use of online customer reviews in business-to-business (B2B) decision making. In contrast with other research on B2B decision making, we study a unique aspect wherein buyers draw on two sources: external reviews posted on online professional communities and internal reviews in the format of vendor scorecards. This method creates a conundrum: What happens when a buyer is confronted with conflicting reviews from two different sources? To shed light on this problem, we (1) interviewed 48 B2B buyers, (2) conducted a field experiment with 293 B2B buyers to examine the effect of review source, (3) conducted a second field experiment with 587 B2B buyers to examine the effect of conflicting reviews, and (4) solicited insights from 82 B2B buyers regarding the findings. The results indicate that B2B buyers are driven to resolve differences in reviews rather than to dismiss negative reviews. In addition, even positive internal reviews prompt exploration to confirm that relational bias is not present.

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Customer reliance on prior users' experience with a product has become so commonplace in the business-to-consumer (B2C) marketplace that researchers claim that more than 90% of all consumers are influenced by product reviews (Dimensional Research 2013). Not surprisingly, academic marketers devote significant attention to consumers' uses of online reviews and ratings, as well as brand or user communities (e.g., Fagerstrøm et al. 2016; Floyd et al. 2014; King et al. 2014; Tang et al. 2014; Tirunillai and Tellis 2014; Wu et al. 2015). Key findings from empirical articles that address the influence of online sources on marketing outcomes are summarized in Table 1. The insights from this body of research highlight the importance of digital sources of influence in shaping customer decision making.

However, relative to the insights available regarding B2C marketplaces, current academic and trade publications offer little advice to business-to-business (B2B) customers (e.g., Aarikka-Stenroos and Sakari 2014; Ordovás de Almeida et al. 2014; Spina et al. 2013), despite nearly 15 years of calls for research to shed more light on how salespeople use online resources to influence B2B buyers (Parasuraman and Zinkhan 2002). This research gap is pressing though, especially considering the significant time pressures, limited personnel, and resource constraints that mark B2B purchasing. By definition, these factors create an environment in which companies cannot have close relationships with every supplier. Instead, energy and resources are often directed to the most strategic relationships. For the rest of the relationships, firms seek a variety of online resources, externally and internally, to provide insights into decision making. Even in the case of strategic relationships, online reviews are used to gather different

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Table 1 Select empirical articles on the effects of sources of influence online on firm-related outcomes

Authors	Year	Key findings	Source of influence	B2B?	Journal
Agnihotri and Bhattacharya	2016	Overly positive or negative reviews can reduce their helpfulness, but reviewer expertise moderates the effect.	Online consumer reviews via Amazon	No	*Psychology & Marketing*
Bigné et al.	2016	Positive online comments can reinforce a decision, and negative reviews have differing effects on switching behavior depending on the competitor.	Online consumer reviews via scenarios	No	*Psychology & Marketing*
Brodie et al.	2013	Customer interactions and their outcomes in online brand communities can positively influence c ompany outcomes.	Vibration Training online brand community	No	*Journal of Business Research*
Chen and Lurie	2013	Perceptions that a review was written closer to the time a product was used reduces any negativity bias.	Yelp! online consumer reviews and lab studies	No	*Journal of Marketing Research*
Chevalier and Mayzlin	2006	Negative reviews can be much more damaging than positive reviews can be useful.	Amazon and B&N online consumer reviews	No	*Journal of Marketing Research*
De Langhe et al.	2015	A disconnect is present between objective quality and subjective online reviews.	OCRs and ratings from Amazon and *Consumer Reports*	No	*Journal of Consumer Research*
Fagerstrøm et al.	2016	Review certainty can increase purchase intention.	OCRs via scenarios	No	*Psychology & Marketing*
Floyd et al.	2014	Online reviews affect sales elasticity, particularly when offered by a third-party critic, are not on a seller's website, and include valence.	OCRs from 26 papers	No	*Journal of Retailing*
Godes and Silva	2012	Review diagnosticity may change according to the reviewer and number of reviews.	Online consumer reviews from Amazon	No	*Marketing Science*
Gruen et al.	2006	Customer-to-customer online exchanges enhance firm outcomes.	Online customer forum	No	*Journal of Business Research*
Homburg et al.	2015	A company's active involvement in online consumer forums provides diminishing returns.	Online consumer forums	No	*Journal of Marketing Research*
Huang et al.	2016	Time and geographic distance individually and in combination positively influence review evaluations.	Online restaurant reviews	No	*Journal of Consumer Psychology*
Kostyra et al.	2016	Volume and variance of reviews moderate the impact of valence on choice.	OCRs via scenarios	No	*International Journal of Research in Marketing*
Kozlenkova et al.	2017	Reviews, among other community communication, are a signal to buyers that help the buyer decide the degree of relationship with the seller.	Online clothing shopping community	No	*Journal of Marketing*
Kranzbühler et al.	2015	When reviews are mixed and few, usage intention is based on expert, not peer advice.	Online consumer forums via scenarios	No	*MSI Working Paper Series*
Liu	2006	Reviews explain early outcomes of movie performance, with more emphasis on volume rather than valence.	Yahoo consumer movie reviews	No	*Journal of Marketing*
Moe and Trusov	2011	Rating volume and variance both influence other ratings and sales; indirect effects may be short-lived.	Online product rating forum from national retailer	No	*Journal of Marketing Research*
Naylor et al.	2012	Reviewer identity affects brand evaluation such that when reviewers are similar to the viewers, identity should be revealed.	Online brand community via scenarios	No	*Journal of Marketing*
Pee	2016	Adaptations of the marketing mix can mitigate the effects of negative reviews.	Online consumer reviews of books	No	*International Journal of Market Research*

Table 1 (continued)

Authors	Year	Key findings	Source of influence	B2B?	Journal
Porter and Donthu	2008	The effects of company efforts to enhance customer beliefs can increase the customer's sense of company opportunism.	Online brand communities	No	*Management Science*
Relling et al.	2016	Word-of-mouth valence in brand communities can differ according to the goals of the community.	Online brand communities via scenarios	No	*International Journal of Research in Marketing*
Singh et al.	2016	Number of peers can influence the proclivity to write online reviews.	Online consumer reviews via Yelp!	No	*Psychology & Marketing*
Sun et al.	2017	Monetary rewards can have a negative effect on review writing for more socially connected community members, but the opposite effect for less-connected members	Online social shopping community	No	*Marketing Science*
Tang et al.	2014	The effect of neutral reviews on sales is not neutral; rather, it may depend on the distribution of valence and review type.	Online communities	No	*Journal of Marketing*
Thompson and Sinha	2008	The amount of time a consumer has been a member of a brand community increases product adoption and decreases the adoption of a competing product when comparable products are available.	Online brand communities	No	*Journal of Marketing*
Tirunillai and Tellis	2014	Vertically versus horizontally differentiated markets have varying product and product-related dimensions of importance, with stability varying as well.	Online consumer reviews	No	*Journal of Marketing Research*
Wu et al.	2015	Across reviews, consumers learn their own preferences, updating over time both expectations and variances of preferences.	Online consumer reviews	No	*Marketing Science*
You et al.	2015	Electronic word-of-mouth volume and valence elasticities are greater for privately consumed products with less ability for trial, in less competitive industries when reviews are from independent sites. Volume elasticity is greater for durables with specialized sites than valence elasticities, which are greater in community sites.	Online consumer reviews, blogs, and communities	No	*Journal of Marketing*

points of view, identify aspects not previously considered, and thus reach better decisions.

Most B2C studies begin with the assumption that online reviews and ratings come only from external sources, such as product users and experts, posted online on independent, third-party review sites and brand or user communities (e.g., Hammedi et al. 2015; Kranzbühler et al. 2015; Ramaswamy and Ozcan 2016). This assumption is logical; few consumers post online reviews and ratings on family intranets, for example. However, in the B2B arena, firms routinely gather, analyze, and post detailed product ratings, reviews, and comments by internal users, often using vendor scorecards that appear on internal, proprietary intranets (e.g., Clivillé and Berrah 2012; Doolen et al. 2006; Dunn 2006; Sawhney and Zabin 2002; Smolenyak 1996).

Which is more important, internal or external reviews? This question poses an intriguing decision-making problem for academics and B2B practitioners when external and internal online product ratings, reviews, and comments offer conflicting analyses and recommendations. The volume and variety of products and services that B2B buyers research and acquire each year means that conflicting reviews represent a commonplace scenario. Furthermore, given the newness of online customer reviews (OCRs) in the B2B marketplace, the consequences and implications of such discrepancies for B2B buyers' decision making and their working relationships with suppliers are unclear. Little if any insight or guidance exists in either academic or trade literature pertaining to how B2B buyers or marketers can address prescriptive differences in supplier reviews from two different sources.

This article contributes to the academic B2B marketing literature in several ways. First, we define and modify key digital marketing concepts to fit better within the context of B2B marketing and purchasing. Second, we identify the effect of conflicting reviews from external and internal sources on the purchasing professional's level of interest in learning more about suppliers, his or her attitude toward the supplier, and his or her purchase intentions and willingness to share the experiences with others. Third, we provide interview-based insights into how B2B buyers systematically reconcile conflicting online reviews. From this body of research, we offer suggestions for research and managerial action.

To these ends, we report on a series of interviews with 48 B2B purchasing professionals across the United States that we conducted before our field experiments. We designed these interviews to refine digital marketing concepts and applications within B2B marketing and to generate research hypotheses. We then conducted two field experiments: one with 293 B2B purchasing professionals, focusing on the influence of review source and review valence, and a second featuring a sample of 587 B2B purchasing professionals in which we tested the relationship between conflicting review scenarios. Both experiments focus on four key outcomes: interest in learning more about a supplier, attitude toward a supplier, intention to purchase from the supplier, and likelihood of sharing experiences with the supplier with other purchasing professionals. After the field experiments, we also conducted a series of phone interviews with 25 B2B purchasing professionals and an online panel of 57 B2B purchasing professionals to unveil their professional interpretation of the findings and the processes that these B2B purchasing professionals commonly use to deal with conflicting reviews.

Emerging influences on B2B buying decisions

The confluence of three market forces has significantly altered the methods by which B2B purchasing professionals select vendors and acquire products and services, namely, (1) greater demands on B2B buyers' time, (2) the entrance of millennials (i.e., those born between 1980 and 2000) into the field, and (3) the widespread availability of digital technologies and applications in business. The U.S. Bureau of Labor Statistics predicts that purchasing management jobs will grow by only 2% through 2024, the slowest rate for all business-related professions (U.S. Department of Labor 2015). Yet the current growth in the U.S. economy suggests that these B2B buyers will need to perform more work in the near future. Moreover, millennials occupied 27% of U.S. purchasing jobs in 2012, and this figure is expected to surpass 46% in the near future (Costa 2015). In contrast with previous generations, millennial B2B buyers likely are comfortable using digital technologies when buying products and services (IBM Institute for Business Value 2015). These market forces have changed the criteria and processes that B2B buyers use to evaluate potential suppliers and select solutions. Research further indicates that rather than conduct detailed and lengthy evaluations of price, total cost-of-use, product specifications, and service quality themselves, B2B buyers are increasingly likely to draw on the experiences of other users and experts for acquisition guidance and justification (IBM Institute for Business Value 2015; Simonson and Rosen 2014).

To gain a deeper understanding of contemporary B2B decision making, we interviewed 48 purchasing professionals. These interviews, as well as those conducted after the field experiments, were in the spirit of prior research in marketing (Bendapudi and Leone 2002; Challagalla et al. 2014; Gilliland and Kim 2014; Steward et al. 2010) that relies on qualitative interviews to understand phenomena of interest. We describe the methodology and key findings in the next section, then develop our hypotheses and describe our field experiments.

Interviews: before field experiments

Methodology

The field has witnessed evolving changes in B2B decision making that have the markings of a paradigm shift. The interviews conducted before field experiments thus gave us an opportunity to explore very real, modern phenomena within the complexities of the B2B purchasing context.

Sample In choosing interviewees, we followed other research in the B2B space (Homburg et al. 2014) and intentionally identified purchasing professionals who represent a variety of industries, company sizes, and tenures (see Web Appendix A). The age ranges of those interviewed included 18% 21–35 years old, 52% 36–55 years old, and 29% 56+ years old. All the interviewees were based in the United States. Our aim was to learn about contemporary practices in B2B purchasing, in light of the previously described market forces.

Data collection We arranged the interviews around six questions: (1) How does the buying process work today as compared with 10 years ago? With new digital technologies, has the buying process changed, or do buyers just have more tools? (2) Which sources of information do you and your team use during the buying process? (3) Does your decision-making process change depending on the strategic importance of the product/service? How so? (4) Are you more or less reliant on information provided by a supplier today than 10 years ago? (5) What are the most influential sources of information to you during the buying process? (6) Do you share information about suppliers with colleagues in your industry, whether through online review systems or other word-of-mouth venues?

The purchasing professionals were eager to discuss these topics, were highly engaged in the interviews, and found the questions we asked relevant to their contemporary work environment. The same two coauthors together interviewed each of the 48 purchasing professionals, and each interview lasted 45–60 min. The interviews took place over the phone, with two exceptions in which we conducted interviews in person. After each interview, the two coauthors (who were located in different cities) communicated by telephone to discuss the responses that each purchasing professional offered. In the spirit of a grounded theory approach (Glaser and Strauss 1967), during this post-interview phone call, we identified overarching findings and emerging themes from the body of interviews conducted to that point. This process continued after each of the 48 interviews.

Themes from the exploratory interviews

Purchasing professionals speak about vendors before speaking to them Never before have purchasing professionals had access to so much information and opinions about suppliers. Buyers can gain insights about potential suppliers from external and internal sources, across the globe, electronically, and before conversations with suppliers are ever initiated. When describing the search for information across platforms to assist in supplier and product selection, a sourcing manager put it bluntly: "I know what I need, and it isn't a salesperson."

Whereas salespeople seek to determine how best to use online tools such as social media to reach and engage B2B buyers (Agnihotri et al. 2012; Andzulis et al. 2012; Rodriguez et al. 2012), B2B buyers are more interested in interactions with other buyers. Of particular interest in these interactions are the online communities in which members with similar interests or affiliations ask and answer questions about suppliers, new products, and new processes. This online environment gives sourcing professionals a ready-made setting to talk about suppliers before engaging with them. Online communities for purchasing professionals have special influence on the investigation, both when the purchasing professional believes that a supplier change is necessary and when the company lacks a long (or any) history of buying the product or service. Even for companies with experience with a product/service and an existing supplier relationship, a common theme arose, as summarized by a purchasing professional: "Our engineers want to keep the incumbents. In fact, they want to grow the incumbents. The online resources I use show new solutions, or at least other solutions. This improves my negotiation in the future with our current suppliers, and at least lets me push our suppliers a bit."

Online internal vendor scorecards give an inside look, but potential bias is worrisome In contrast with consumers, B2B purchasing professionals can turn to their firms to find OCRs, in the form of online vendor scorecards or vendor intelligence systems available in their proprietary company intranets. Most respondents told us that their firms had some sort of online vendor scorecard. Typically, these scorecards enable all those who use a supplier's products or interact with a given supplier to rate their satisfaction with on-time and accurate delivery, correct invoices, pricing, product quality, and service. The vendor scorecards also provide a basis for the annual review sessions with current suppliers.

Vendor scorecards generally summarize the experiences of all internal managers who work with a given supplier and its offerings. The operations or purchasing department often creates the scorecard, gathering input from internal clients and other constituents in the company who interact with the supplier. Updated vendor scorecards are made available online to all internal users, including B2B purchasing professionals, and site functionality typically enables participants to communicate electronically with one another, including those housed at distant locations. Although firms vary in their use of scorecards (no use, use with all suppliers, use with only the most strategic suppliers), our respondents agreed that these scorecards can provide a useful and critical point of supplier assessment and be used for future development of suppliers. However, purchasing professionals worry, as illustrated in the following quote: "We absolutely use scorecards. We built a scorecard just for our suppliers. However, it is easy to get manipulated by a relationship. The scorecard can't be the end-all for me."

External online communities are used to learn and compare To learn about new products and assess potential suppliers, as well as compare the company's current supplier experiences, purchasing professionals often turn to the myriad of online groups, forums, and communities. In this field, an online community is an aggregation of individuals or business partners who interact on the basis of a shared interest, in which the interaction is at least partially supported or mediated by technology and guided by certain protocols and norms. Purchasing professionals value participation in such groups because they can "listen" to conversations about relevant trends and technologies, ask questions about pressing problems, and gain immediate responses. A B2B buyer expressed why he might go to an online community as follows: "It lets me bring a list of new potential vendors to the table. There is also a lot of value-add I get from reviews. Now I can make decisions with a portfolio of points of view."

Our respondents expressed a preference for communities sponsored by industry trade associations with membership limited to professional peers. Many lamented that the more public groups with minimal membership restrictions are now populated by silent sales and marketing types lurking in the cyber-shadows, waiting for a purchasing manager to reveal contact information. When they inadvertently identify themselves, purchasing managers complain that they are the recipients of an unrelenting barrage of spam from sales and marketing managers. Many reported dropping out of nonexclusive, open membership sites.

Digital technologies also make it possible for B2B purchasing professionals to gain ready access to detailed evaluations of customer experiences from large samples of users and experts. Currently, customers can express and post their experiences in the structured, standardized format of OCRs on independent, third-party-sponsored customer review sites.[1] In the B2B arena, examples include VendOp, Amazon Business Marketplace, and G2 Crowd. Reviews can be quantitative (i.e., ratings), qualitative (i.e., comments), or both.

For purchasing professionals who have no experience with a product/service or with a supplier, these external OCRs can be a valuable source of insights. Even for purchasing professionals who have experience with a supplier, external OCRs may be useful if the purchasing professional has concerns about an overly close relationship between the internal client and supplier that could mute efforts at innovation or rigorous negotiations for better contract terms. The external OCRs also might help a purchasing professional determine whether a better supplier than the one currently in use is available. Even in cases in which switching costs are high, the external OCRs can help the purchasing professional gain leverage to develop the current supplier.

Customer engagement: the new goal of B2B digital marketing efforts

The interviews shaped our understanding of the evolution of the purchasing profession, from order takers to extremely active pursuers of the best fitting supplier. Online tools have become part of the profession. As mentioned previously, extant research on OCRs focuses primarily on consumer products and relies on traditional marketing performance metrics (e.g., sales, return on investment, customer loyalty) as outcome measures or dependent variables (e.g., Cui et al. 2012; You et al. 2015). In digital marketing, scholars and specialists are more likely to use customer engagement as an ultimate goal of online marketing efforts (Hadcroft 2007; Hammedi et al. 2015; Henderson et al. 2014). Although researchers widely note the concept of customer engagement, no universally accepted definition exists (Chan et al. 2014). Still, there has been some progress in refining the construct and crafting an engagement framework (Kumar and Pansari 2016; Pansari and Kumar 2016).

In a B2B buying behavior context, we define *customer engagement* as positive attitudes and bonding created by meaningful connections and interactions between a customer firm and supplier firm over time that drive the customer's interest in, purchase and repeat purchase of, and loyalty to a supplier's products and services. We use four dependent variables to conceptualize customer engagement in the field experiment: two affective variables and two behavioral variables. The affective components are the B2B buyer's attitude toward the supplier and its offering and the buyer's intention to purchase the offering. The behavioral aspects of customer engagement are captured by the B2B buyer's interest in learning more about the supplier and the likelihood of the buyer sharing its experiences with the supplier with peers. We examine how different sources shape these outcomes differently. In both studies, we designate online professional communities as the source of external OCRs and online vendor scorecards as internal sources of OCRs.

[1] For the sake of brevity, we refer to online customer ratings, reviews, and comments simply as OCRs.

Study 1

Hypotheses

In Study 1, we examine how a purchasing professional's level of interest in learning more about a supplier, attitude toward the supplier, intention to purchase from the supplier, and likelihood of sharing information about the supplier with others can change, depending on the review valence (positive or negative) and review source (external versus internal).

Source and valence At first blush, the different levels of engagement that can result from positive versus negative reviews seem obvious: logically, positive reviews should create more favorable engagement than negative reviews. Further, prospect theory would predict that negative reviews should be especially stinging, as "losses loom larger than gains" (Kahneman and Tversky 1979). However, prior research has identified several twists that suggest the relationship between valence and engagement may be more nuanced than this simple characterization implies. Thus, we include review valence as a variable in this study.

First, there is evidence that we do not necessarily take valenced feedback at face value. Research has illuminated that when reading a negative review, the reader distinguishes whether the reason for the negative review is based on characteristics of the product or service or on the characteristics of the reviewer, such as mood or personality (Chen and Lurie 2013). This finding is consistent with Floyd et al.'s (2014) meta-analysis in the retail space that the source of the review has a greater effect on sales elasticities than does valence. Significant caveats to these findings exist, and the research is embedded in the B2C rather than the B2B context, yet the implications are that review valence may not be straightforward. Managers who read reviews must be able to discern whether a review's valence results from the actual performance of a product or service or reflect reviewer characteristics (Chen and Lurie 2013). This factor is especially significant in B2B decision making, in which purchasing professionals must determine whether positive internal reviews might be biased.

It is also worth considering that the norms and attitudes of purchasing professionals may drive them to investigate information and make assessments of why all types of outcomes occur (Sheppard et al. 1988). In consumer settings, readers of reviews generally perceive the reviews as word of mouth, written with the intent to benefit other customers (Dellarocas 2003; Hennig-Thurau and Walsh 2003). However, in B2B contexts, in which the solution may require some level of co-production, it is more typical for B2B customers reading reviews to evaluate the reason for the review's valence, be it positive or negative. Purchasing professionals operate according to a broader professional identity, in which the goal is to seek the truth about suppliers, individually and relative to the competition, and create the greatest value for the firm. Thus, purchasing professionals have a greater interest to learn more about the supplier and the supplier's customers.

Discernment may take different paths depending on whether the review valence is positive or negative and the source of the review is internal or external. Reviews from internal sources that describe a positive experience with a supplier may be especially powerful, because it identifies a purchasing path of least resistance. The supplier works effectively with the B2B buyer's company and has internal buy-in already. Any opportunities for the supplier to improve performance further may have been identified already, which allows the supplier to advance further faster. These factors significantly reduce risk for the B2B buyer in selecting the supplier. In contrast, external reviews do not offer a similar route to easy internal acceptance. Therefore, more favorable attitudes, greater purchase intentions, and more intentions to share information likely arise from an internal, rather than external, positive review.

With regard to intention to learn more about the supplier, we observe a different pattern though: purchasing professionals feel the need to investigate further in either case. As the depth interviews reveal, purchasing professionals worry that internal reviews may be biased by existing supplier relationships. To counter this possibility, they undertake some additional investigation to learn more about the context of the positive review and correct for bias. If the positive review comes from an external source, it also may trigger a desire for additional learning, due to the recognition that the reviewer's organization may differ notably from the purchasing professional's. Further investigation is necessary to determine whether commonalities exist that indicate the positive outcome may be replicated. Our first hypothesis reflects these observations:

H1: Internal positive reviews, compared with external positive reviews, invoke (a) no difference in interest in learning more about the supplier, (b) a more positive attitude toward the supplier, (c) greater intentions to purchase from the supplier, and (d) a greater likelihood to share information about the supplier among B2B buyers.

When the review is negative, the outcomes follow a different pattern. A negative review from an internal source may be a deal breaker. A purchasing professional would have to undertake significant effort and risk to choose a supplier that has already received black marks within the organization. As such, attitudes and behavioral intentions may be unfavorable, and the envisioned payoff of learning more may be low. In contrast, if a negative review comes from an external source, hope may remain for the supplier. The buyer likely wants to learn the reasons for the poor performance, to determine whether the factors contributing to the failure were supplier or buyer based, or if they could have resulted from an ill-fitting buyer–supplier relationship. That is, when negative reviews come from external sources, further investigation of the root causes of the poor review may be worthwhile. Thus, a negative review from an external source stimulates a higher level of interest in learning more about the supplier and, relative to a negative review from an internal source, a better attitude toward the supplier and greater intentions to purchase from and share about the supplier. Formally:

H2: When external sources provide negative reviews, B2B buyers exhibit (a) a higher level of interest in learning more about the supplier, (b) a more positive attitude toward the supplier, (c) greater intentions to purchase from the supplier, and (d) a greater likelihood to share with others about the supplier.

To test these hypotheses, we conducted a field experiment. We sampled professional B2B buyers to enhance the quality and generalizability of our findings.

Methodology and results

Sample We obtained a list of 1066 B2B buyers who had held an officer position in a chapter of the Institute for Supply Management trade association. We sent an initial email to this list, requesting their participation. Of the 1066 emails, 49 were unusable. Five days later, we sent the scenario, followed by the survey, to eligible participants. As an incentive to participate, we offered four separate drawings for \$500, \$250, \$150, and \$100 prizes to be donated to charities selected by the four winners. We sent four reminders after the initial email.

After 12 days, we closed the study with 293 respondents. Across the sample, 9.2% of the B2B buyers were 21–35 years of age, 48.8% were 36–55 years of age, and 42% were 56 years of age or older. The respondents worked for companies involved in a wide variety of industries, including education, health care, manufacturing, natural resources and mining, transportation, and professional services.

Scenarios and measures Given the scarcity of research precedent in the B2B sector on the issues presented herein, we pretested the language of the scenarios and the survey items with a set of 29 B2B buyers in the United States (17% were 21–35 years of age, 51% were 36–55 years of age, and 31% were 56 years of age or older). This pretest confirmed that the scenario, though describing only a short hypothetical situation, contained language and a setting that seemed realistic to the professional audience.

Web Appendices B and C contain the scenarios and measures, which included items related to engagement and manipulation checks for the type (internal or external) and valence (positive or negative) of the review. The scenarios placed the purchasing professionals in an active mode of responsibility to evaluate a particular supplier. The four scenarios, maintained in Qualtrics, were selected at random for each participant. To reduce ordering or grouping biases, we also randomized, for each participant, the items reflecting the dependent variables (interest in learning more about the supplier [three questions], attitude toward the supplier [four questions], intention to purchase [three questions], and likelihood to share with others about the supplier [two questions]). All Cronbach's alphas exceeded .70 (see Web Appendix C). Considering our interest in online sources, we asked all respondents about the degree to which they believed online sources of professionals were useful in obtaining information that might help with decision making. We included the responses as a control variable.

Manipulation checks We tested the manipulations with a series of analyses of variance (ANOVAs) (see Web Appendix C). First, an ANOVA of items reflecting the respondent's understanding of the source of the review showed a main effect of source ($M_{internal} = 6.25$ vs. $M_{external} = 1.74$, $F(1291) = 803.87$, $p < .001$; higher values indicate an understanding that the review came from internal colleagues). Second, an ANOVA of the respondent's understanding of the review's valence illustrated a main effect of valence ($M_{positive} = 5.23$ vs. $M_{negative} = 2.25$, $F(1291) = 489.99$, $p < .001$; higher values indicate an understanding that past performance was good).

Analysis and results We conducted a 2 × 2 multivariate analysis of variance (MANOVA) with two possible main effects and one interaction. Overall, the main effects of source ($\lambda = .92$, $F(4285) = 6.28$, $p < .001$) and valence ($\lambda = .39$, $F(4285) = 113.53$, $p < .001$) were significant, as was the multivariate interaction between source and valence ($\lambda = .86$, $F(4285) = 11.24$, $p < .001$). We provide the univariate ANOVAs on each dependent measure in Table 2. The interaction was significant in each case.

In keeping with H1a, when reviews were positive, the data indicate no difference in interest in learning more about the supplier between internal and external reviews ($M_{internal} = 6.38$, $M_{external} = 6.26$, $t = .90$, $p > .18$). Consistent with H1b–d, when reviews were positive and from internal (vs. external) sources, buyers had a more positive attitude about the supplier ($M_{internal} = 4.95$, $M_{external} = 4.73$, $t = 2.03$, $p < .001$), greater intention to purchase from the supplier ($M_{internal} = 4.55$, $M_{external} = 4.02$, $t = 4.59$, $p < .001$), and greater likelihood to share information about the supplier with others ($M_{internal} = 4.34$, $M_{external} = 3.71$, $t = 4.93$, $p < .001$).

Moreover, our data support H2a–d. When reviews were negative, reviews from external (vs. internal) sources were associated with a higher level of interest in learning more about a supplier ($M_{internal} = 3.42$, $M_{external} = 4.80$, $t = -9.87$, $p < .001$), a more positive attitude about the supplier ($M_{internal} = 2.37$, $M_{external} = 3.02$, $t = -5.99$, $p < .001$), greater intention to purchase from the supplier ($M_{internal} = 2.06$, $M_{external} = 2.73$, $t = -5.80$, $p < .001$), and greater likelihood to share information

Table 2 Means (standard deviations) of dependent variables across Studies 1 and 2

	Interest in learning more	Attitude	Intention to purchase	Likelihood to share
Study 1				
Reviews				
+ Internal	6.38 (0.64)	4.95 (0.87)	4.55 (0.96)	4.34 (1.10)
+ External	6.26 (0.76)	4.73 (0.79)	4.02 (1.06)	3.71 (1.27)
– Internal	3.42 (1.72)	2.37 (0.99)	2.06 (0.92)	2.01 (0.95)
– External	4.80 (1.40)	3.02 (1.04)	2.73 (1.04)	2.58 (1.11)
Results				
Source	F = 20.09 $p < .001$	F = 3.96 $p < .05$	Not significant	Not significant
Valence	F = 249.27 $p < .001$	F = 394.06 $p < .001$	F = 267.33 $p < .001$	F = 181.11 $p < .001$
Source*Valence interaction	F = 29.12 $p < .001$	F = 16.16 $p < .001$	F = 27.18 $p < .001$	F = 21.76 $p < .001$
Study 2				
Reviews				
+Internal, +External	6.54 (0.60)	4.78 (0.83)	4.52 (1.02)	4.23 (1.40)
+Internal, −External	6.36 (0.91)	4.03 (1.06)	3.85 (1.27)	3.66 (1.43)
-Internal, +External	6.14 (1.17)	3.72 (0.97)	3.43 (1.12)	3.22 (1.25)
-Internal, −External	4.13 (1.97)	2.38 (0.92)	2.10 (0.97)	1.94 (1.00)
Scenario	F = 94.48 $p < .001$	F = 108.28 $p < .001$	F = 84.32 $p < .001$	F = 59.01 $p < .001$

Study 1: $n = 293$; Study 2: $n = 587$. Estimated marginal means and covariate included in the model: "Online communities in which professionals share information (e.g., LinkedIn) are very useful to obtain information that might help with decision making"

with others about the supplier ($M_{internal} = 2.01$, $M_{external} = 2.58$, $t = -4.39$, $p < .001$). Web Appendix D, Panels 1–4, illustrates the findings.

Discussion

Study 1 reveals that though the source of the review has a differential effect on the purchasing professionals' attitudes and behaviors, they want to know more, regardless of the source, if they read a positive review. These results echo insights from our interviews. When presented with a sole review, as in Study 1, a positive review from any source, even an internal one, prompts the purchasing professional to learn more about the supplier, in an effort to sort the reasons for the positive review before making a final recommendation. Purchasing professionals, as indicated in our interviews, understand that close relationships between their internal client and a supplier may blind the internal client to areas that need improvement.

However, when the reviews are negative, external sources prompt greater interest in learning more about the supplier than internal reviews did. In this case, the purchasing professional recognizes that not all supplier–customer relationships are the same, and in particular, other customer companies may be the reason for the supplier's poor performance, rather than the supplier. This finding lends credence to the idea that a negative external review will not necessarily destroy a supplier's chance at a customer's business and that the purchasing professional is willing to carry out further assessments before making a decision.

In this first study, the purchasing professional's task was fairly straightforward; respondents had only one data point with which to contend. However, our qualitative study indicates that in the complex environment in which today's purchasing professionals operate, information from both internal and external sources may be available simultaneously. Leveraging this observation, we next examine a more complex situation in which recommendations from internal and external sources are mixed. That is, we examine how, when coupled with similar or dissimilar valence, these two sources of reviews differentially influence outcomes.

Study 2

Hypotheses

With one review, as in Study 1, the reason for the review may be slightly ambiguous. Is a positive internal review due to bias in favor of a supplier? Is the purchasing professional's organization similar enough to the external organization that the positive result is likely to be duplicated? Is a negative review from an external organization due to idiosyncrasies in that particular organization and therefore not a negative indicator for others? With only one review in hand, such questions may spur a perceived need for additional learning about the supplier.

However, multiple reviews reduce ambiguity, as well as the need for a busy purchasing professional to investigate further. Two positive reviews, one from an external source and one from an internal source, suggest that bias due to a personal relationship is unlikely. The need to investigate this dimension is minimal, and a confident positive attitude and intention to engage with the supplier may result. The positive reviews from different sources suggests that the favorable outcome is generalizable to multiple organizations. Again, further investigation may seem unnecessary, and favorable attitudes and intentions to engage thus may be expected. In contrast, two negative reviews from different sources would suggest that the supplier has systematic problems that cannot be explained away by the uniqueness of one company. The need for further investigation may be low, and negative attitudes and behavioral intentions may be engendered. Reflecting these lines of reasoning, we hypothesize:

H3: B2B buyers who read both internal and external positive reviews, compared with all other combinations of source and valence, exhibit (a) a higher level of interest in learning more about the supplier, (b) a more positive attitude toward the supplier, (c) greater intentions to purchase from the supplier, and (d) a greater likelihood to share with others about the supplier.

H4: B2B buyers who read both internal and external negative reviews, compared with all other combinations of source and valence, exhibit (a) a lower level of interest in learning more about the supplier, (b) a less positive attitude toward the supplier, (c) lower intentions to purchase from the supplier, and (d) a lower likelihood to share with others about the supplier.

The reduction in ambiguity that multiple reviews can provide may break down when the reviews are mixed. When internal and external information conflict, the purchasing professional must weigh which input is more diagnostic of success for his or her own company (in this context, "diagnosticity" refers to the degree to which one observation or attribute may indicate a particular outcome; Feldman and Lynch 1988). An internally sourced review implies that the information should be perceived as more diagnostic of future success than external information might be because the supplier's environment to perform is essentially the same. Thus, the buyer's response should follow the sentiment of the company, as indicated on the internal vendor scorecard. When a supplier has a positive score, the buyer's response should be more favorable than when the supplier's score is negative, even if the external reviews are contrary. A conflict between internal and external information also may invite additional inquiry by the purchasing professional, particularly in light of the knowledge that this vendor has failed at least once, somewhere else. Thus, interest in learning more about the supplier may be piqued.

In contrast, when an internal review is negative, even if the external review is positive, the purchasing professional's attitudes toward the supplier and behavioral intentions likely are relatively poor. The purchasing professional may perceive the politics of internal negativity as too much to combat, even with additional research, and thus the possibility of learning more may seem futile.

H5: B2B buyers who read internal positive but external negative reviews, compared with those who read internal negative and external positive reviews, exhibit (a) a higher level of interest in learning more about the supplier, (b) a more positive attitude toward the supplier, (c) greater intentions to purchase from the supplier, and (d) a greater likelihood to share with others about the supplier.

Methodology and results

Sample We enlisted the support of a large chapter of the Institute of Supply Management to test how conflicting OCRs affect levels of engagement. We sent a link to the scenario, followed by the survey, to a list of 8729 B2B buyers. In return for their participation, we offered these members a summary of the research insights. We also mentioned that we would be giving a presentation about the research in an upcoming conference that participants could register to attend. We collected all data in one week, with one reminder email (8729 emails sent, 122 emails bounced back, 618 responses, with 31 removed for not working in a purchasing or procurement job). The resulting sample of 587 B2B buyers across 122 industries constituted a 7% response rate. The respondents had an average of 16 years in the profession (SD = 11 years), and 70% of the respondents had 10 years or more experience in the field.

Scenarios and measures Each participant read one of four scenarios presented at random, followed by a series of questions. Each scenario described two different OCRs about one particular supplier—one from an external online professional community that offered peer-to-peer reviews and one from within the focal B2B buyer's company, through the company's internal online vendor scorecard. In one scenario, both OCRs were positive; in another, both OCRs were negative; and in the remaining two scenarios, the OCRs were in conflict (i.e., internal positive and external negative or internal negative and external positive; see Web Appendix E). In the latter two cases, we tested separate scenarios and counterbalanced the external and internal OCRs in the paragraphs describing the hypothetical purchasing scenario. We presented the scenarios and questions randomly and used the same measures as in Study 1.

Manipulation checks We tested the manipulations with a series of ANOVAs. Two questions verified that the appropriate valence of the review was attributed to each source, depending on the scenario read.

An ANOVA pertaining to the respondent's understanding of the valence of the internal OCR illustrated that the manipulation was effective, with significantly higher valence for the scenarios with positive rather than negative internal OCRs ($M_{+internal} = 6.21$ vs. $M_{-internal} = 1.56$, $F(1, 585) = 4336.42$, $p < .001$; directional coding as in Study 1). An ANOVA of the manipulation for the external OCR valence also confirmed its effectiveness ($M_{+external} = 6.23$ vs. $M_{-internal} = 1.73$, $F(1585) = 3366.79$, $p < .001$, coding in parallel to Study 1).

Analysis and results We conducted a MANOVA with one four-level independent variable ("scenario") that captured all combinations of source and valence (e.g., positive internal and negative external; positive internal and negative external). The main effect was significant ($\lambda = .54$, $F(12, 1532) = 33.67$, $p < .001$). We provide the univariate ANOVAs on each dependent measure in Table 2. The interaction was significant in each case.

The data do not support H3a, which predicted that the level of interest in learning more would diminish after reading positive reviews from both internal and external sources. However, we also note an intriguing outcome. The level of interest in learning more after two positive reviews was statistically equivalent to that of the more ambiguous positive internal and negative external review condition ($M_{pp} = 6.54$ vs. $M_{+i/-e} = 6.36$, n.s.), and this level was greater than that in the other two conditions (vs. $M_{-i/+e} = 6.14$, $t = 3.83$, $p < .01$; vs. $M_{nn} = 4.13$, $t = 19.75$, $p < .001$). The interest in learning more about the supplier to confirm strong internal performance, as emerged from the test of H1a with a single review, thus persists if the review is coupled with an external review. Even with multiple positive data points in hand, purchasing professionals may seek more information from a variety of sources to confirm that internal performance is maximally effective.

As predicted in H3b–d, after purchasing professionals read the combination of positive reviews from both internal and external sources, the results, compared with other combinations of review valence, are a more positive attitude toward the supplier ($M_{pp} = 4.78$ vs. $M_{+i/-e} = 4.03$, $t = 6.03$, $p < .001$; vs. $M_{-i/+e} = 3.72$, $t = 8.63$, $p < .001$; vs. $M_{nn} = 2.38$, $t = 17.26$, $p < .001$), greater intention to purchase ($M_{pp} = 4.52$ vs. $M_{+i/-e} = 3.85$, $t = 4.72$, $p < .001$; vs. $M_{-i/+e} = 3.43$, $t = 7.64$, $p < .001$; vs. $M_{nn} = 2.10$, $t = 14.98$, $p < .001$), and greater willingness to share information about the supplier ($M_{pp} = 4.23$ vs. $M_{+i/-e} = 3.66$, $t = 3.48$, $p < .001$; vs. $M_{-i/+e} = 3.22$, $t = 6.19$, $p < .001$; vs. $M_{nn} = 1.94$, $t = 12.34$, $p < .001$).

The results also support H4a–d. Purchasing professionals reading two negative reviews from internal and external sources, compared with any other combination of source/valence, had a lower level of interest in learning more about the supplier ($t_{nn\ vs.\ +i/-e} = -14.26$, $p < .001$; $t_{nn\ vs.\ -i/+e} = -13.67$, $p < .001$; $t_{nn\ vs.\ pp.} = -13.96$, $p < .001$), a less positive attitude toward the supplier ($t_{nn\ vs.\ +i/-e} = -13.69$, $p < .001$; $t_{nn\ vs.\ -i/+e} = -11.24$, $p < .001$; $t_{nn\ vs.\ pp.} = -17.26$, $p < .001$), and lower intentions to purchase from ($t_{nn\ vs.\ +i/-e} = -12.50$, $p < .001$; $t_{nn\ vs.\ -i/+e} = -9.67$, $p < .001$; $t_{nn\ vs.\ pp.} = -14.98$, $p < .001$) and share about ($t_{nn\ vs.\ +i/-e} = -11.04$, $p < .001$; $t_{nn\ vs.\ -i/+e} = -8.09$, $p < .001$; $t_{nn\ vs.\ pp.} = -12.34$, $p < .001$) the supplier.

With regard to H5a, buyers' level of interest in learning more about the supplier, after reading a positive review in the internal vendor scorecard, was higher in the internal positive/external negative review condition than in the opposite condition ($t = 1.86$, $p = .062$). Our data support H5b–d too. Responses to the internal positive/external negative review condition, relative to the internal negative/external positive review condition, indicated a more positive attitude toward the supplier ($t = 3.21$, $p < .001$), greater intentions to purchase from the supplier ($t = 3.63$, $p < .001$), and a greater likelihood of sharing information with others about the supplier ($t = 3.40$, $p < .001$). Web Appendix F, Panels 1–4, illustrates the findings.

These results largely align with our hypotheses and illustrate some of the outcomes of the decision-making process when purchasing professionals face mixed reviews. However, statistics alone cannot provide a rich understanding of the perceptual and analytical forces at play in a conflicting OCR situation. Therefore, as a final step, we conducted another series of structured interviews to explore how purchasing professionals reconcile opposing reviews.

Interviews: after field experiments

Methodology

Sample We contacted 25 B2B buyers (none of whom participated in Studies 1 and 2) to participate individually in telephone interviews. The buyers were from 15 different industries (see Web Appendix G). The 25 buyers interviewed had, at some point after the field experiments or after presentations to trade associations that the authors gave during the research process, indicated that they were open to follow-up conversations. In addition, we asked on online panel of 57 purchasing professionals across industries to offer their experiences of whether and when external reviews might be assigned greater credence than internal reviews.

Data collection Each telephone interview lasted 30–45 min, during which we reviewed our study results and requested that the B2B buyers interpret the outcomes, asked them if they or their company faced conflicting OCR situations, and invited them to outline the processes they used to deal with discrepancies in OCRs. As in the previous interviews, the same two coauthors conducted all the interviews, and after each interview ended, they again discussed the conversation and emerging themes.

The 57 purchasing professionals who participated through the online panel also provided online responses regarding whether they ever gave greater credence to online reviews from an external source than to internal reviews. We posed this specific question to challenge the result from our field experiment, which suggests that internal reviews are favored over external reviews for their diagnosticity. Several themes emerged from the phone interviews and the online panel qualitative responses.

Themes

B2B buyers are reconcilers These interviews confirmed the comments from the earlier interviews that indicated conflicting OCRs are becoming commonplace in B2B purchasing. A purchasing professional said succinctly that mixed reviews are "a fact of life." Therefore, conflicting reviews merit significant attention, whereas the decision-making outcomes of such review situations have received scant attention in B2B marketing or buying research.

The theory of cognitive dissonance has been a mainstay of courses in consumer behavior (Festinger 1957). It contends that people strive for internal consistency in their thoughts to reduce mental stress or discomfort resulting from conflicting information. Consumers use many strategies to deal with cognitive dissonance, including ignoring or denying discrepant information or changing their behavior. Among B2B buyers, rather than ignoring dissonance, they displayed a stronger desire to conduct analyses (i.e., interest in learning more in this study) that would enable them to reconcile discrepant information. We surmise that this finding might arise partly because B2B buyers are paid to gather and analyze detailed information on their suppliers, as well as potential suppliers, to ensure that buying decisions are made in the best interests of their firm while minimizing risk.

Our interview respondents also indicated that they had a set of procedures for resolving conflicting OCR situations, centered on whether buyers attributed the informational discrepancy to internal or external sources. Overall, they expressed confidence in internal sources, summarized in their firm's vendor scorecards. Operations personnel may not want to use an acquired product or service if they gave it a poor vendor scorecard review in the past, so B2B buyers act in accordance with an internal user's review—except, presumably, with extenuating circumstances. Furthermore, the interviewees confided that it is far easier to verify an internal review than an external review, in that they can call or meet with internal reviewers and gather the information needed to confirm their assessment. A purchasing professional described it as follows:

> I would give more credibility to external reviews in nearly all circumstances. Internal scorecards slant to the provider's existing customer base, which gets built over time because their offering helps that type of customer. But the internal scorecard has little relevance to new customer diligence due to increasing variability of new customer needs. This often leads to misleading sense of ability to fulfill by the current supplier, which leads to increased need for customization—and cost. External reviews are nearly always sought to avoid this trap.

This coincides with repeated findings in our field studies that positive internal reviews seem to invite additional learning. Moreover, these purchasing professionals are concerned that the external environment is dynamic, with new possibilities that might better suit the company's needs.

Source matters—even when the review is positive The reconciliation processes mentioned most often centered on the source of the negative reviews. Many respondents indicated that their company's product applications and requirements were so unique that external reviews were largely irrelevant, but they sought out these reviews "just in case." In addition, B2B buyers intimated that they would determine whether favoritism was at work. One purchasing professional noted, "External reviews are useful when the internal scorecard is biased by a group which favors a particular vendor or longtime incumbent," and another explained, "When the internal source is not reliable and/or too emotionally involved to be objective, then the external review has more credence." When buyers encountered a positive, internal vendor scorecard review and a negative, online professional community assessment, they expressed concern that something was going on in the supplier company that their operations colleagues were unaware of. The first criterion they examined was often the financial solvency of the supplier according to financial databases (e.g., Dun & Bradstreet). Next, they would evaluate the supplier for any impending or settled lawsuits, strikes, operations problems, and poor quality ratings. Finally, they would determine whether "bad blood" existed that might taint external reviews.

Conclusions

Online customer reviews have changed the buying process for both consumers and B2B customers. In this exploratory research, we examined the impact of online reviews on B2B purchasing professionals. In Study 1, we discovered that when given only one positive review—from either an internal or external source—there was no difference in the level of engagement. On the other hand, we found that an external negative review prompted more learning, better attitudes, enhanced purchasing intentions, and more sharing than an internal negative review.

In Study 2, we presented respondents with both an external and internal review and observed that two positives significantly increase the four aspects of engagement while two negatives significantly decreased them. More revealing was our discovery that a positive internal review combined with a negative external review prompted more learning, better attitudes, enhanced purchasing intentions, and more sharing than a negative internal review and a positive external review. Our follow-up interviews indicated that while purchasing professionals commonly give more credence to internal reviews they also tended to be somewhat skeptical, fearing favoritism or bias due to personal relationships. Rather than ignoring such discrepancies, purchasing professionals appear to be driven to find the truth to ensure the best results for the firm.

Our findings indicate that rather than being deal-makers or deal-breakers, online customer reviews are new data-points in the decision-making process. As purchasing professionals are likely to examine reviews before they speak with a supplier's salesperson, B2B marketers must monitor and positively influence online customer reviews posted both on external online professional communities and internal vendor scorecards.

Limitations and further research

The field experiment was based on hypothetical scenarios, which limit the applicability of the findings. First, the OCRs presented were either extremely positive or extremely negative. In practice, ratings and reviews likely cover a wide range, from very good to very poor, making their interpretation less clear for B2B buyers. Second, the OCRs we created for both the internal vendor scorecards and the online professional communities were similar in structure and content. In reality, buyers experience wide variations in the criteria evaluated in internal and external OCRs, which creates validity concerns, in that B2B buyers may be comparing apples to oranges. Additional research should examine a wider range of internal and external OCRs. Third, internal reviews, especially in large, multinational companies, may come from wide-ranging divisions, functions, and geographic locations of the firm. Additional research could explore whether internal reviews from distant divisions or varying functional areas ever influence the purchasing professional more similarly to an external review. Additionally, for the internal OCRs, the scenarios described that "key members" of the company completed the online vendor scorecard rating. While the usage of "key members" was designed to assure the respondent that the appropriate members of the firm completed the scorecard, it very well could be that the expression confused respondents as to who actually provided the feedback on the vendor scorecard. Future research could be helpful to determine if purchasing professionals have concerns about which internal stakeholders completed the vendor scorecard.

To the best of our knowledge, this study is among the first to explore buying decisions in B2B marketplaces when internal and external OCRs offer conflicting advice. A few studies consider consumer decision making when the valence of a product's attributes conflict and trade-offs are required (e.g., Luce et al. 2000), as well as when there is considerable variance in the reviews reported on a single online site (e.g., Amblee and Bui 2012) or when online reviews conflict with established brand strengths (Ho-Dac et al. 2013). The growth and popularity of online professional communities and the likelihood of conflicting information in B2B marketplaces suggests the need for additional research in this area. Further, our scenarios did not address how OCRs may influence decisions specifically if the purchase is strategic entailing a close working relationship with a long-term supplier. Neither of our scenarios explicitly stated whether the purchases were strategic or non-strategic, or whether an existing supplier was being considered. The scenarios were designed to involve purchases that were more non-strategic and transactional in nature. While the scenarios were intentionally void of any relational factors, future research is needed to determine if OCRs, whether internal or external, are used in different ways in relational purchasing situations.

The interviews we conducted after the field experiments revealed an important step in the reconciliation of conflicting internal and external OCR: attributions of responsibility for and the validity of the review valence across internal and external communities. In line with attribution theory, two classic, foundational treatises—Heider's (1958) common sense psychology and Kelley's (1967) covariation model—both address situations in which actors explain the cause of a phenomenon in terms of either internal or external factors. Classic cognitive dissonance theory provides some insights for how to reconcile differences in information. Combining attribution theory with cognitive dissonance theory may provide the basis for improving understanding of B2B decision making when internal and external OCRs conflict. This aspect also merits study.

This study highlights the importance of vendor scorecards in B2B purchasing decisions. Yet very little research or guidance related to these scorecards appears in academic or trade literature. The interviews with B2B buyers revealed that most companies claim to have vendor scorecards, yet little agreement exists regarding what they should measure or contain, even within different divisions of the same company. Nor is there consensus about whether all suppliers should be scored, which represents an information void. In particular, academics should determine how firms might construct a valid vendor scorecard, how B2B buyers can leverage scorecard findings appropriately, and how purchasing decisions should reflect these recommendations.

Finally, our literature survey indicates that academic studies of the B2B buying process peaked around 1996 and have declined ever since (Johnston and Lewin 1996). Yet pundits and consultants increasingly claim that the B2B customer journey has changed significantly in recent years, due to technology advances and the influx of millennials into the workforce (e.g., Roetzer 2014). It is therefore timely for academics to take a fresh look at the B2B buying process, accounting for both digital technology innovations and, in the future, the analytical and buying preferences of millennial B2B buyers. The growing use of OCRs, online professional communities, and online vendor scorecards should be a focus of investigation.

Managerial implications

As an initial, baseline study of the use of OCRs in the B2B marketplace, our field experiments and interviews provide insights for strategic decisions and research. In particular, B2B purchasing agents increasingly use OCRs and vendor scorecards. From the purchasing standpoint, two key questions remain for research: When and how should these tools be used? From a sales and marketing perspective, two parallel questions arise: Which actions can be legally and ethically used to influence OCRs and vendor scorecards and when? Our findings allow us to offer some suggestions for each functional area. We describe recommendations for purchasing professionals when evaluating reviews in Table 3, and for sales professionals to approach reviews in Table 4.

B2B purchasing management The occurrence and use of both OCRs and vendor scorecards in the B2B marketplace are in their infancy, relative to the parallel uses in the B2C marketplace. We found little standardization of practices, within or across firms, and little guidance on how to use either tool. Purchasing professionals thus should approach these tools with caution. In our interviews with purchasing managers,

Table 3 Managerial questions for purchasing professionals when evaluating reviews

Questions to ask	Points to consider
Review type: Internal	
Who constructed the vendor scorecard?	Is the vendor scorecard biased toward one type of experience with the supplier (e.g., operations)?
Is the same version of the vendor scorecard used across divisions of the company?	Are the metrics used in one division appropriate to compare to the experiences of another division?
Is the input from all who interact with the supplier included in the vendor scorecard?	Is the supplier performing well according to one group, but the input of another group absent because of organizational hierarchy?
Is the vendor scorecard available to all relevant managers and functional areas?	How are employees using the vendor scorecard to help develop the supplier at each touch point?
Review type: External	
Has the survey instrument been validated?	Are the points of evaluation those that matter to the buying company?
Have the reviewers been vetted?	Are the reviewers indeed those who had experiences with the supplier?
Are the reviews and ratings for a supplier consistent over time?	Collectively, is there a trend line of improvement or decline in the supplier's performance, or an outlying customer rating?
What are the functional areas of those providing the review?	Is the supplier rated well by one functional area, but poorly by another functional area?
Review type: Combined	
Do the internal and external reviews conflict?	Does the company have a long-term, considerable, relationship with the supplier? If the external reviews are negative, yet the internal reviews are positive, is the company maximizing the supplier's expertise? Are there any signs of internal "cronyism" between employees and the supplier?
	Does the company have little experience with the solution and/or the supplier? Do the company's employees have limited knowledge of the technology involved? Consider weighting the external reviews more heavily in terms of credibility.
	Are the reviews reflective of recent experiences, or do the reviews consider the supplier's long-term track record?

Table 4 Managerial recommendations for sales professionals

Theme	Explanation	Approach
Negative reviews from external sources are not deal breakers	When comparing negative vendor scorecards with negative external reviews, purchasing professionals learn more from the latter about the supplier and hold a more positive attitude toward the supplier. Purchasing professionals seek to understand the reasons for the negative external review. Purchasing professionals are open to possibilities that the customers rating the supplier are different from their company and are willing to explore if the supplier might be a good fit.	When at all possible, provide dimensions by which the purchasing professional can compare, such as the experience with the technology, the industry, and the functional area(s) of the customer writing the review.
Vendor scorecards are often homegrown	The majority of companies create their own in-house vendor scorecard because commercial products do not exactly fit the customer's concerns. Yet, customers are not experts in rating suppliers, nor in the creation of vendor scorecards.	Be a part of the customer's vendor scorecard development process. Offer specific categories that are relevant to the customer and identify necessary strong skill sets of the supplier. Suggest the multiple functional areas in which the supplier interacts so that these views can be incorporated into the scorecard.
Convenience from the B2C experiences are now expected in B2B	Across generations, purchasing professionals come to expect in B2B the same digital ease and proliferation of data on products and suppliers that they have in the B2C world.	Suppliers must actively work with review sites such as VendOp that provide vetted reviews and ratings across functional areas and customers of suppliers. Work with current and past customers to provide input on review sites.

complaints about validity and reliability issues were common. For example, some managers noted that each group within a firm might use different versions of the vendor scorecards, such that it was difficult to compare reviews across these groups. Still others posited that the vendor scorecards did not capture reviews from all firm personnel who interacted with the supplier or used its products and services. Finally, according to some managers, vendor scorecards might appear on company intranets, but not all relevant managers and functional areas have access to these results, leaving them "in the dark" about supplier performance.

When the valence of OCRs and vendor scorecards differs, the respondents stated that they viewed OCRs as more credible in three main cases: (1) the customer firm had little experience dealing with a given supplier or its products and services, (2) the customer firm personnel had limited understanding of an emerging technology or innovative product, and (3) the internal customer firm personnel had little or no knowledge about the vendor's current financial stability, product quality, delivery reliability, or pending lawsuits.

We also unearthed distrust of vendor scorecards among some purchasing managers. Two concerns were prominent. The first indicates that colleagues in other functional areas (e.g., operations) might give positive reviews to their supplier "buddies" or "cronies," to the detriment of the company. The second reservation entailed a belief that colleagues who provided reviews for vendor scorecards granted too much weight to "the last order" or "recency effects," particularly if they were negative, without considering the supplier's long-term track record.

B2B sales and marketing management Our research indicates a potential paradigm shift in the way that B2B sales and marketing managers should pursue business with prospective customers. They need to create strategies and tactics to influence both OCRs and vendor scorecards. The few guidelines in place cover a broad range, from a vapid recommendation to "sell high-quality products and provide first-rate customer service" to the unethical and possibly illegal action of "paying for positive reviews." Among the conclusions we derive from our research, we include the pressing need for high-potential B2B marketing research that determines which tools can and should be used to influence OCRs and vendor scorecards. The findings of such studies promise to be potential game changers for B2B sales and marketing.

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