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Calculating, creating, and claiming value in business markets: Status and research agenda

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Abstract A key challenge facing business marketers surrounds developing a deeper understanding of customer needs. We conceptualize that challenge as having three dimensions: calculating, creating, and claiming value. We discuss key problems, new developments and research challenges in each of these three domains and note the desirability for a deeper collaboration between academics and practitioners to address the research challenges.

Keywords B2B markets · Customer needs · Customer value · Product design · Social networks · Serial innovators

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1 Introduction

The top research priorities in a recent survey of industry and academic thought leaders by the Institute for the Study of Business Markets (ISBM: see <http://www.smeal.psu.edu/news/latest-news/apr08/isbmtrds.html>) relate to the issues surrounding developing a deep understanding of real B2B customer needs, creating the offerings that most profitably address those needs, and developing the programs that best match those offerings with the market segments that share those needs (also see Anderson et al. 2007). We refer to these three interconnected issues as calculating, creating, and claiming customer value in B2B or Business Markets.

B2B markets offer challenges that differ from those in B2C markets in addressing these issues (e.g., Anderson et al. 2009; Dwyer and Tanner 2008). These challenges stem from the fact that most B2B markets (relative to B2C markets) are characterized by a far fewer buyers who buy in much larger quantities, often involving many more stakeholders in the purchasing process with purchase cycles that can take months or years. Indeed, in many B2B markets a mere handful of firms account for half or more of a supplier's sales, wielding influence that only giant retailers exert in the B2C marketplace.¹ As a result, firms in business markets tend to rely heavily on direct channels and favor the sales force over more impersonal communications media in their marketing mix. In addition, the variety and number of purchase influencers, often with different reward systems and metrics, make the purchasing process both complex and challenging to assess. And to complicate matters, most transactions in the B2B domain take place out of sight, in contrast to retail transactions and those on consumer product websites. This combination of factors—the small number of heterogeneous transactions taking place out of sight in particular—means that many of the statistical and data mining procedures that are standard fare in research in the B2C marketplace are of less use in the B2B domain.

In particular, the tools and knowledge needed to calculate, create, and claim value in business markets need to differ from those used in consumer markets. However, as the ISBM trends study underlines, there has been relatively little research that tends to systematically document and provide insights in these domains. In this article, we lay out the key domains of research, identify some new developments in those domains, and offer some suggestions on how this research might proceed.

2 Calculating value: understanding customer needs

Lilien et al. (2007, pp. 30 ff) categorize methods for assessing customer needs into “should do” measurement approaches—including field value-in-use measures (Anderson et al. 2009); behavioral or “have done” measures, including data mining and choice models and “plan to do” measures, both formal (including constrained measures such as conjoint analysis and unconstrained measures like standard survey methods) and informal measures, such as open ended interviews and focus groups. The nature of the

¹ Even though the transactions between a retailer and a manufacturer is between two firms, as the transactions are meant for products meant for non-business consumers, i.e., consumer markets, we characterize these transactions as being B2C transactions.

business marketplace noted earlier (vast differences in the sizes and influences of different customers, complex buying centers, great heterogeneity in customer needs, and far fewer total customers in the marketplace) suggests that these methods will have quite different applicability and will be used quite differently in the B2B domain than in the B2C domain.

Value-in-use methods are most appropriate when it is possible to quantify and demonstrate economic value to the customer. Conjoint analysis in various forms has been applied to B2B markets, although both sample (firm) and respondent (within firm) selection is often problematic. With some exceptions (e.g., Gensch et al. 1990), choice models and data mining methods are rarely formally used because these methods need long purchase histories and knowledge of competitive offers foregone at each choice occasion.

Historically, qualitative methods have been the mainstay of customer needs assessment in B2B markets, particularly when applied to the development of new offerings. The need for systematic and formal forms of deep customer probing has led to the development of methods such as quality function deployment, voice of the customer (Griffin and Hauser 1993), and variants and extensions such as that of Burchill and Brodie (1997), the work of Rayport and Leonard-Barton (1997) on “Emphatic Design” and the contribution of Toubia and Flores (2007) to improve idea generation in firms. While these methods are all vast improvements over the rather informal, unstructured interviewing process that preceded them, there remain many opportunities for new means to collect and analyze data. Here we discuss two such opportunities: (1) emergent incentive compatible methods and (2) the role of serial innovators.

2.1 Emerging incentive compatible methods

The predominant method for collecting customer data in the B2B marketplace is to ask respondents what they plan to do. An inherent problem in these methods is whether people will indeed do what they say. The emergence of incentive-compatible methods in conjoint analysis (Ding 2007; Ding et al. 2005) provides a promising approach to address this problem, where the data collection process is designed to incent respondents to report as their first choice the option that they would actually buy. Experimental case research (ECR; Wang et al. 2008) has the potential to provide such insight into the structure of B2B exchanges in an experimental setting.

ECR is designed to allow researchers to study the causal relationships embedded in business-to-business exchanges in an experimental setting. ECR involves two stages: in stage 1, participants participate in business case and experimenters reward participants based on the outcome of their performance in the business case. The rewards are designed to motivate them to behave as if they were representing a firm in real life. Such incentive aligned mechanisms are designed to ensure that participants expend the cognitive efforts needed to provide data that are consistent, predictable, and externally valid (e.g., Camerer and Hogarth 1999; Ding et al. 2005). In stage 2, participants either answer a survey or participate in incentive compatible experiments to measure either perceptions or real behavior, which are influenced by participants' experiences in stage 1. The ECR approach differs from that of experimental economics, which does not involve stage 2, and mainly emphasizes

equilibrium outcomes (Smith 1976) in stylized games rather than in realistic situations. ECR may provide the potential to use experimental methods in a rigorous, valid, and predictable way to measure customer needs and response in a B2B setting (for details and an illustration see Wang et al. 2008).

2.2 Serial innovators

A major reason to collect the customer needs information discussed here is to develop successful new offerings. A very small number of individuals in firms are what Griffin et al. (2007) refer to as serial innovators, individuals in large, mature firms who are associated with a sequence of highly impactful new product development successes. Griffin et al. (2009) report that serial innovators are highly creative systems thinkers who believe that technology’s purpose is to make money for the firm, and have a will to find technologies that will “fix peoples' problems” better than current products and technologies are able. Serial innovators appear to have the following characteristics (summarized in Fig. 1):

- They search broadly to find “important” problems.
- They spend time understanding the problems deeply before moving on to inventing a solution.
- They gain acceptance for the project and conceptual solution in the organization.
- They are often trained in technology but have the mechanisms to obtain deep knowledge of business, strategy, markets, and customers.

Serial innovators seem to believe that to obtain the level of in-depth understanding they need to find and understand important problems; they must gather the information themselves rather than depend upon others in the organization to transmit knowledge to them. Indeed, they try diligently to “understand the marketplace” and obtain inputs from multiple sources, including conferences, technical meetings, the press, technical journals, entrepreneurs, university researchers, and those in other countries.

Serial innovators are particularly careful to check the validity of the data they gather, delving beneath the surface answers to differentiate prejudice and perceptions from fact. They do not necessarily talk to the “experts” on a topic. Serial innovators report that some individuals without much experience in a problem space do not know what cannot be done, and therefore the information on the needs that they

Core Skills	Industrial Inventor	Champion	Implementer	Serial Innovator
Technical Expertise	☑	•		☑
Market Expertise		•		☑
Political Guiding		☑		☑
Process Implementation			☑	☑

☑ Primary skill • Secondary sensitivity

Fig. 1 Skills exhibited by type of role

provide is not filtered (or biased) by a “cannot be-done” assumption. They generally seek these needs from those in the workplace with the actual problems.

Overall, serial innovators use a very different approach to understanding customer needs than is found in the typical marketing research processes. Most importantly, their process involves much more than just needs gathering and includes gathering information on the business, technical, environmental, and competitive contexts prior to delving into the specifics of customer needs. They understand that how questions are asked is crucial, focus on understanding problems and probe in depth on the issues of “why.” Finally, they investigate needs in great depth and frequently return to the customer to validate their solutions, both in the overall approach to solving the problem as well as in the detailed trade-offs made.

Aside from further profiling of serial innovators, two key research questions exist associated with identifying and training such individuals respectively. First, if serial innovators are as effective as they seem (and are currently rare), are there “latent” serial innovators in organizations who could be identified and nurtured? A second, closely related issue concerns whether the characteristics that define (natural) serial innovators can be taught to a broader population of potential innovators.

3 Create value: solution development

Creating solutions in business markets offers significant challenges, where we define a solution as a “set of customer-supplier relational processes... aimed at meeting customers’ business needs” (Tuli et al. 2007, p. 5). For one, business solutions tend to be high on functional (performance) aspects of the product and place much less emphasis on non-functional (aesthetic and emotional) aspects. We suggest that this current perspective on creating business solutions should be broadened and propose a total design concept for business solutions. Additionally, many business solutions are created either in a network of firms or operate in a network within individual firms. We address ways of accommodating these issues in this section.

3.1 Total design concept for business solutions

While product design in B2B markets has largely focused on functionality, recent developments in consumer markets suggest an integrated view of design to include not only the product’s functionality, but also its form and meaning. The question we pose is whether this integrated view of product design applies to business markets. If so, how does it affect buying behavior in business markets? Design is a crucial source of differentiation and an emphasis on product design can be a source of competitive advantage. Indeed, after controlling for features, superior product design decreases price sensitivities (Yamamoto and Lambert 1987).

Srinivasan et al. (2008) propose an integrated customer-experience perspective of product design, the Total Design Concept (TDC) (see Fig. 2), consisting of three elements: (1) functionality, which arises from the product’s features and related benefits for customers, (2) aesthetics, comprising the product’s sensorial characteristics, including its appearance, touch, smell, taste and sound, and (3) meaning, involving the associations and images of the product in the minds of its customers.

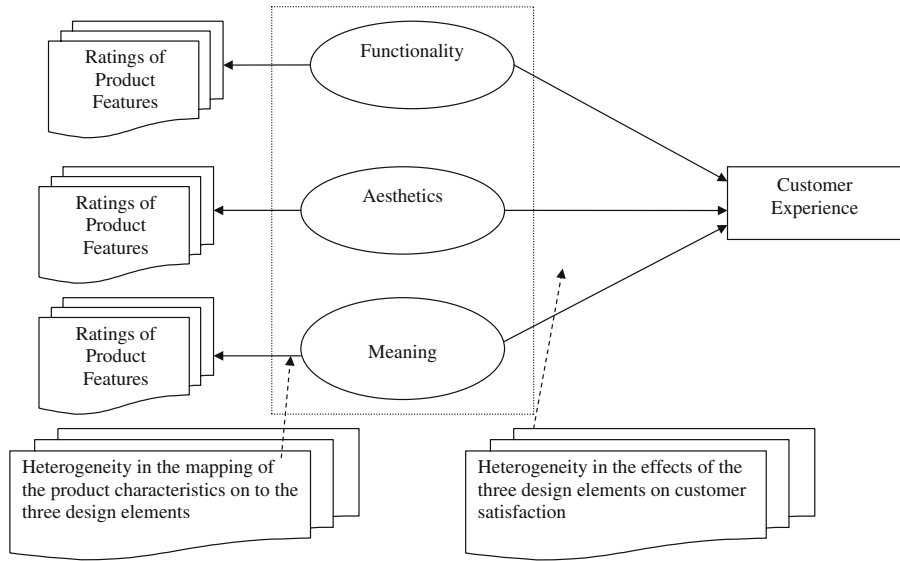


Fig. 2 Conceptual framework: total design concept and customer experience

Thus, all product characteristics map onto one or more of the TDC's three design elements, which, in turn, affects customers' experiences with the product.

In their original theorization, Srinivasan et al. (2008), develop the TDC concept for consumer markets and thus do not propose a hierarchy among the three design elements of functionality, aesthetics, and meaning; a hierarchy we expect to exist in business markets. The primary motivation for the purchase of products is more "rational" in B2B markets than in B2C markets. Anderson et al. (2009) suggest that buying in business markets is focused on performance and functionality, so that marketing (including product management) efforts are focused heavily on rational and economics issues. Thus, we propose that the TDC for products in B2B markets will have a hierarchy among the three design elements, which, in turn, will influence buyers' behaviors. Specifically, we suggest that functionality will be a necessary design element of TDC while aesthetics and meaning should influence buyers' behaviors only after a threshold on the product's functionality is reached.

Assuming this basic hierarchy exists, the TDC has the potential to provide significant insights into creating solutions in business markets. For example, it would be interesting to investigate the role of TDC for different product types—for products for internal consumption, raw materials, semi-finished goods and finished goods—as well as for different buying situations such as straight rebuy, modified rebuy, and new task. Additionally, since the buying process in business markets involves multiple participants (e.g., Webster and Wind 1972), investigating the role of TDC differentially for initiators, users, influencers, deciders, approvers, buyers, and gate keepers could provide meaningful insights into organizational buying processes.

Finally, the TDC permits us to ask some additional questions such as: Are the tradeoffs among the design elements more likely in some product categories? Which

design element (functionality, aesthetics or meaning) is more likely to be traded off for a shortfall in other design elements? How do the tradeoffs in the design elements vary by segments? Are there any thresholds for cutoff on the design elements and do these thresholds vary by design elements and products?

3.2 Social networks within and outside selling firms

Social networks, both within and across organizations, play critical roles in business markets (e.g., Anderson et al., 1994; Van den Bulte and Wuyts 2007). For example, a social network among salespersons can be an important conduit for sharing selling techniques and embedding customer oriented culture in the sales organization, which eventually leads to the creation of value. Similarly, in a typical business market, suppliers, manufacturers, customers, and intermediaries, such as distribution channel partners, can be viewed as a hierarchical social network structure, where value is created and distributed (pie-sharing) at each level. However, with few exceptions, such as Ronchetto et al. (1989) and Wuyts et al. (2004) who study networks in organizational buying centers, marketing scholars have generally viewed business markets as comprised of dyads as opposed to an ensemble of social networks. The social networks perspective presents numerous opportunities to create value for the business customer. To expand on these opportunities, we first describe a value chain social network and then lay out some important avenues for further research.

Consider as an example the network representation of the third-generation mobile telephony market in Western Europe (Fig. 3). The first layer consists of dozens of software, hardware, and content manufacturers, such as Comverse technology for messaging services, EZchakuuta for music downloads, and Huawei for modems. They communicate amongst themselves concerning technologies, standards, and market developments, and sell their products to the handset manufacturers, such as Eriksson, Nokia, and Motorola, which form the second layer. The third layer consists of the cellular service providers, typically two to four per country in Western Europe.

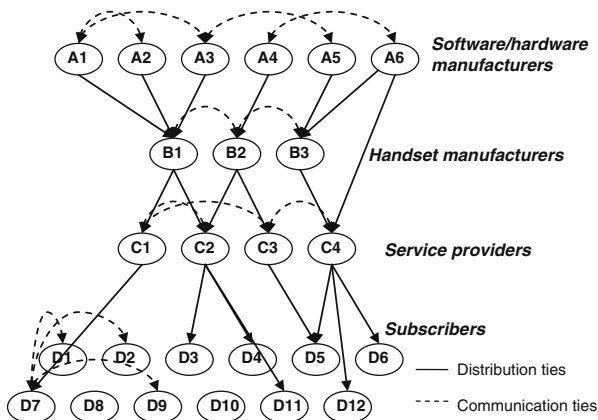


Fig. 3 Example of the representation of a 3G mobile telephony market using a network model

In this specific example, direct links can be formed between the first and third layers if the application manufacturers sell direct to a service provider. The fourth layer, the cellular subscribers, is the largest network in terms of number of participants. Its links to the previous layer are one-to-many, if a subscriber is connected to an individual service provider, or many-to-many, if a subscriber deals with multiple service providers. While the links between the first layers are relatively static due to heavy contractual switching costs, the link structure in the subscriber layer is dynamic, due to churn between service providers, and affects the offerings made available to the market and how those offerings are delivered.

At least three problem domains, all of which have received limited research attention, are highly relevant for business markets social networks: (1) the implications of occupying a certain position within a network for value discernment and creation, (2) the dynamics within a layer, and (3) the between-layer dynamics. As an example of the first domain, in a B2B market characterized by an open source innovation model, the network position of the innovation project founder plays a key role in the likely success of the project (e.g., Grewal et al. 2006). Two factors must be considered when defining the position of an actor in a network. The first relates to how focal is the network position, which is usually captured by the construct of centrality (e.g., Ronchetto et al. 1989) or embeddedness (e.g., Grewal et al. 2006). The second is concerned with whether the position of an actor brokers an important gap (referred to as the structural hole) in the network (e.g., Burt 1995). Bridging gaps or holes exposes an actor to unique information that can help the actor serve as a critical gatekeeper and broker of the information. Research questions on network position include: What are the tradeoffs involved in the interplay between embeddedness and structural holes for B2B value creation networks? When does embeddedness drive value creation and when do structural holes play the prominent role?

The position of an actor in a network changes over time, affecting both the offerings and the value of those offerings in the marketplace. These changes are influenced by both network and non-network (including actor performance) variables. Studying network dynamics is a complex undertaking since network variables (such as measures of centrality) are formed due to relationships among actors and as a result create structural autocorrelations that render standard estimation methods statistically inefficient. Methodologies such as multiple regression quadratic assignment procedure (MRQAP, e.g., Dekker et al. 2007) and exponential random graph models (e.g., Snijders et al. 2006) should be applicable, but new methods may need to be developed. Answers to substantive questions that relate to how value is created and the network structure co-evolves should go a long way in providing insights into drivers of value creation.

Between-layer social network dynamics relate to vertical connections between layers as well as horizontal connections that exist within layers. Thus, in these networks we not only model the connections between networks; we also need to model the type of actors. For example, in the telephony network in Fig. 3, we depict four types of actors who are connected within the same layer, to adjacent layers and, in some cases across layers. In some cases those connections are directed (as flows of good or money) and may be multidimensional (goods AND money AND communication AND relationship strength). The conceptual and methodological challenges of studying such a complex, dynamic structure are significant, but the

benefits of such study for a better understanding and management of the B2B marketplace could be profound.

4 Claim value: delivering offerings

We define “offerings” broadly as the complete package of tangible/intangible, economic/non-economic components of the delivered customer solution. While there are a number of ways one could classify a business based on how customers and vendors interact, a typology based on the type of relationship being contractual versus non-contractual and opportunities for transactions being largely continuous versus discrete, is useful (e.g., Schmittlein and Peterson 1994). Specifically, contractual relationships are those in which there is an explicit contract between transacting parties; absence of an explicit contract makes these relationships non-contractual.² Thus, in a contractual relationship, the time when a customer becomes inactive or leaves a purchasing relationship is observed; while in a non-contractual relationship termination time is not observed. This distinction is important for reasons including differences in calculations of customer lifetime value (CLV) calculations, and explaining the behavior of vendors and their competitors over time as a function of when an account is up for review. The challenges in studying purchasing relationships differ when the opportunities for transactions are largely observable as distinct or periodic purchases versus continuous (where opportunities for transactions can be largely unobservable to the researcher). For example, Schmittlein et al. (1987) specify credit card usage as a continuous transaction and sales of magazines that occur at regularly spaced weekly or monthly intervals as discrete transactions. Table 1 lists some example processes based on these two general conditions in B2B markets.

4.1 Contractual relationships

As explicit contracts characterize contractual relationships, the time when the relationship ends is unequivocally observed. This observation occurs due to a formal contract expiring or in the case of a continuous service, such as relationship with a utility firm, where customers need to explicitly discontinue one provider in order to switch to another. The following are a sample of research opportunities related to providing solutions in contractual contexts:

- Reconciling the drivers of performance within an individual contract period that lead to renewal with the study of the entire relationship from first purchase until non-renewal.
- Reconciling findings from different measures of relationship breakdown: intentions to renew; renewal/non-renewal given usage in the prior period (e.g., Gensch 1984); duration of a relationship (e.g., Baker et al. 1998).

² There is some overlap between the contractual dimension and the governance mechanisms typically discussed in the relationship marketing literature (e.g., Heide 1994; Jap and Anderson 2003). Most market governance mechanisms are likely to be non-contractual; however, non-market governance mechanisms tend to be either contractual (e.g., use of auditing services) or non-contractual (e.g., capital spending).

Table 1 Relationships and transactions in business markets

	Type of relationship with customers		
	Non-contractual	Contractual	
Opportunities for transactions	Continuous (or unobserved)	Supplies purchases	Corporate banking
		Travel and lodging stays	Consulting services Utilities
	Discrete (or Observed)	Capital spending	Renewable service contracts
		Spot media buying	Auditing Raw materials purchasing

Adapted from Schmittlein, Morrison, and Colombo (1987, p. 16)

- Reconciling findings from unobservable measure of relationship performance such as fairness and commitment (e.g., Kumar et al. 1995) versus observable measures such as share of customer wallet and account profitability (e.g., Bowman and Narayandas 2004).
- Focusing on multi-contract situations, where vendors have a portfolio of contracts with the same customer such as maintenance contracts for various pieces of equipment.

4.2 Non-contractual relationships

In non-contractual relationships, neither the strength of the relationship at any time nor the termination point of the relationship is observed and must be inferred. Indeed, much research in the B2B domain has focused on marketing activities and customer contacts that lead to enduring, collaborative non-contractual relationships (Cardozo et al. 1987; McDonald et al. 1997; Weitz and Bradford 1999). Such relationships are typically costly (due to investment in customization) and entail risks (customer and/or supplier power or dependence) that make value capture problematic (Ryals and Humphries 2007).

For example, past studies have shown that targeting customers based on their lifetime value (Kumar et al. 2008b) popularly known as the CLV, yields higher profit than using other metrics (Kumar et al. 2008a). Through a field study, these authors show that in a particular market, IBM was able to increase its revenues using a CLV targeting approach by about \$20 million in a given year. Researchers are also studying the merits of who to target (job function) in the organization. Kumar et al. (2008a), for example, report a study of a high-tech B2B firm where setting up communication with the Business Decision Makers and IT Decision Makers within an organization to create a selling synergy significantly increased the seller-firm's understanding of the buyer-firm's needs, identified new selling opportunities, and raised overall revenue by over 50%.

In such environments, critical questions concern which customers or prospects to contact in a given period, who to contact in those client organizations, and how to value the effect of the various modes of contacts using these limited resources

(Kumar 2008). Another key decision concerns what to sell to different contacts, both within and across firms Kumar et al. 2008b). As the strength of that relationship is unobserved, one needs to use indirect approaches, such as the hidden Markov models, e.g., Kumar, Sriram, Luo, and Chintagunta (2008c), to infer the relationship strength and how that strength changes over time.

Research opportunities related to providing solutions in non-contractual contexts include:

- What are the merits of a compound relationship (e.g., Ross and Robertson 2007) in a non-contractual situation where the relationship strength is unobserved as opposed to a contractual setting?
- As the relationships are non-contractual, how can we incorporate both short-term and long-term dynamics (e.g., competitive reaction) in the modeling of future buying behavior?
- How to determine the value of the word-of mouth effect in a B2B setting, refining the CLV concept to include (indirect) relationship value as well as direct economic value?

5 Conclusion

In this brief article we have argued that the essence of B2B marketing surrounds calculating, creating and claiming value, and that the concepts and tools needed here differ significantly from those most widely used in the B2C marketplace. We have identified a number of new developments as well as some exciting domains for further research. Many of the new developments have taken place with the cooperation of one or more interested organizations, cooperation far more critical for research advance in the B2B than in the B2C domain. Hence, for the field to continue to advance, it is necessary that scholars and practitioners interested in sharing and co-creating new knowledge identify themselves and locate one another, either directly or through intermediaries such as the ISBM or MSI (Marketing Science Institute). It is clear that this domain will be rich with exciting and important problems for academic researchers and for their industry partners for the foreseeable future, providing the potential for great benefits for both sides of these needed research partnerships.

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