The brokerage industry has been significantly transformed by the e-commerce revolution. Considering that the powerful and relatively inexpensive Web platform is extremely well suited for conducting trading and other financial service activities globally, brokerage firms are constantly trying to devise innovative Web-based business applications and practices. As companies continue to experiment with these evolving Web and Internet-related technologies, new business models are emerging in this industry. What are these business models? What are the strengths and weaknesses of these models? What are some challenges associated with implementing one or more of these models? What is the short- and long-term viability of these models? These questions, addressed here, are highly relevant for a wide variety of stakeholders, from investors to business partners, employees, and competitors.

While the forces of deregulation shaped the brokerage industry, technological forces are currently driving its evolution. The Internet and Web-related technologies, with their numerous capabilities, have emerged as the new agents of change. Their wide-ranging capabilities include global information dissemination, interactive
communication, mass customization, collaboration, transactional support, and integration [2, 4]. Companies exploit one or more of these capabilities to reach a wider customer base, offer a broader range of value-added service offerings, and develop closer affiliations with customers.

The global connectivity of the Internet provides a relatively economical medium for marketing products and services over vast distances. Brokerage firms are leveraging the reach and range of this platform to compete for clients and gain access to new markets.

Interactive communication via the Web enables firms to build customer loyalty by providing immediate communication and feedback to and from clients, which can dramatically improve the firm’s image through demonstrated responsiveness. CSFBdirect (www.csfbdirect.com) augments telephone-based support with customer service via email. In some cases, online chat applications are provided to allow clients to communicate with a customer service representative in real time without ever having to leave the firm’s Web site.

Web technologies are also helping firms realize their goal of mass customization. Firms such as Charles Schwab (www.schwab.com) have implemented customizable “alert” systems that provide investors with the ability to be notified in real time via email of events specific to securities of interest. Clients may configure alarms based on a variety of criteria such as breaking news, price fluctuations, earnings releases, and analyst recommendations. When one or more of the investor’s criteria are met, near-instantaneous notification is electronically delivered. This customer-driven approach far outdistances traditional, nonelectronic means in terms of tailoring and timeliness. Additionally, such Web-enabled mass customization allows firms to target marketing efforts to specific groups of investors. E*Trade (www.etrade.com) tracks the trading activity of each client, enabling the firm to tailor promotional offerings and exclusive Web site features to active traders.

Collaboration can also be enabled via Web technologies. ClearStation (clearstation.etrade.com), a subsidiary of E*Trade, maintains a community for investors, who regularly share opinions concerning companies, news, rumors, and investment strategies through a company-sponsored forum. The community exposes clients to a wide array of information that would otherwise be unavailable through traditional channels.

By providing ways for clients and firms to conduct business online without human assistance, the Internet and Web have greatly reduced transaction costs while enhancing operational efficiency. A prime example of this movement can be witnessed in the emergence of electronic communications networks (ECNs), which present a nascent threat to existing ways of doing business in the brokerage industry. ECNs are mainframe computer systems to which orders are sent and automatically matched, circumventing the limited hours of the human-based matching processes used by the NYSE or Nasdaq exchanges. The nine ECNs currently in existence now account for one of every three Nasdaq trades and about 5% of NYSE volume [1]. Ameritrade (www.ameritrade.com) takes advantage of this architecture by utilizing proprietary expert system to intelligently route online orders over the Internet to the ECN offering the best execution price, thus maximizing transaction margins.

Web technologies also allow integration of information via Web sites, which can be linked to corporate databases to provide real-time access to information. No longer must clients rely on less-timely information such as delayed stock quotes, hard-copy trade confirmations, and monthly statements. Datek (www.datek.com) offers free, real-time streaming stock quotes, which clients can access simply by logging on to the firm’s Web site. Furthermore, investment portfolios are updated instantaneously as the market moves. Thus, the var-
Overview of business model categorization.

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<th>Business Model Types</th>
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<tr>
<td>Inquiry</td>
<td>1. Click-and-mortar. Offers both physical and virtual locations to support customer needs. 2. Designed for investors who desire hands-off account management and personalized financial planning advice. 3. Provides inquiry access to account balances and detailed position information. 4. Does not provide online trading capabilities.</td>
<td><strong>Strengths</strong> 1. Avoids channel conflicts. 2. Web site design and maintenance relatively less complex as compared to sites that support online trading. 3. Provides personalized investment advice through one-on-one relationship with a stockbroker. <strong>Limitations</strong> 1. Clients cannot trade online and, therefore, must contact a stockbroker for trade executions. 2. Commissions charged for trades are more costly as compared online trading models.</td>
<td>A.G. Edwards  D.A. Davidson  Dain Rauscher</td>
<td>1. Success and feasibility is contingent on the availability of a large force of highly trained professionals. 2. Continue to target investors who desire hands-off financial management and can afford the associated costs of personalized advice. 3. Online trading capabilities are likely to be added to the current set of offerings. 4. A migration to the layered model is likely to occur.</td>
</tr>
<tr>
<td>Layered</td>
<td>1. Click-and-mortar. Offers both physical and virtual locations to support customer needs. 2. Provides alternative types of service options, ranging from basic trading services to complete investment and trading management services.</td>
<td><strong>Strengths</strong> 1. Provides maximum flexibility by offering a variety of options to clients. 2. Provides personalized investment advice through one-on-one relationship with stock broker if needed. <strong>Limitations</strong> 1. Complex to implement systems to support each aspect of the e-commerce strategy. 2. May produce channel conflicts. 3. Careful consideration must be given to the selection of appropriate option—may cause confusion of customers and prospects. 4. High minimum balances required to open an account.</td>
<td>Goldman Sachs  Merrill Lynch  Morgan Stanley  Prudential Securities  PaineWebber</td>
<td>1. Its varied service offerings makes the model’s future prospects quite bright. 2. The following modifications are likely to occur to enhance the long-term feasibility of this model: • Reduction or removal of minimum balance requirements. • Reduction in service charges. • Convergence of some of the current service offerings to make it easier for customers to comprehend and select.</td>
</tr>
<tr>
<td>Discount</td>
<td>1. Click-and-mortar. Offers both physical and virtual locations to support customer needs. 2. Designed to empower clients by providing the resources and tools to make educated investment decisions. 3. Disintermediates stock brokers, although advice can be provided through a general representative on an as-needed basis. 4. Provides account management and online trading capabilities. 5. Discounted commission rates as compared to full-service brokers.</td>
<td><strong>Strengths</strong> 1. Discounted commission rates can be offered as compared to inquiry and layered models. 2. Provides both physical and virtual locations to support customer needs. 3. Offers alternative, non-Web-based methods of executing transactions. 4. Avoids channel conflicts. <strong>Limitations</strong> 1. Provides advisory services on an as-needed basis, but does not provide persistent one-on-one relationship with a broker. 2. Cannot effectively compete with e-brokers on commission rates due to support of both physical and virtual operations.</td>
<td>Charles Schwab  CSFBdirect  Fidelity Investments  TD Waterhouse</td>
<td>Likely to evolve out of existence: 1. Many discount brokerage firms adopt the layered model and in the process improve its offerings through personalized advice, superior research tools, and varying options to conduct business online. 2. Many will adopt the e-broker model to effectively compete on price.</td>
</tr>
<tr>
<td>E-Broker</td>
<td>1. Click-only. Operates in cyberspace only without physical locations. 2. Developed exclusively for the self-directed investor. 3. Focuses on providing near-immediate and relatively inexpensive online trading capabilities.</td>
<td><strong>Strengths</strong> 1. Technologically focused. 2. Immediate trade executions. 3. Avoids channel conflicts. 4. Offers deep-discount commission rates. <strong>Limitations</strong> 1. Does not provide physical locations to support clients when needed. 2. Does not offer advice when needed. 3. Focused on margins, which limits resources available for customer services. 4. Limited capabilities to trade through alternative channels other than the Web.</td>
<td>Ameritrade  Datek  E*Trade  FreeTrade.com (no fee)  Brokerage America (no fee)</td>
<td>This is the model of the future for self-directed investors as: 1. Companies develop experience in maintaining a robust computing infrastructure. 2. The new generation of customers will be quite comfortable conducting transactions in cyberspace.</td>
</tr>
</tbody>
</table>
ious Web capabilities provide ample opportunities for brokerage firms to improve and enhance their competitive offerings.

Business Model Types
To identify the various business models, the Web sites of 179 firms were thoroughly analyzed. The study's initial list of potential brokerage firms was drawn from the Web sites Hoover's Online (www.hoovers.com) and Gomez Advisors (www.gomez.com), which provide comprehensive information on companies and industries. The 115 companies Hoover's cataloged under the investment banking and brokerage industry were cross-referenced to Gomez's list of 67 Internet and full-service brokers to ensure all brokerage firms had been captured. Out of the initial list of 179 companies, 73 did not offer online brokerage services and were eliminated from the analysis, resulting in a final examination of 106 brokerage firms. Web sites of these companies were then reviewed and classified according to their underlying business models.

The investigation revealed a total of four business models, three of which were classified as click-and-mortar types and one as a click-only type. The accompanying table presents the business model categorization; percentage breakdowns of the models are depicted in the figure appearing here. Under the click-and-mortar type, three sub-types were identified—inquiry, layered, and discount models. The click-only type is also referred to as the e-broker model. Each of these four models is described here.

The Inquiry Model. Firms adopting the inquiry model continue to provide clients with traditional full-service offerings. Additionally, clients can access detailed account information such as current positions and portfolio values through Web-based interfaces. However, clients do not have the ability to execute trades online. Examples of firms adopting the inquiry model are A.G. Edwards, D.A. Davidson, and Dain Rauscher.

Inquiry-focused Web sites do not require complex Web design and development efforts, since a limited feature set needs to be supported. Sites of this nature are designed to attract clients desiring a full-service relationship where financial planning needs are taken care of by investment professionals. This type of client is interested in personalized, professional advice and/or hands-off account management services. Commission rates under the inquiry model parallel those of the traditional full-service model, averaging 10 times the commissions charged by competitors operating under discount or e-broker models [8]. The inherent risk of the inquiry model comes from clients that want to execute self-directed trades online, even occasionally, but cannot because such capabilities are not provided.

The Layered Model. A more advanced form of the inquiry model has been created in the form of the layered model, which provides all the necessary offline and online functions to meet investors' varying needs. The rationale being to provide customers with the flexibility of choosing from different types of service options, ranging from basic online trading services to complete investment and financial management services. At Morgan Stanley, clients can select one of three options (adapted from the Morgan Stanley Web site, www.morganstanley.com):

- Traditional full-service. Individuals may continue to select the traditional full-service relationship that includes personalized professional advice and transaction fees on a per-trade basis. Clients will also be able to view their account online at no additional charge.
- Online trading. Created for self-directed investors who wish to make decisions independently without professional advice and execute trades via the Web.
- Flexible full-service. Created for individuals who want the full-service relationship as well as the flexibility to trade online. The account offers virtually unlimited transactions for a fixed annual fee, which is based on the value of assets held in the client's account.

Other brokerage firms operating under the layered model include industry heavyweights Goldman Sachs, Merrill Lynch, Paine Webber, and Prudential Securities. According to Forrester Research (www.forrester.com), the inquiry and layered models far outdistance rivals in terms of customer ser-
vice, institutional-quality research, and personalization of investment products; the layered model also provides maximum flexibility. Customers can easily change their account preference from the menu of services and receive one statement if the client maintains multiple account types.

The Discount Model. Brokerage firms operating under the discount model, such as Fidelity Investments (www.fidelity.com) and Schwab, appeared shortly after the industry's deregulation in 1971. Unlike traditional full-service brokers who controlled the investment activities of their clients, discounters positioned themselves as consumer advocates, empowering their clients in making educated investment choices by providing them with necessary tools, research, and assistance on an on-demand basis [9]. By disintermediating the stockbroker, these firms offered a substantial reduction in commission rates.

Discounters are well known for their ability to be innovative with respect to technology, as they have been designing and developing technology-driven customer services for more than two decades. For instance, Schwab offered dial-in software for customers to trade via a connection to the firm's mainframe computers in 1985; Fidelity had introduced a similar product in 1984. Furthermore, both firms had developed automated trading systems via touch-tone telephone and hence, viewed the Web as an alternative channel through which to sell their products and services rather than a dramatic departure from traditional business operations [9].

Discounters continue to operate their physical locations, as well as their telephone-based trading services. To compete with their Web-based rivals, these firms have added online trading to their arsenal of services under the click-and-mortar discount model. Other prominent discount brokers include CSFB Direct and TD Waterhouse (www.tdwaterhouse.com). Clients of these firms typically are looking for quality customer service at reasonable commission rates. Discounters charge dramatically lower commissions compared to traditional full-service rates, yet a bit higher than pure click-only rivals. Attractions include 24-hour online and offline customer service, as well as the ability to execute trades offline should the computer system falter, resulting in increased levels of consumer confidence. Another benefit is that firms using this model tend to be pioneering, for example by providing alternate trading methods such as trading via wireless devices.

The E-Broker Model. The e-broker model is designed exclusively for self-directed investors who wish to make decisions independently, without professional advice. The main target of e-brokers is active traders—those who want access to the research and tools they need to make decisions, along with the power to execute many trades as quickly and economically as possible. E-brokers compete on price rather than service. According to Forrester, commissions charged by e-brokers average half those charged by discounters. These firms excel in the areas of trade execution and overall value, yet rank lower in the categories of customer service, richness of Web-based features, and quality of research than their click-and-mortar peers.

The most recent variation of the e-broker model to emerge is the no-fee approach. FreeTrade.com and Brokerage America (www.brokerageamerica.com) offer free market trades to clients. This approach represents a distinct departure from their competitors, providing limited customer support via nonelectronic means and no statements sent by postal mail [5]. The revenue stream for no-fee firms is mainly generated through two sources, namely banner advertisement sales and kickbacks on order placements from market makers, known as payment for order flow.

The main advantage of the no-fee tactic is the absence of commissions for execution of market orders. However, a nominal commission is charged on limit and odd-lot orders. Clients sacrifice traditional forms of customer service such as telephone support and hard-copy statements. A major challenge for no-fee players will be generating a sufficient revenue stream without alienating their clientele. For instance, customers may become dissatisfied when inundated with uninvited marketing messages. Furthermore, firms have vested interests to route orders to market makers offering the highest payment for order flow, precluding investors from receiving the best available price [6].

Implications and Future Trends

As the brokerage firms invent and reinvent their ways of doing business, the jury is still out on the viability of the various emerging business models. From the theoretical standpoint, all the business models identified are potentially viable as they are all designed to offer value-added customer service. While some firms focus on the unique needs of self-directed investors, others are designed for those clients that want more direction and guidance. Despite the soundness of the generic strategy driving all these models, each has its limitations. As companies try to overcome these limitations, the current set of models is likely to undergo changes. Will all these four models survive the test of time? Will some of these models merge to produce a
new set of models? While answers to these questions are presently unknown, it is important to look ahead and examine the future implications of these models.

The success and feasibility of the inquiry model is contingent on the availability of a large force of highly trained professionals who can provide one-on-one personalized investment services. The costs of hiring, training, and retaining such a work force can be quite expensive. The other inherent feasibility risk of the model comes from the lack of online trading capabilities. Many of their clients may prefer the convenience of directly executing trades online.

Two factors are likely to influence the inquiry model in the near future. First, companies adopting this model will continue to target investors who desire hands-off financial management and can afford the associated costs of personalized advice. Second, inquiry firms will enhance their current offerings by adding online trade execution capabilities, evolving toward the layered approach. Incidentally, A.G. Edwards has announced plans to offer online trading, while Paine Webber and Prudential Securities have already completed this transition.

One potential issue with the flexible full-service approach of the layered model is evidenced in the high minimum balances required for opening such an account. In the case of Morgan Stanley, the initial deposit for a fee-based account is $50,000. Investors with less than the required minimum need to choose another account type, or possibly move to an offering from another brokerage firm. Also, the layered model approach may produce confusion for investors regarding which option to select. Careful consideration must be given to the number of trades executed during a specific time period to assess the most appropriate option. There are additional drawbacks with the layered approach. The growth of the online arms may cause an “uneasy coexistence” when marketed in the same organization with full-service brokers. The resulting channel conflict issue could have far-reaching consequences; for instance it could diminish the value of the firm’s brand from the broker’s perspective [8]. It could result in cannibalization of offline channel sales, when investors chose to go to the e-broker division and execute trades more cheaply and efficiently. Moreover, the cost of maintaining both the traditional and online service options could result in higher service charges that customers might be unwilling to pay. Finally, design and development of complex systems are required to support each aspect of the layered approach.

Considering the layered model is designed to cater to the needs of a variety of customer types, its future prospects seem quite bright. The following modifications are likely to enhance the long-term feasibility of this model: reduction or removal of minimum balance requirements; reduction in service charges; and convergence of some of the current service offerings to make it easier for customers to comprehend and select.

While the discount model has much strength, a recent study by Forrester found that the research and analytical tools offered by the discount brokerages lag in comparison to those offered by full-service firms. Also, the click-and-mortar discounter cannot effectively compete on price with the e-broker due to their need to support both online and offline services. Over the course of 18 months, Schwab increased its full-time IS staff more than 50%, or 700 employees. The firm entered a computing environment that was more technologically complex than traditional legacy systems. Applications now need to be designed and developed to accommodate an open, client/server architecture that must be globally and persistently available. In addition, no longer can organizations accurately predict usage trends of computing resources. Schwab experienced increased volatility in trading volumes from online transactions as compared to offline varieties, prompting the need to increase computing capacity to 32 mainframes in order to decrease the risk of system outages [9].

Considering the discount model has a lot in common with the layered and e-broker models, it will not be a surprise to see the following transformations: many discount brokerage firms will adopt the layered model and in the process improve its research and analytical services; and many will strive to compete on price and gravitate toward the e-broker model. Thus, the click-and-mortar discount model is likely to evolve out of existence in the future due to price and advice pressures. To support this premise, Schwab has recently purchased
the e-broker Cybercorp.com to expand its footprint into the e-broker domain.

While the e-broker model is transforming the brokerage business and is considered the brokerage model of the future for self-directed investors, it has its limitations. An inherent weakness of the model lies in the absence of traditional infrastructure. Lack of a brick-and-mortar presence can be discomforting to many potential investors. These investors hesitate to invest online since they are concerned about the security of online transactions. Moreover, a number of system outages have occurred, which has prompted many investors to shy away from online brokers that experienced problems in this area [3]. System outages could severely limit the e-broker firm’s ability to fulfill its customers’ needs, especially in firms that do not provide alternative transaction venues such as telephone-based trading.

Another issue facing e-brokers stems from the economics of the business model, which revolves around razor-thin margins. Many e-brokers have yet to turn a profit. Furthermore, account balances average $35,000 for e-brokers versus $200,000 at full-service firms [7]. E-brokers exist in an environment where quantity of transactions means everything. Hence, these firms tend to offer the most aggressive incentives to attract customers. E*Trade calls its busiest customers Power E*Traders, offering them benefits ranging from a priority customer service hotline to real-time streaming quotes. Power E*Traders are also eligible for trade executions at one-third normal rates. Other online brokers are following suit, driving commissions to rock-bottom levels. Many are currently offering either deeply discounted or free trades on specific types of orders [5].

As e-commerce continues to gain popularity and companies develop expertise to build and maintain a robust and responsive computing infrastructure, some of the current technical challenges associated with the e-broker model are likely to disappear. Moreover, future generations of clientele are less likely to feel the need for a brick-and-mortar infrastructure. They will be quite comfortable conducting transactions in cyberspace as compared to present-day investors. The most successful executors will be the ones that are able to offer superior service at competitive prices.

**Conclusion**

Since the Web’s inception, dramatic changes have occurred in the brokerage industry. Four new business models have since emerged as companies have adapted to the Web-based business environment, reshaping the industry’s competitive landscape. Each model comes with its associated benefits and pitfalls, which requires shrewd analysis on the part of potential adopters and stakeholders before committing to a specific business model.

The click-and-mortar discount firms and e-brokers continue to be the industry’s most aggressive pioneers in the technological realm, designing feature-rich Web sites to support the varying functional requirements of their clientele. In order to effectively compete in the Web-based brokerage industry, an appropriate mix of technical features, consumer value, and service levels must be implemented to satisfy the demands of the organization’s targeted market segment.

Especially affected by this new operating environment have been the traditional full-service brokers, who are struggling to maintain a proper balance between traditional services and Web offerings. These service-oriented firms will continue to differentiate themselves in providing personalized advice and a variety of options for transacting business online, while e-brokers will continue to battle it out in a price war, possibly leading to a significant number of mergers and acquisitions in this volatile segment of the industry. Click-and-mortar discounters will likely gravitate toward the layered and e-broker models due to price and advice pressures.

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