

Customer relationship management (CRM) in business-to-business (B2B) e-commerce

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Abstract

Customer relationship management (CRM) and business-to-business (B2B) are essential to the success of modern business. Although they are two different modules, they share many similarities. The integration of CRM and B2B will benefit all related parties in business processes, including sales, marketing, customer service, and information support. This article discusses the characteristics, similarities, and differences of B2B and CRM. It also explores the CRM-B2B integration strategies, the current issues and their future development trends.

Characteristics of CRM

Sweeney Group defines customer relationship management (CRM) as “all the tools, technologies and procedures to manage, improve, or facilitate sales, support and related interactions with customers, prospects, and business partners throughout the enterprise” (Davenport *et al.*, 2001). This broad definition involves CRM in every process of a business transaction. A well-designed CRM shares the characteristics (shown in Table I) as:

- *Relationship management.* The features include instant service response based on customer input, one-to-one solutions to customers' requirements, direct online communications with customer anytime and anywhere, and customer service centers that help customers solve their questions.
- *Salesforce automation.* The functions include automation of sales promotion analysis, automatically tracking a client's account history for repeated sales or future sales, and coordinating sales, marketing, call centers, and retail outlets to realize the salesforce automation.
- *Use of technology.* It includes enabling new technology and skills to deliver value, using technology to make “up-to-the-second” customer data available, and applying data-warehousing technology to aggregate transaction information, to merge the information with CRM solutions, and to provide key performance indicators.
- *Opportunity management.* The features include the flexibility to manage unpredictable growth and demand and a good forecasting model to integrate sales history with sales projections.

Characteristics of B2B

B2B enables a business to interact with another business electronically, in particular via the Web. The benefits of the B2B solution are many, some of which include: increase productivity, reduce potential staff overhead, and clear audit trailing (Yang and Papazoglou, 2000). Different from business-to-consumers (B2C), B2B models not only contain elements of some profitable B2C models (e.g. auctions), but also are based on more attractive economic principles. Most importantly B2B reflects what the Internet does better than the offline world, the provision of complex information services. Specifically, the characteristics of B2B (see Table II) include:

- *Externalities and exponential growth.* The critical value proposition for a B2B hub is that its value increases as the square of the number of its participants. B2B hubs reflect the economics of a “many to many” transactional system and are far more like telecommunications networks. Each time a participant is added to the system, every other participant can contact it. All participants therefore receive value from each new addition.
- *Critical mass.* The fundamental economics of B2B exchanges drive them to achieving critical mass. A hub with 100 participants is significantly more valuable than 50 times a hub with two participants. This inevitably leads to the operator of the hub being driven to attract both buyers and sellers and to decide whether to secure a critical group of buyers to attract sellers or a critical group of sellers to attract buyers.
- *Customer “cohesion”.* Since purchasing departments of large corporations require the approval of a chain of command, once



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a corporation makes a decision to use a vertical portal it is less likely to move at random to other portals. This behavior can be reinforced by transacting systems that offer benefits such as settlement and reconciliation. While business sales have a longer sales cycle, once a corporation switches it remains more loyal.

- *Content and category depth.* Since participants of B2B are sophisticated buyers and sellers with very specific requirements and demands, B2B market makers must have a domain expert who has a deep understanding of the unique processes in their target markets.
- *Broadening and deepening hub services.* Better developed hubs are now offering complimentary services including

systems integration, hosting, financial services such as payment processing, receivables management, credit analysis and logistics services (including shipping, warehousing, and inspection) as well as risk transfer services.

- *Disintermediation.* It is one of the primary benefits of B2B hubs but also one of its greatest challenges. The fundamental business attraction of B2B hubs is their ability to remove existing and costly intermediary roles. Those intermediary roles may be external to a corporation or supported by external functions. As a result B2B hubs may generate hostility from internal functions in a similar manner to the reactions of large IT departments to outsourcing proposals.

Table I
Characteristics of CRM

Category	Characteristics	Impacts	Ways/alternatives to preserve or to avoid
Relationship management	Instant service response	Increase customers' satisfaction	To preserve customized service
	One-to-one solutions to customers' requirements	Customize the service	To avoid losing the most profitable customers
	Direct online communications with the customer	Attract more customers	Target the customers and meet their requirements
	Customer service centers	Maintain the customers	
Salesforce automation	Tracking clients' account history	Provide info for future sales and repeated sales	Need to coordinate with other functions
	Automation of sales promotion analysis	Increase sales and keep the customers	Avoid violating the privacy policy
Use of technology	Use technology to add value	Provide differentiated and customized service	Need to be integrated with ERP
	Data-warehousing technology needed	Keep leading position in the competition	Employee training is necessary for new technology
Opportunity management	Manage unpredictable growth and demand	To better meet the customers' needs	Avoid inaccurate forecasts
	Forecasting method	To optimize the supply and demand	Have customer consumption analysis

Table II
Characteristics of B2B

Characteristics	Impacts	Ways/alternatives to preserve or to avoid
Externalities and exponential growth	Its value increases as the square of the number of its participants	To attract more customers and keep the current customers
Critical mass	Increase the efficiency and value addition	Try to be in a dominant position in the hub
Customer cohesion	Help increasing the customer retention and loyalty	Try every means to attract corporations to join in the hub
Disintermediation	May generate hostility from internal functions	Try to avoid the hostility
Broadening the deepening hub services	Increase the service category and add more value to the system	To include customized products and services
Content and category depth	Better meet the business needs	To expand and include the content and category as much as possible

Similarities between B2B and CRM

Based on their characteristics, B2B and CRM share many similarities, which are briefly discussed as follows:

- Application availability anytime and anywhere – since both B2B and CRM are online operations, they are available to customers online anytime and anywhere. This also reflects the advantages of using the Internet as a business tool.
- Broadening and deepening hub services – they are necessary for the success of both B2B and CRM systems. Horizontally and vertically expanded services can help B2B retain the customer and increase customer loyalty. This is also the main purpose of CRM.
- Customer research – both B2B and CRM need to have comprehensive customer research regarding what customers need and who the target customers are, so that companies can attract these customers or keep the existing profitable customers. To conduct customer research, both need strong technology supports such as data warehousing and database management.
- Enabling new technology and skills to deliver value – in this case, technology is an enabler to help both B2B and CRM better fulfill their promises.
- Both B2B and CRM need one-to-one marketing to customize their products and services for customers.
- Both B2B and CRM need and have a similar platform of operating system support.
- Both B2B and CRM need data-mining capability and the systems tend to overlap in certain functions.
- Both B2B and CRM allow for different marketing approaches to be tried and tested with quantified results.
- Both B2B and CRM should be flexible to meet unpredictable growth and demand.
- Both B2B and CRM are involved in every process in business transactions including marketing, sales, billing and shipping and customer services.

Differences between B2B and CRM

The differences between B2B and CRM are mainly determined by their characteristics, customers, software capabilities and design philosophies. They are briefly discussed as follows:

- *Characteristics.* CRM has its own features of marketing automation and sales automation, while B2B does not necessarily need these features. B2B is more dependent on the Internet but CRM has more emphasis on business processes.

- *Customers.* B2B customers are much harder than CRM customers to switch to different products and service providers. In addition, B2B can generate a critical mass of customers, while CRM may or may not create that depending on its size of customers and what kinds of customers it has.
- *Software capabilities.* B2B is not a technology or software. Rather, it is an environment that contains critical pieces of hardware, software, infrastructure, and business processes. B2B software has the following capabilities: content management, supply chain management (SCM), transaction platforms, business intelligence, and partner relationship management (PRM). On the other hand, CRM software has user-definable databases, automatic tracking of events, meetings, reminders, promises, integrated ability with the activity manager, electronic filing cabinet by company, inbound/outbound call handling, and one click exit to any other user function.
- *Design philosophies.* The CRM design is supposed to support an intuitive issue tracking, project collaboration and communication system that provides a central area for project teams to identify and collaborate on problems, develop action plans, and reach resolutions. Teams can also use the threaded collaboration feature to trace the history and sequence of conversations on virtually all customer and project issues occurring during the project lifecycle. This feature is especially helpful in getting new team members quickly up-to-speed and for documenting the decision-making process. However, the philosophy of B2B is to make each member a partner to maximize the benefits from B2B system.
- *Focuses.* B2B adopts the Internet as a vehicle to do the business while CRM uses the Internet as a tool to access data for executing business tasks.
- *Parties involved.* B2B customers in the industry tend to be generalized while CRM has specific customers and needs vendor suppliers.
- *Their natures.* CRM is a concrete package while B2B is a collection of technologies.
- *Domain.* B2B is more related to the Internet account while CRM is more involved in intranet. Therefore, security is a big issue in CRM.

The benefits of the CRM-B2B integration

According to Forrester Research, B2B e-commerce is expected to grow from \$250

billion in 2000 to \$2.7 trillion in 2004 (Michel, 2000). Business customers are expected to purchase on the huge vertical marketing sites where there are hundreds of suppliers from which to choose. This is where customer services and new forms of customer relationship building come into play. The integration of CRM-B2B forces companies to streamline the way they manufacture, distribute, and sell products and ultimately will improve the way organizations conduct business (Frook, 2001a). The benefits of the CRM-B2B integration are listed below:

- Developing, implementing, and maintaining a CRM strategy based on the B2B models can yield reduced administrative costs, more efficient marketing campaigns, increased customer responsiveness, and increased selling time.
- It increases the reach and reduces the cost of quality management.
- It reduces the cost and effort of order entry by giving large customers access to ordering functionality or stock data.
- It provides customers with access to relevant subsets of supply chain management software – for example, tracking the status of orders.
- The integration will allow vendors to sell more CRM software within an enterprise since B2B has a large group of customers. This helps CRM generate more new revenues from the integration and B2B also benefits from this value-added investment.
- The integration helps both B2B and CRM to complement each other with those capabilities that they do not have in their functions and it makes both B2B and CRM systems more powerful and sufficient to provide the better products and services to the customers.

CRM-B2B integration strategies

The benefits of the integrated CRM-B2B systems are significant. However, the systems integration can be very costly (Colgate and Danaher, 2000). Companies that want to pursue the benefits should set a strategy to help them successfully implement the system integration. The following are two of the major strategies.

Strategy 1: CRM embedded under B2B

By adopting this strategy, companies can better incorporate CRM into B2B so that the whole system will be beneficial to customers. By providing customer-centered instead of

product-centered products and services to business partners in a B2B environment, CRM embedded under B2B can play its real role. These customer-focused services can be labeled as “collaborative CRM”, as opposed to the traditional operational CRM of call centers and salesforces (Beardi, 2001). Practiced online B2B customer service managers such as Cisco Systems and National Semiconductor are adding new relationship-building collaborative CRM features into their Web sites. Cisco, for example, purchased Webline Communications in order to acquire a technology that lets Cisco customer service engineers interact with a visitor as that person moves around Cisco’s site (Frook, 2001b).

Although embedded integration strategy is a better option in most cases, the integrating process can be very challenging. When thinking about adopting the strategy, the following are recommended:

- Have a comprehensive knowledge about both B2B and CRM. This includes the clear understanding of functions and components of B2B and CRM and how they work together.
- Have a good feasibility study regarding the costs and benefits of CRM-B2B. If it is too costly or hard to find the expertise, outsourcing externally can be an option.
- Different industries have different CRM-B2B requirements, and a designer needs to design a model that fits a specific industry. As far as technology is concerned, the design should be based on long-term considerations rather than short-term concerns since the investment of the technology is very expensive.
- Make full use of Internet technology to improve the efficiency and performance of CRM-B2B.
- Companies should fully consider the standards and compatibility of the technology when thinking about CRM-B2B integration. Since they are two different modules, if the systems are not compatible, not only will they affect the successful implementation of the systems, but also they will make the sponsors hesitate to sponsor the whole system.
- If the integration is a failure, companies should have some technologies to help separate CRM from B2B. The failure of one system will, therefore, not affect the operation of another system.
- Companies need to take the future implications of CRM-B2B into consideration so that they can be better prepared for the changes in the future. For example, both B2B and CRM need to add new functions and components such as the capability to link into credit line authorization and sales tax valuations.

Companies have to include these functions in their embedded CRM-B2B to provide the differentiated products and services to gain competitive advantages.

Strategy 2: B2B and CRM are two separate modules

By adopting this strategy, each module can reach higher performance and scalability. However, the data exchange between two separate modules is critical. To better exchange data between the modules, a four-tier B2B architecture is suggested. In this architecture, tier 1 consists of database access, storage and management. Tier 2 is made up of transaction processing and connection to the server. Tier 3 consists of the components including e-commerce-related logic and business decisions. The last tier is composed of HTML page and client forms. The benefits of this model are:

- *Faster time to develop.* Development and assembling with existing separated codes are both quicker and easier.
- *Lower maintenance costs and increased responsiveness.* Components can be developed and enhanced independently of one another, which simplifies maintenance.
- *Higher performance and scalability.* Every layer in the multi-tier architecture is built of its own components and does a specific job. Each component is fine-tuned to deliver higher performance with the power to allow scalability.

To better communicate with the B2B module, the following components are suggested to be included in the separate CRM module:

- *Presentation components.* To tie the different components together, the ActiveX design time control GUI (graphic user interfaces) components become important. These components can be used in different Web application development environments when either the business logic components or the data access components are to be used.
- *Business logic components.* These components support very specific business functions that define the actual operation of the system.
- *Data access components.* These components are used for accessing the B2B data sources, according to the selected data model, database structure and platform.
- Integration with back-office systems.

Current issues and future trends

The success of a business derives from satisfying the needs of all the stakeholders –

customers, shareholders, employees, suppliers and the community at large. Of these perhaps the most pressing demands come from customers. If customers are regarded as an important equity for a company, CRM is undoubtedly a necessary tool to get this valuable equity. The future of CRM is largely decided by three factors: market, technology, and economy:

- 1 *Market.* Since markets are becoming saturated and communication channels delivering marketing messages are more and more saturated, customers are demanding to have a different relationship with suppliers from the traditional sales model. This makes CRM more important than ever due to the change of marketing model from traditional product-centered to current customer-centered.
- 2 *Technology.* The future successful companies in business will be those which focus their main efforts on the research of what customers want, how to better meet the customers' needs, and how to keep customer loyalty and retention. CRM is a business system for acquiring and retaining customers. A good CRM system of a company should be integrated with the advanced technology to provide a differentiated service for holding the customers.
- 3 *Economy.* It is between five and ten times more cost-effective to retain customers than to attract new customers. The cost of losing profitable customers to the competition is very high and it is unlikely that once lost the customer will return. This challenges CRM very much and thus makes CRM especially important to customer retention and loyalty. A CRM system is also able to provide information regarding who your customers are and what they buy. This enables analysis and modeling to identify what other products those customers may buy. CRM, from this perspective, is a typical value-added activity and it largely helps the company to increase the revenue and reduce the sales cost.

The benefits of adopting CRM-B2B are obvious. However, the development of CRM-B2B is still in its infancy. The current issues on CRM-B2B development include:

- *B2B functionality.* It is necessary to include more functionality to meet the changing needs of customers. A good example is the need to add the capability to link into credit line authorization and sales tax valuations or automatic tax reports for customers.

- *CRM functionality.* There is a need to develop new Internet activators for major segments of the sales community including mobile personal data assistant (PDA) users (estimated at six million), small office/home office (SOHO) users, and enterprise CRM application users, and to develop a robust Internet application architecture capable of supporting millions of salespeople and delivering relevant, in-context e-services to Internet subscribers.
- *New challenges.* The challenges of CRM-B2B include outsourcing intellectual activities, downstream services, and competing in the information space. Companies need to get prepared for dealing with these issues.

International Data Corp. (IDC) predicts that IT services firms will make billions over the next five years helping companies integrate their information systems with B2B online exchanges (Drucker, 2000). IDC sees spending on marketplace services rising from \$5.2 billion in 2000 to \$17 billion in 2005. By then, more than half the opportunity in the exchange services market will come from systems integration compared with today where 85 percent of revenue comes from marketplace creation. The future trends of CRM-B2B include:

- The integration of CRM and B2B will further facilitate customer relationship management. The CRM improvement will lead to more benefits to the B2B environment and enhance market research.
- The increasing impact of B2B globalization in the future will provide CRM-B2B with more chances to access the global market and improve multinational customer relationships, thus establishing the competitive position.
- In the future, more attention will be paid to the CRM-B2B activities that are presently associated with only front office business-to-consumer (B2C) and analytical CRM.

Conclusions

As B2B and CRM become more desirable to customers, it is predictable that the integration of B2B and CRM will be a continuous trend. With the aid of Internet applications, this integration can reduce the

cost, increase revenue, reduce lead-time, and improve customer loyalty and retention. The further development and improvement of CRM will in turn benefit the B2B system and make it more competitive in maintaining and managing the customer relationship. Meanwhile, B2B provides a good environment for CRM to play its important role. Although the integration of CRM and B2B has many advantages, companies should conduct a feasibility study when considering a CRM-B2B model. Technologies, operations, costs, and benefits are all issues that should be addressed in the feasibility study.

B2B e-commerce is fundamentally about the flow of information among business organizations. Since the boundaries of organizations are more fluid than they used to be, CRM-B2B integration means that an enterprise's business systems can no longer be confined to internal processes; rather they must interoperate with other such systems that support links for their customers. With the failure of the dot-com revolution, the real opportunity of the future Internet is in transforming business-to-business relationships.

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