Reintermediation or Disintermediation?

The Impact of E-Commerce on Commercial Real Estate Brokerage

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ABSTRACT

The objective of this thesis, entitled "*Reintermediation or Disintermediation? The Impact of E-Commerce on Commercial Real Estate Brokerage*", is to evaluate the impact of e-commerce on the functional areas of commercial real estate (CRE) brokerage. Our selected functional areas include: database, search engine (sort/match), tour guide, analysis, negotiation, and documentation & closing. The Introduction and Chapter 1 provide an overview of the CRE brokerage industry and current e-commerce business models, Chapter 2 through Chapter 7 examine each functional area from current state and future outlook perspectives, and, lastly, the Conclusion presents our vision for the future of e-commerce and CRE brokerage industry.

In the process of evaluating the six functional areas, we will analyze the current business models of the major CRE brokerage-related e-commerce companies and attempt to identify the business models' potential success factors in relation to the functional areas. We will also discuss how commercial real estate brokers can leverage technology to remain competitive in their evolving marketplace and how e-commerce is likely to impact the brokerage industry's future compensation structure.

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Introduction

THESIS OBJECTIVE

The objective of this thesis, entitled "*Reintermediation or Disintermediation? The Impact of E-Commerce on Commercial Real Estate Brokerage*", is to evaluate the impact of e-commerce on the functional areas of commercial real estate (CRE) brokerage. Our selected functional areas include: 1) database; 2) search engine (sort/match); 3) tour guide; 4) analysis; 5) negotiation; and 6) documentation & closing. These functional areas were suggested by our thesis advisor, Tod McGrath, who has more than fifteen years of commercial real estate experience, and were further supported by our discussions with other commercial real estate professionals.

In the process of evaluating the six functional areas, we will analyze the current business models of the major CRE-related e-commerce companies and attempt to identify the models' potential success factors in relation to the functional areas. We will also discuss how e-commerce is likely to impact brokers' compensation structure in the future.

RESEARCH METHODOLOGY

Our thesis is primarily qualitative; it does, however, incorporate some statistics from survey results and interviews. The informational input is from both primary and secondary research. The primary research consisted of a total of 38 personal, telephone and e-mail interviews with founders and management of the major e-commerce market participants impacting the CRE brokerage industry, as well as commercial real estate brokers (leasing and investment sales), landlords, tenants and real estate lawyers. It was important to incorporate the perspectives of the various market participants in order to form a candid opinion about the value added by commercial brokers in each stage of the transaction process, as well as the sustainability of the various e-commerce business models. The opinions of asset managers, landlords and tenants

were considered especially important because these groups represent the demand side of the brokers' services and, as such, will play a large role in the evolution of the CRE brokerage industry in the coming years.

Our primary research also included surveys of brokers, landlords, tenants and real estate lawyers. The surveys were tailored to each group of market participants with varying response rates, although the industry, in general, was quite enthusiastic about the subject. We feel that the response rate achieved was satisfactory given the short period of time available to conduct the surveys. More specifically, the principal investors/landlords had the highest response rate of 36.2% (38 responses from a sample of 105), real estate lawyers had the second highest response rate of 31.1% (37 responses from a sample of 119), tenants had the next highest response rate of 7.8% (19 from a sample of 243) and brokers had the lowest response rate of 5.3% (109 from a sample of 2060). The average amount of real estate experience for lawyer respondents and broker respondents was 20 years and 14 years, respectively. Although only portions of the compiled survey data will be discussed within the thesis, the survey results as a whole provided significant insight into the commercial brokerage business and the functional role of brokers. Copies of the survey questionnaires, as well as the compiled survey results, are included in the appendices.

Our secondary research included the review of numerous periodicals, newspapers (e.g. Wall Street Journal, New York Times and New England Real Estate Journal), various books, and on-line resources (e.g. the websites of e-commerce companies, CRE brokerage firms, investment banks, consulting firms and news services such as Dow Jones Interactive, PikeNet Dispatch and Viewswire).

SCOPE AND LIMITATIONS

Although we recognize that substantial changes are occurring in all aspects of commercial real estate throughout the world as a result of e-commerce, our thesis will focus on the impact of e-commerce on commercial real estate (CRE) brokerage in North America. The impact of e-

commerce on CRE brokerage will be evaluated from both space market (leasing) and asset market (investment sales) perspectives. The major property type focus was on office. It is important to note that the thesis does not include an evaluation of every player in the CRE brokerage e-commerce arena. We did, however, conduct interviews with most of the major e-commerce participants within CRE brokerage.

OVERVIEW OF CRE BROKERAGE AND THE ADOPTION OF TECHNOLOGY

With the recent emergence of more than two hundred CRE websites, many of which claim to provide the services of traditional CRE brokers in a more cost-effective and efficient manner, the current environment encompassing the CRE brokerage industry is best captured by author Alan Burton-Jones[1]:

"As companies struggle to keep up with all the possibilities, they can find themselves falling into one of two traps: mindless preservation and mindless change. Some managers automatically reject new tools and approaches, saying, "The old way has always worked"; others embrace novelty for its own sake, arguing, "Since everyone else is doing this, it must be a good idea, so we had better do it too."

From a historical perspective, however, the state of the CRE brokerage industry today is not much different than it was back in 1968. In a *Real Estate Today* article published in October, 1968, commercial broker John Peckham, a lifelong technology advocate and current president of the Real Estate Cyberspace Society, argued that[2]:

"The age of computers is upon us! ... The computer can now assist you in providing investors with the information they need to arrive at a sound decision. You must understand the capabilities and application of this space age product."

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[1] Burton-Jones, Alan. Knowledge Capitalism: Business, Work, and Learning in the New Economy. New York: Oxford University Press, 1999. In Sloan Management Review. 31 July 2000 <http://mitsloan.mit.edu/>

[2] Peckham, John. "The Computer – A Powerful Aid for Selling Income Property". Real Estate Today. October, 1968, p. 17.

During the late-1960's, the "manual finger flip" (MFF) was the most widely used method of matching investors with investments but, according to Peckham, a major weakness of the MFF system was that "it requires concentration, effort and time. Consequently, most salesmen, being creatures of action, do not research their files properly – simply because of the time involved."[3] Peckham's brokerage company (Data Realty Corporation) was advocating the use of more efficient electronic data processing (EDP) equipment known as the "investor-selector", which enabled users to program, store and retrieve data similar to the early computers.[3]

Although the CRE brokerage industry has undergone significant change over the past 32 years, the notion of the early computer as a "space age product" in 1968 is not too different from the role of the Internet in the brokerage industry today. If the analogy between the early computer and the Internet as it exists today is taken one step further, it is clear that the impact of the Internet on the CRE brokerage industry to date will pale in comparison to the dramatic changes that will occur as a result of the Internet in the future.

With the Internet as a new communication medium and powerful marketing tool, the accessibility of real estate information from data suppliers (such as CoStar) and the enhanced listing exposure provided by online listing services (such as LoopNet) have resulted in the Internet becoming an increasingly essential tool for CRE brokers. However, the recent emergence of more than two hundred e-commerce companies targeted at all facets of the CRE industry has raised the anxiety level of brokers within the industry. There is a growing debate within the real estate industry over whether e-commerce will result in the reintermediation or disintermediation of CRE brokers, with reintermediation proponents viewing the Internet as an enabler for brokers and disintermediation advocates viewing the Internet as a disabler, eliminating the need for brokers altogether.

At first glance, the field of e-commerce companies appears extremely crowded with new entrants; however, aside from CoStar and LoopNet, there exists only a few established e-commerce players in the CRE brokerage industry. When we map the e-commerce ventures

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[3] Peckham, John. "The Computer – A Powerful Aid for Selling Income Property." Real Estate Today. October, 1968: p. 18.

against the six functional areas of brokerage, most of the companies are concentrated in the database functional area (i.e., research and marketing models) as the Internet serves as an extremely effective medium for the aggregation and dissemination of large quantities of data or property listings to a geographically-dispersed audience.

The response of the CRE brokerage firms to the emergence of e-commerce within the industry has been multi-tiered. The first response has been for many firms to outsource much of their traditional information gathering function to various online services, such as CoStar and Realty IQ, which allows the firms to essentially eliminate their in-house research staff and achieve substantial cost savings. The second response, often in parallel with the first, has been to invest internally in technology infrastructure and employee training which will enable the firms to more effectively communicate with their clients in today's technology-oriented environment.

Cornish & Carey in Silicon Valley, California and CMN/Colliers International, in Vancouver, B.C., are two brokerage firms that have spent a substantial amount of money on client secure intranet systems in order to improve the speed and effectiveness of their communication with both clients and employees.[4] Efficient communication is especially important in today's high-velocity business environment where speed and efficiency dictate success or failure for many companies.

Cushman & Wakefield, after selling its database to Realty IQ in March 2000, recently entered into a multi-year agreement with Zethus, Inc. for the use of Zethus' online CRE transaction platform scheduled for launch in early 2001.[5] Other brokerage companies, such as the Insignia Financial Group and Octane (an industry alliance between CB Richard Ellis, Jones Lang LaSalle and Trammel Crow), have extended their e-commerce strategies to include direct investment in Internet-related businesses. In addition to the $20 million the Insignia Financial Group has spent developing its internal technology initiatives, the company has made strategic

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[4] Walsh, Bill. Telephone interview. Cornish & Carey. 19 July 2000.
Oishi, Alan. Telephone interview. CMN/Colliers International. 20 July 2000.

[5] Holusha, John. "Commercial Property/Creating an Online Lease Market; Can Office Space Be Traded Like Winter Wheat?" New York Times. 23 July 2000, late ed., sec. 11: 9. 26 July 2000. <http://web.lexis-nexis.com/universe/>

investments totaling more than $12 million in numerous Internet-based businesses, such as Siteline, Inc., Onsite Access, Inc., Wireless, Inc., MyContracts.com, Inc., LoopNet, PropertyFirst.com and Cubitz.com, to name a few.[6] Octane recently invested $30 million in the online procurement firm SiteStuff.com to take advantage of the substantial cost savings associated with the alliance's combined buying power.[7]

Looking ahead, technology will continue to change the CRE brokerage industry but the rate of change will be exponential compared with what has occurred historically. The coming two years in e-commerce will be a time of continued experimentation and significant volatility. The technology platform to take CRE brokerage industry to a higher level of efficiency and transparency is already in place, but there are human issues – *the spaceship may be commercialized, but is grandpa ready to fly*?

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[6] "Insignia Financial Group Announces Internet Strategy." Online posting. Insignia Financial Group Press Release. 23 Feb. 2000. 1 Aug. 2000 <http://www.insigniafinancial.com/>

[7] "Octane Partners Fuel SiteStuff.com with $30 million Investment." CoStar News. 24 July 2000. <http://www.costargroup.com/>

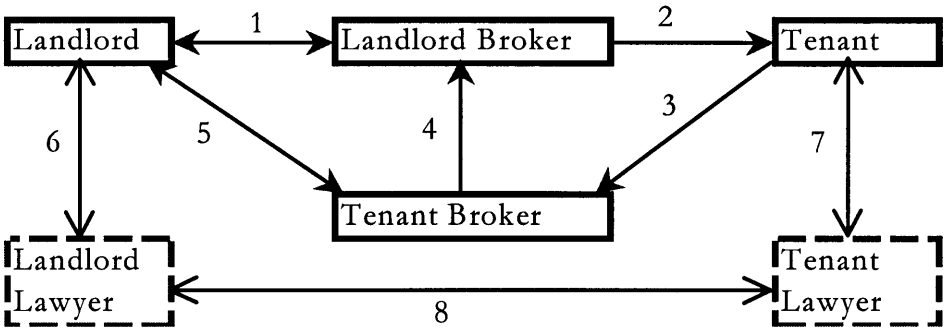
Chapter 1 CRE Brokerage and E-commerce

THE STRUCTURE OF THE CRE BROKERAGE INDUSTRY

Space Market (Leasing)

In order to evaluate the impact of e-commerce on CRE brokerage, it was essential to first understand the structure of the brokerage industry in regards to the major players and the relationships between those players. The space market participants in the CRE brokerage process typically include: landlords, tenants, lawyers and brokers, with the brokers serving as intermediaries between the landlords and tenants. The structure of the space market is illustrated in Figure 1-1.

Figure 1-1: Space Market Structure



The relationships between these space market participants will be detailed throughout the thesis. The information and services exchanged between the various parties are summarized in Table 1-1 on the following page.

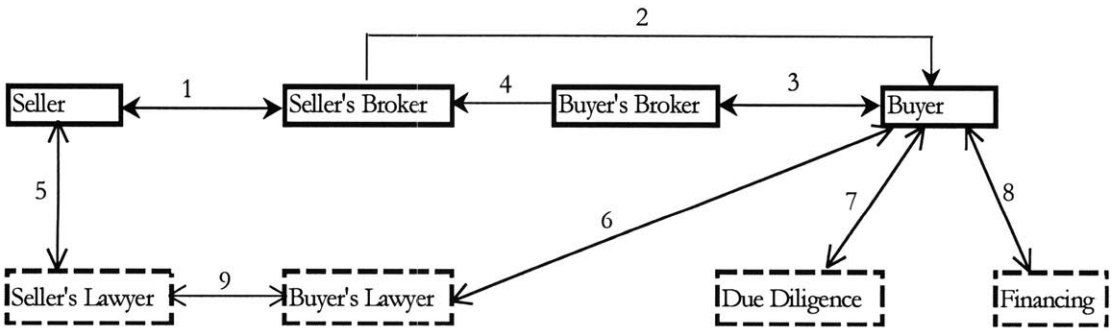
Table 1-1: Information and Services Exchanged

Link	Relationship	Information and Services Exchanged
1)	Landlord : Landlord Broker	Property information : Prosepective tenants, market info., analysis, negotiation
2)	Landlord Broker : Tenant	Property information : Tenant space requirements
3)	Tenant : Tenant Broker	Tenant requirements : Avail. space meeting requirements, market info., analysis, negotiation
4)	Tenant Broker : Landlord Broker	Tenants : Space Availability
5)	Tenant Broker : Landlord	Tenants : Space
6)	Landlord : Landlord Lawyer	Desired lease terms : Legal advice, negotiation, closing
7)	Tenant : Tenant Lawyer	Desired lease terms : Legal advice, negotiation, closing
8)	Landlord Lawyer : Tenant Lawyer	Landlord lease terms : Tenant lease terms

Asset Market (Investment Sales)

The major asset market participants in the CRE brokerage process typically include: sellers, buyers, lawyers and brokers, with the brokers serving as intermediaries between the sellers and buyers. Other participants generally involved in the process, but to a lesser extent, include: due diligence providers (such as engineers and appraisers) and debt and equity financing sources (such as lending institutions and limited partners). The structure of the asset market is illustrated in Figure 1-2.

Figure 1-2: Asset Market Structure



The relationships between the asset market participants will be detailed throughout the thesis. The information and services exchanged between the participants are summarized in Table 1-2.

Table 1-2 : Information and Services Exchanged

Link	Relationship	Information and Services Exchanged
1)	Seller : Seller Broker	Property Information : Prospective buyers, market info., analysis, negotiation
2)	Seller Broker : Buyer	Property Information : Buyer requirements
3)	Buyer : Buyer Broker	Buyer Requirements : Available buildings meeting requirements, market info., analysis, negotiation
4)	Buyer Broker : Seller Broker	Buyers : Available buildings
5)	Seller : Seller Lawyer	Desired transaction terms : Legal advice
6)	Buyer : Buyer Lawyer	Desired transaction terms : Legal advice
7)	Buyer : Due Diligence	Property information : Appraisal/feasibility study
8)	Buyer : Financing	Property information : Capital
9)	Seller Lawyer : Buyer Lawyer	Seller transaction terms : Buyer transaction terms

IMPACT OF E-COMMERCE ON MARKET STRUCTURE

As the Internet is an extremely effective distribution channel for information, the structural links that are being most impacted by the majority of the-commerce models are those links that rely heavily on the exchange of information, such as the relationship between the tenant and tenant broker and the buyer and the buyer's broker. Research-oriented Costar and listing-oriented PropertyFirst are two examples of companies targeting the "infomediary" role of CRE brokers[8]. The next generation of e-commerce models are transaction-oriented models aimed at compressing the amount of time spent during the transaction analysis and negotiation stages of the CRE transaction process. Most of these models are focused on collaboration whereby the participants of the transaction process will be able to analyze and negotiate transactions online and in real time. These models will impact all of the structural links within the transaction process, making the interaction between the various participants more efficient. An example of a transaction-oriented collaboration model would be that of Zethus, which is targeting the inclusion of all market participants, including landlords, tenants, sellers, buyers, lawyers and brokers within the online transaction process[9]. Another example of a collaboration site would be eJur, which is aiming to make lawyer-client interaction more efficient[10]. Although not

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[8] Florance, Andrew. Telephone interview. CoStar Group. 24 July 2000.
Golden, Andrew. Personal interview. PropertyFirst. 12 July 2000.
[9] Nenner, David. Telephone interview. Zethus. 14 July 2000.
[10] Brandis, Michael. Telephone interview. EJur. 17 July 2000.

focused only on real estate, models such as eJur are also expected to have a positive impact on the efficiency of the CRE transaction process.

DEFINITION OF CRE BROKERAGE FUNCTIONS

Our thesis will evaluate the impact of e-commerce on the functional areas of commercial real estate (CRE) brokerage. Our identified functional areas include: 1) Database; 2) Search/Match; 3) Tour guide; 4) Analysis; 5) Negotiation; and 6) Documentation & Closing. Based on our research and evaluation of the CRE brokerage industry, we have defined these functions as follows:

Database: The aggregation, synthesis, maintenance and distribution of market/industry sector data to various market participants.

Search/match: The navigation through the database and the matching of potential tenants with available space that meets their needs (space market) or the matching of potential buyers with assets/properties for sale that satisfy their investment objectives (asset market).

Tour Guide: The showing and describing of physical space or assets standing alone, as well as in the context of their surrounding environment, to potential tenants or buyers.

Analysis: The detailed examination of the space or asset alternatives that can include due diligence, physical improvements evaluation with vendor/contractor selection, financial analyses (e.g. discounted cash flow scenarios, cost/benefit analyses, tax analyses, etc.), economic forecasts for growth potential and exit strategies.

Negotiation: The deployment of real estate expertise/knowledge and interpersonal skills to help achieve a mutual agreement between landlords and tenants (space market) and sellers and buyers (asset market).

Documentation
& Closing: The on-going record keeping, document preparation and legal facilitation necessary to close the transaction.

OVERVIEW OF CRE TRANSACTION PROCESS

The CRE transaction process is typically a 3 to 6 month (often 12 months or more on large leases) process involving numerous market participants, which generally include: landlords/sellers, tenants/buyers, lawyers and brokers. Other parties which are often involved at certain points during the transaction process include: institutional investors, investment banks, mortgage brokers, appraisers, environmental engineers and title insurers. Transaction time frame varies in leasing and investment sales. Market conditions (tight or soft) also have a major role in affecting the transaction time.

Our personal and telephone interviews with market participants have directed us to phasing the transaction process into four stages: request for proposal (RFP), letter of intent (LOI), negotiation, and closing. The CRE transaction process generally commences with the request for proposal, or RFP. The RFP is defined as[11]:

A document in the form of formal written request prepared by a prospective tenant (or the prospective tenant's representative on behalf of the tenant) for information regarding the lease and the building.

In the space market, the CRE broker's role in the RFP stage of the process typically involves contacting prospective landlords to find space availability and property information which will then be delivered to the tenant. The second phase of the CRE transaction process is the letter of intent. The letter of intent is defined as[12]:

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[11] 2 Aug. 2000 <http://www.bomi-edu.org/glossary.shtml>
[12] 2 Aug. 2000 <http://www.max-info.com/NoMoneyDown/realterms.html>

A letter stating a buyer's intent to make an offer to acquire a certain property. It is not a binding contract.; or alternatively as[13]: *a formal method of stating that a prospective developer, buyer or lessee, is interested in property.*

In more practical language, the letter of intent involves putting the business terms of the offer to lease (or purchase) on paper. For space market transactions, the business terms generally include: rent, term of lease and tenant improvement allowances. On the investment sales side, the business terms included within the letter of intent are even more limited and often only include price and form of payment (i.e. cash, credit line, etc.). The CRE brokers' role in the letter of intent typically involves assisting their client in evaluating the existing market conditions and developing reasonable offer terms.

The third phase of the process is negotiation. The negotiations involve both the demand side and supply side, together with their respective brokers and lawyers, coming to an agreement on contractual terms. During the negotiations, the brokers typically help their respective clients negotiate the business terms (including price/rent, capital expenditure, contingency clauses, etc.) while the lawyers will assist their clients with the negotiation of the legal issues (e.g. casualty insurance, warranties, remedies, etc.). It is important to note that the expected role of the broker in negotiations varies widely depending on the client. For example, tenants tend to rely quite heavily on the broker's market knowledge to help them negotiate, while some landlords familiar with the local market conditions may not want the broker involved in the negotiations at all. One landlord we interviewed said, "the brokers shake the fruit tree and the fruit falls … we collect the fruit." [14]

The final phase of the process is the transaction closing. The closing, which involves the transfer of consideration and notarization of the lease or purchase and sales agreement, is completed almost exclusively by the lawyers with limited client or broker involvement.

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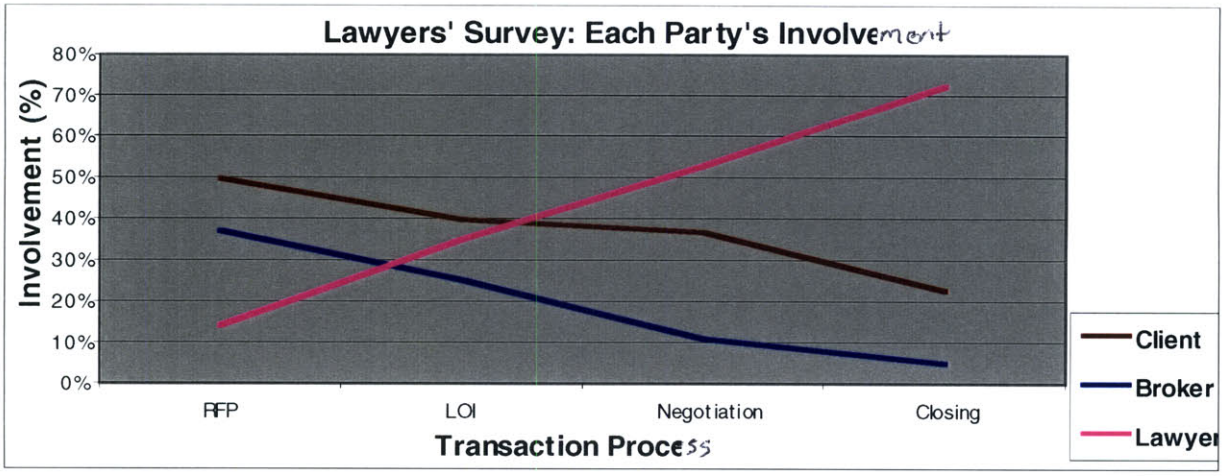
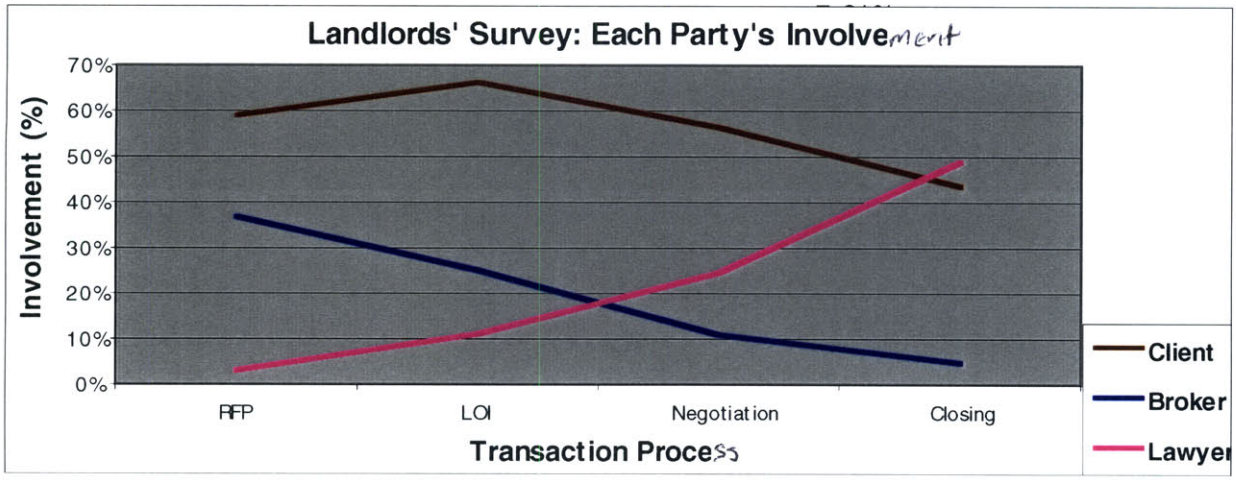
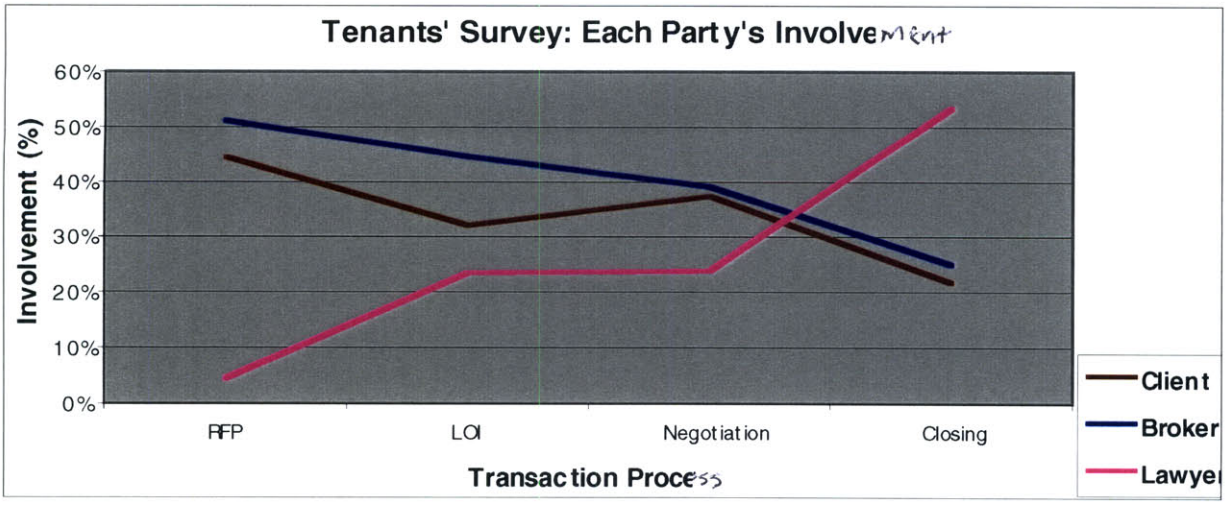
[13] 2 Aug. 2000 <http://www.homes-and-real-estate.com/glossary/l.htm>
[14] Picard, Lisa. Telephone interview. Hines Development. 13 July 2000.

Our survey results, from the perspective of lawyers, landlords, and tenants, substantiate the respective involvement of brokers, lawyers and clients at different stages of the transaction process, as illustrated in the following graphs.

Figure 1-3: Involvement Levels of Various Parties







The three graphs presented above depict the broker's involvement in the transaction process as being highest during the RFP, declining moderately during letter of intent (LOI) and still further in negotiation before dropping precipitously during the closing. This downward trend in broker involvement is consistent with the opinions voiced by market participants during our personal and telephone interviews, which will be detailed later in the thesis. The charts below summarize the percentage involvement of the broker in the transaction's various stages from the perspectives of lawyers, landlords and tenants.

Table 1-3: Involvement (in % terms) of Various Parties

Lawyers' Response

	RFP	LOI	Negotiation	Closing
Client	49%	40%	37%	22%
Broker	37%	25%	11%	5%
Lawyer	14%	35%	53%	72%
Total	**100%**	**100%**	**100%**	**100%**

Landlords' Response

	RFP	LOI	Negotiation	Closing
Client	59%	66%	56%	44%
Broker	38%	22%	19%	8%
Lawyer	3%	11%	24%	49%
Total	**100%**	**100%**	**100%**	**100%**

Tenants' Response

	RFP	LOI	Negotiation	Closing
Client	44%	32%	37%	22%
Broker	51%	45%	39%	25%
Lawyer	4%	23%	24%	53%
Total	**100%**	**100%**	**100%**	**100%**

Based on the previous charts, the tenants appear to rely more heavily on the brokers than do the landlords throughout the transaction process. Specifically, tenants reported broker involvement in the LOI of 45% while lawyers and landlords reported 22%, and in negotiations the tenants reported broker involvement of 39%, as against the landlords' significantly lower 19% and the lawyers' 11%. It is also interesting to note that the lawyers' involvement follows an upward trend from all three perspectives, with most of their involvement occurring in the closing stage.

Contrary to lawyer involvement, there is an observed downward trend in broker involvement throughout the transaction process. More specifically, from the tenants' perspective, broker involvement drops from 51% in the RFP to 45% in the LOI to 39% in the negotiations and 25% in the closing, while, from the landlords' perspective, broker involvement declines from 38% in the RFP to 22% in the LOI to 19% in the negotiations and 8% in the closing. The implications of this downward trend in broker involvement along the process chain is significant because, in order to thrive in the New Economy, brokers will need to move away from the information-based RFP stage and become more involved in the LOI and negotiation stages where good brokers will still be able to add significant value to the overall transaction process.

The transaction time depends on numerous factors including the nature of principals' business, the principals' motivations, market conditions (tight market or soft market) and brokerage companies' efficiencies. Our survey results from brokers showed that, although more than half of the transactions have been completed in 90+ days over the past five years, more of the transactions in the last 12 months were completed faster than in previous periods, as illustrated in Table 1-4.

Table 1-4: Average Transaction Time (Brokers' Suvey)

% of Total Transactions	Last 12 mon.s	Last 2 years	Last 5 years
% completed in 0-45 days	11.1%	8.7%	7.3%
% completed in 46-90 days	28.9%	27.8%	25.2%
% completed in 90+ days	59.5%	63.8%	67.5%
Total	**100%**	**100%**	**100%**

OVERVIEW OF E-COMMERCE MARKET FORCES

Driving Forces

Information transparency. The most significant market force that will continue to drive e-commerce and transform the CRE brokerage industry is the increasing information transparency as a result of the Internet. The Internet, which is an extremely efficient and cost-

effective distribution channel for information, provides the general public with easy access to large quantities of real estate data, which had previously only been known by sellers, landlords, brokers and a few other select parties. Listings of available space or buildings for sale, property information and market statistics are now readily available on the Internet. As a result, the provision of information as a value-added service by brokers has started to experience diminishing value and clients have raised their information expectations, demanding more information from the brokers in shorter periods of time. Additionally, relationships as a source of information have become a less valuable resource for brokers.

Compression of transaction time. The second market force behind the acceleration of e-commerce within the CRE industry is the increasing pressure to compress the lengthy transaction process. The downward pressure on transaction time is being driven by the importance of time-to-market in today's high-speed business environment and has resulted in the formation of several e-commerce ventures, such as Zethus, which are aiming to substantially reduce the duration of the CRE transaction process through online collaboration.

Restraining Forces

Old-boy mentality. The largest restraining force that may slow the adoption rate of E-commerce by the CRE brokerage industry is related to human factors, such as tendency to resist uncertainty and change. According to Mitch Jacoby of Grubb & Ellis[15], there is still an 'old-boy mentality' within the industry, especially with those brokers that have been in the industry for a long time, and he believes that the generation in their 30s is more open to using the Internet and technology to make themselves more efficient, and the real change will come with the recent graduates and even more so with the current generation growing up on the Internet. Roy Hirschland of Meredith & Grew feels that "the biggest barrier to e-commerce adoption is people and their fears of the unknown and change."[16] Based on our research, it is our opinion that the CRE brokers' resistance to change represents a significant restraining force in the short-term as brokers are an extremely powerful force within the CRE industry and the majority of the e-commerce business models are relying on broker adoption for their success.

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[15] Jacoby, Mitch. Telephone interview. Grubb & Ellis. 21 July 2000.

Unproven business models. With the exception of CoStar, LoopNet and Relocate (now RealtyIQ), the majority of the CRE e-commerce players are less than one-year old and many have uncertain revenue models and no clear path to profitability. According to Alan Oishi of CMN/Colliers International[17]: "There are currently limited incentives for brokerage companies to adopt the new e-commerce models. The dotcom business models are in the early stages and are still trying to improve -- thus, they don't provide compelling reasons to use them. It will take time before they are adopted by the commercial real estate industry." Our evaluation of the various e-commerce business models will be presented in the forthcoming chapters.

Standardization of CRE contract documents. For many of the e-commerce models to be successful, one hurdle that must still be overcome is the standardization of the CRE contract documents, most notably the lease contract and purchase and sales agreement. Standardization of the lease contract is likely to be more difficult than the purchase and sales agreement due to the on-going nature of the lease contract and the number of business operating issues it addresses. However, with the maturing of the CMBS market for commercial mortgages which involved substantial mortgage document standardization, the concept of standardizing other types of CRE documents is gaining in popularity, but standardization of CRE contract documents is still considered to be many years away.

A major issue with CRE document standardization is that it would likely need to be done by an industry-wide, non-partisan organization, rather than a single company, in order to be credible and sustainable within the CRE industry. An example of such an effort would be the National Council of Real Estate Investment Fiduciaries (NCREIF), the Pension Real Estate Association (PREA), and the National Association of Real Estate Investment Managers (NAREIM) joining forces in 1993 to establish a set of real estate information standards (REIS) for the institutional real estate investment industry. The mission of REIS, which is being overseen by a volunteer group of industry professionals referred to as the Data Consortium, is to enable CRE-related information to be exchanged between owners, vendors, consumers, and associations in a more

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[16] Hirschland, Roy. Personal Interview. Meredith & Grew. 25 July 2000.
[17] Oishi, Alan. Telephone interview. CMN/Colliers International. 20 July 2000.

efficient and cost-effective manner. In order to achieve this mission, other segments of the CRE industry, such as other real estate industry associations, other owners of commercial real estate, vendors of software, and CRE service providers, are planned for inclusion within the standards creation process. The Data Consortium's first product, referred to as eXtensible Real Estate Data Standards (XREDS) and due for release soon, will standardize the use of extensible mark-up language in the on-line document revision process.[18] Standardization efforts such as these, although not market-moving yet, represent a significant step in the right direction.

CRE BROKERAGE COMPENSATION STRUCTURE

Currently, the most commonly-used compensation structure within the CRE brokerage industry remains traditional commission-based compensation whereby the brokerage firm receives a percentage of the purchase price for asset market transactions or a percentage of the annual rent for space market transactions. Despite the stronghold that the commission-based structure has within the marketplace, alternative compensation structures, such as a flat fee plus incentives for purchase prices or lease rates above a pre-determined benchmark or a simple flat fee, have emerged in recent years.

Looking ahead, some market participants believe that the brokers' compensation may move towards an hourly rate as brokers transition away from functioning as information intermediaries and more towards serving as value-added consultants in order to survive in an environment where information is abundantly available[19]. Conversely, other market participants believe that the commission-based structure will remain the predominant compensation structure because: 1) brokers are paid on a commission basis in order to align the brokers' interests with their clients' interests (i.e., if the transaction is not completed the broker gets nothing), and 2) the value added to the transaction process by brokers is more difficult to measure than for consultants which are typically hired to complete specific tasks within the

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[18] Young, Michael. Telephone interview. Data Consortium. 25 July 2000.
[19] Picard, Lisa. Telephone interview. Hines Development. 13 July 2000.

process[20]. The conclusion of the thesis will detail our perspective on future compensation trends based on our evaluation of the impact of e-commerce on the six functions of CRE brokerage.

CATEGORIZATION OF E-COMMERCE COMPANIES

Defining the Business Models

Based on our research and conversations with industry practitioners, we categorized the major e-commerce companies into four general business models: information manager, traffic aggregator, transaction collaborator, and communication synchronizer. We borrowed the business model concepts from Hagel III & Singer (1999)[21] and adapted them to the CRE brokerage industry. Our definitions of the four models are as follows:

Information Manager: This business model focuses on information aggregation, marketing, research and industry news. It is content based and the source for information can be from either research (CoStar) or self-generation (LoopNet)[22]. The goal for this business model is to facilitate information flow by aggregating a comprehensive and timely database with tools to navigate through the data. The revenue model is usually subscription-based plus advertising.

Traffic Aggregator: This model is also often referred to as a portal. The aim of this model is to provide a gateway to all relevant sectors in CRE industry in order that market participants can find resources in an efficient manner. Traffic is vital to the success of this model since the revenue mainly comes from advertisement. A representative of this model is PikeNet.

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[20] Wood, Wistar. Telephone interview. Beacon Capital. 21 July 2000.

[21] Hagel III, John, and Marc Singer. Net Worth: Shaping Markets When Customers Make the Rules. McKinsey & Company, Inc.. Boston: Harvard Business School Press, 1999. pp 85-93: The four most promising infomediary potential for Internet-based business are: portal, virtual community, transaction aggregator, advertising network.

[22] DeAndre, Dennis. Interviewed with Jack Peckham. Cybermaster briefings. Online posting. 4 Aug 2000 <http://www.recyber.com>

Communication Synchronizer: This model has the objective of building a virtual community where members exchange information and keep abreast of the new trends, especially technology innovations, in all CRE sectors. The company synchronizes the interactions and distributes them to the members. The revenue model relies on member subscriptions. A good representation of this model is the Real Estate CyberSpace Society (www.recyber.com).

The major differences between traffic aggregator and communication synchronizer are:

- *The target market*: The former is open to the public and serves as a "filter" or "selected directory", while the latter takes on an educational and networking role and serves an enclosed community of professionals.
- *The revenue model*: The traffic aggregator's revenue mainly comes from advertisement, while the communication synchronizer earns income from membership subscriptions.

The major similarity between the two models is that both have a very low cost structure.

Transaction Collaborator: This model focuses on providing appropriate tools to facilitate the transaction process and thus requires the most technology investment among the four models. It functions as a "stimulus engine" operating from the transaction origination, through analysis and negotiation and ending in transaction completion. Based on the transaction process, we observe two sub-models: *application service providers (ASP)*[23] */ analysis and B2B exchange.* The ASP/analysis sub-model encompasses software packages (customized and generic) and customized business solutions (technical and analytical), excluding web design and hosting. Examples are Planease, Realdata and Reis. The B2B exchange sub-model aims to provide the user with a "toolbox" to enhance transactions from commencement to completion. As a young-venture industry, e-commerce companies generally lack the capital required to enter the B2B exchange model, with the exception of entrants such as Zethus that is backed by a pool of

[23] "**A**pplication **S**ervice **P**roviders are third-party entities that manage and distribute software-based services and solutions to customers across a wide area network from a central data center. In essence, ASPs are a way for companies to outsource some or almost all aspects of their information technology needs." 11 Aug. 2000 <http://e-comm.webopedia.com/TERM/A/Application_Service_Provider.html>

capital of $40-50 million[24]. The table below illustrates the defining characteristics of the fours models as well as their relationship to the six brokerage functions.

[24] "Zethus Announces Major Agreement With Cushman & Wakefield, Inc.: Zethus' Patent-Pending Transaction Platform to Serve as Cushman & Wakefield's Online Commercial Real Estate Leasing Vehicle." Press release online posting. 5 Aug. 2000 <http://www.zethus.com/zethusrelease1final.doc>

Figure 1-4: Business Models of E-commerce Companies

	Information Manager		Traffic Aggregator	Communicatio Synchronizer	Transaction Collaborator	
	Research	Marketing			ASP / Analysis	B2B Exchange
Bidrealestate						
Biztrader						
CityFeet						
Commercialsource						
Commredirect						
Commrex						
Comnetre						
Comro						
CoStar						
Cubitz						
eProperty						
Excessspace						
indpkassoc						
Lookingforspace						
LoopNet						
nyproperty						
Officedirectory						
Officefinder						
Offices2Share						
Officespace						
PikeNet						
Property.net						
Propertybynet						
PropertyFirst						
Propertygo						
Realcentric						
Reals						
RealtyIQ						
Realtyonline.net						
Recyber						
Reealbuyer.net						
Rentv						
Space4Lease						
Storetrax						
Tenantwise						
Theaskingprice						
Therealm						
webrealestate						
Ameriquotes						
IPIX						
Planease						
RE3W						
Realdata						
Reis						
Zethus						

Color Key				
Business Model:	General	Retail	Industrial	Future Model

Chapter 2 Database Function

FUNCTION OVERVIEW

Historically, the real estate industry has been notorious for being local and idiosyncratic. Information has not been widely available as a result of geographic fragmentation and property type diversification. Intermediary such as brokers have taken on the role of gathering information and have added value to principals by identifying transaction opportunities and/or providing additional alternatives. One important way of obtaining information is through personal contacts since major communications are carried out at meetings and on the phone. The ability to develop, maintain and expand personal contacts has been critical for brokers in their role as a "bridge" of information. Brokerage companies are built on internal franchise, providing efficiencies with a bigger pool of information.

As mentioned in the previous chapters, the Internet is reshaping the way people conduct business. It has provided tools to aggregate information in a more efficient way and has made communication and information dissemination easier and faster. The database function, counting for the brokers' lowest work effort (11% of work effort in a typical transaction), has been most affected by the Internet (29% of work effort is currently Internet-based with an anticipated increase to 50% in five years time)[25].

The Internet takes on two major roles as a database for the CRE brokerage industry:

- Information reservoir (multiple listings and financial data)
- Information distribution channel
  - ⇒ Marketing tool (classified advertisements)
  - ⇒ Research and news (comprehensive macro- and micro- market reports and real-time news)

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[25] See Survey Results, Appendix 2.

The following sections will discuss the above outlined roles, attempting to answer these four principal questions:

- What is in the database and what is the source of the information?
- How is the information in the database distributed?
- To whom is the information distributed?
- How are the major e-commerce database companies positioning themselves in relation to the database function?

Information Supply and Demand

Demand for information

The strongest force on the demand side of information is business velocity. Globalization and technology have greatly affected how corporations operate, from their decision-making process to back-office administration. Increased competition also requires that all companies be responsive to global markets. Technological innovations facilitate speed, efficiency, and transparency. All these factors combined with today's tight real estate market, have resulted in a freer flow of information.

Furthermore, market participants are demanding different types of information. Brokers as service providers are responding to clients' needs and expectations by providing faster and more comprehensive information services. They need information about property availabilities, prospects and existing clients, as well as market statistics and financial data, in a comprehensive and timely format to evaluate real estate opportunities for their clients. Landlords/owners, while relying on brokers to obtain and maintain a free flow of information with the tenants/buyers, give more importance to business efficiency and control. They want to have readily accessible and consistent data. According to David Romano at Cornerstone[26],

"The industry is the same and so many companies (brokerage firms) are gathering similar data

[26] Romano, David. Telephone interview. Cornerstone Real Estate Advisers, Inc. 6 July 2000.

within the industry – it's a waste of time. ... There should be a free information flow and a consistency of data since the data is only raw data and what matters are interpretation and evaluation of the data."

In the space markets, landlords depend on brokers to identify a short list of qualified leasing prospects, but generally do not get brokers involved in negotiation. On the tenant side, small tenants rely heavily on brokers in connection with their space needs and big corporate tenants have started to outsource their real estate/facility management functions to big brokerage houses (e.g. Lucent Technologies outsourced its European properties to Healey & Baker)[27]. The other parties that are involved in real estate transactions include lawyers, investors, investment banks, appraisers, mortgage bankers, and so forth. They each focus on different types of transaction-related information, such as due diligence studies, regulations and credit reports.

Supply of information

There are two main sources of information in the marketplace for web-based datahouses: brokers and owners/landlords. In both the space and asset markets, brokers are the major sources of market information as a result of their historical role as an informediary. They are extensively involved in the transaction process, especially from the request for proposal (RFP) through the letter of intent (LOI), and thus have first-hand information about the availability and demand in the space and asset markets. The brokers provide information on both the macro- and micro- level. As the supplier of the physical asset, owners/landlords are the direct providers of availability information, especially in the space market. However, information on effective rents is considered proprietary and no database so far has been able to aggregate this rental information. Asset managers and institutional investors are the source for investment sales information, which is usually publicly recorded.

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[27] In addition, certain key real estate professionals from Lucent will transfer to be part of Healey & Baker Management Services. In "H&B leads rollout of Facilities Management outsourcing for Lucent". The Healey & Baker Newsletter. Summer 2000.

Database Creation, Delivery and Maintenance (In-house vs. Outsourcing)

Traditionally, brokerage companies create and maintain their own in-house information databases. Research staffs are employed to aggregate the information brought in by brokers and conduct market analysis. The database is driven largely by space/property availabilities and brokers tend to privately keep their own accounts of demand that rely heavily on relationships. Information is distributed via intranet, print, meetings, phone or fax among a relatively closed circle of people involved in the transactions. The in-house database creates efficiencies within the company but does not reduce market information frictions.

Clients are demanding freer information flow in order to make informed decisions. In addition, intensified competition and shrinking profit margins in the brokerage industry is forcing brokerage companies to rethink their business strategies. Some companies are expanding their services to leverage the same information platform, while others are forming alliances to create efficiencies in their databases. Another increasingly viable alternative is the outsourcing of information database to companies such as CoStar or RealtyIQ, especially for small- and medium-sized firms. Outsourcing database functions is further evidenced by the sale of Cushman & Wakefield's database to RealtyIQ. The New York Times[28] reported the sale "was a recognition that the value of gathering and storing information had diminished at a time when information will be widely available commercially on the Internet." And according to Mr. Falus of Cushman & Wakefield,

"Cushman & Wakefield wants to be positioned at the highest value-added points in the real estate business," he said. "In the past we gathered and disseminated information. Once we realized that there were going to be companies specializing in information, we decided we did not have to do it ourselves. There are better uses for our financial capital and our human capital."

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[28] Holusha, John. "Commercial Property/Creating an Online Lease Market; Can Office Space Be Traded Like Winter Wheat?" New York Times 23 July 2000, late ed., sec. 11: 9. 26 July 2000 < http://web.lexis-nexis.com/universe/>

For a long time, brokerage companies have outsourced research on general business and economic issues due to knowledge specialization rather than efficiency. Brokers use Bloomberg, Econdata.net, Edgar Online and Hoover's Online, to name a few, in order to stay informed of the general economic environment and study prospects. The outsourcing of listing services, real estate specific research and news is a more recent phenomenon that has been brought to the foreground as a result of the use of the Internet (including email) as a distribution channel.

The database outsource providers (e.g. CoStar, RealtyIQ, LoopNet, etc.) gather information from brokers, owners, tenants, property managers and websites. They also provide tools so that the property owners can directly post and update their listings online. The major challenge that these companies are facing is how to control the quality of data in terms of its comprehensiveness, accuracy and timeliness. Our interview results show that the majority of the online listing companies update their databases every thirty days with the exception of CoStar that updates its database daily[29].

In order to be more responsive to clients, brokers need comprehensive and timely information from easily accessible sources. Some of the online database companies (e.g. CoStar, PropertyFirst and LoopNet) have recognized this need and integrated other brokerage functions (such as virtual tour and financial analysis) into their database. The business models of these and other database-oriented e-commerce companies will be analyzed in detail in the next section.

Many brokerage firms have outsourced the database function in order to achieve information efficiency and increased profit. Such outsourcing can reduce the in-house operational costs and potentially increase the volume of transactions. Therefore, information quality becomes the more important criteria to corporations than the price charged by e-commerce database companies. Pricing relates to the content (i.e. the quality of the information) and Andrew Florance at CoStar believes that "the price of information will go up rather than go down,

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[29] Florance, Andrew. Telephone interview. CoStar Group. 24 July 2000.

following a similar path by Bloomberg, ... the cost of accessing CoStar is only 1/5 to 1/10 cost of an in-house data research staff"[30].

BUSINESS MODELS

Major Players

Three of the four business models that we discussed in the previous chapter assume the role of information aggregation as well as dissemination. Fundamentally, these models are tackling the brokerage database function and the search/match function, helping to facilitate the free flow of information and increase the information transparency in the marketplace. We will focus on the database function in this chapter and elaborate on the search/match function in Chapter 3.

As mentioned earlier, the database functional area has seen the most number of new entrants. Of the forty-five Internet companies we studied, thirty-seven companies (82.2%) have taken on the database function in the form of *information manager (research & marketing)*, *traffic aggregator* or *communication synchronizer*. The trend setting companies in each of the aforementioned three business models are CoStar (research) & LoopNet (marketing), PikeNet, and Recyber.com[31] respectively. The major difference between CoStar and LoopNet, as Andy Florance outlined, is that "LoopNet, with limited listings, is more of a marketing solution than an information solution....."[32]. In contrast to Florance's service providing viewpoint, Dennis DeAndre, CEO of LoopNet, looked at the difference from a perspective of the approach taken

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[30] Florance, Andrew. Telephone interview. CoStar Group. 24 July 2000.
[31] This is the web site for The Real Estate CyberSpace Society.
[32] Florance, Andrew. Interview with The Real Estate CyberSpace Society. Online posting. Cybermaster Briefings. 7 April 2000. 2 Aug. 2000 <http://www.recyber.com/>

to list information (i.e. research-based model[33] of CoStar vs. self-generation model[34] of LoopNet)[35].

The business models for some representative companies[36] will be examined in three major areas: clientele/target market, information sources, and revenue model & pricing strategy, leading to further consideration of the sustainability of the business models.

Clientele / Target market

We define clientele as the groups of people that generate revenue or potential revenue for the e-commerce companies. The companies in aggregation are targeting all of the participants in the marketplace but with particular focus on brokers, tenants and landlords/owners. Table 2-1 outlines the clientele that the selected representative companies are serving (please refer to the colored boxes).

It is important to recognize that 67% of the eighteen selected e-commerce companies are targeting brokers as their major clients, proclaiming that they are providing tools to assist brokers in their information gathering and marketing of listings, thus freeing up brokers' time to perform more value-added activities. The landlords/owners come in as the second choice for clientele. However, we found during our interviews with brokers that many listings get leased before ever hitting the listing websites due to currently tight space markets where landlords have stronger bargaining power than tenants. Small tenants and investment-banks/lenders are tied for third place. Choosing small tenants as clients is well-explained by Mr. Julien J. Studley's comments[37], "...automated markets were most likely to develop for very small

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[33] Research-based model: the database model in which researchers gather, screen and maintain the information.

[34] Self-generation model: the database model in which the user community delivers and maintains the information.

[35] DeAndre, Dennis. Interview with the Real Estate CyberSpace Society. Online posting. Cybermaster Briefings. 4 Aug. 2000. 4 Aug. 2000 <http://www.recyber.com/>

[36] The companies that we put in the Tables are those we interviewed. In some instances, we cannot discuss the companies in full detail due to requests by interviewees relating to proprietary information.

[37] Holusha, John. "Commercial Property/Creating an Online Lease Market; Can Office Space Be Traded Like Winter Wheat?" New York Times 23 July 2000, late ed., sec. 11: 9. 26 July 2000 < http://web.lexis-nexis.com/universe/>

spaces, where tenants have trouble attracting the attention of brokers and value the speed of moving into a location over the nuances of the lease."

Table 2-1: Database Function – Clientele/Target Market

	Brokers / Agents	Tenants		Landlords/ Owners	I-banks/ Lenders	Others (Appraisers, Property mgt.)
		Small	Large			
Cityfeet						
Commredirect						
Comro						
CoStar						
E-Property						
LoopNet						
Offices2Share						
Propertybynet						
PropertyFirst						
Propertygo						
Realcentric						
RealtyIQ						
Space4lease						
Storetrax						
Tenantwise						
TheAskingPrice						
Cyberspace						
PikeNet						

Color Key: Future Clientele

Information source

As these companies represent information managers tackling the database function, it is important to examine their information sources. *To a large extent, the source of information determines the quality of the information, which is a major concern for the users of the database.* As we mentioned in the previous section, the principal criteria for information quality are comprehensiveness, currency and consistency. Based on our research and interviews with the founders and management of the companies we identified, we outlined the information sources for the same group of companies in Table 2-2. Please refer to the colored boxes.

It is interesting to observe that the major clientele tend to also serve as the primary source of information. Approximately 83% of the eighteen selected companies obtain information from brokers/agents and 78% obtain information from landlords/owners. The next largest information source is the "other" category that includes appraisers, property managers, newspaper clippings and website scanning.

Tabe 2-2: Database Function - Information Sources

	Brokers / Agents	Tenants	Landlords / Owners	I-banks, Lenders	Others (Appraisers, Property mgt.)	Goods & Service Providers
Cityfeet	■		■			
Commredirect	■			■		
Comro	■		■		■	
CoStar	■	■	■		+ Web sites	
E-Property			■			
LoopNet	■					
Offices2Share	■	■	■			
Recyber	■				■	■
PikeNet	■	■	■	■	■	■
Propertybynet	■		MIS database people			
PropertyFirst	■				Newspaper	
Propertygo	■		■			
Realcentric	■		■			■
RealtyIQ	■		■			
Space4lease	Little participation		■			
Storetrax	■		■			
Tenantwise			■			■
TheAskingPrice			■			

Revenue models and pricing strategies

We identified six revenue models: advertisement, subscription, revenue sharing from goods & services, listing, brokerage & referral fee, and ASP & software. Subscription (including site licensing) revenue stems from information users while listing fees are charged to the information providers. ASP & software represent the income from business solutions or customized software packages. Advertisement was the most widely-cited revenue source

among the sample of twenty-three companies, followed by subscription, revenue sharing and listing. Since the selected companies are database-oriented, few of them rely on ASP & software for revenue. In addition, the few that use brokerage & referral as a revenue model are targeting small tenants and acting as an online broker, except for LoopNet which gets fees from mortgage brokerage. Only CityFeet in our sample cites tenant referrals to brokers as a revenue stream. Table 2-3 outlined the revenue models for each of the twenty-three companies (please refer to the next page).

Based on the information we obtained through our research and interviews, we grouped the e-commerce companies' various pricing strategies into the following categories:

- *Volume-based*: the price decreases with an increased number of users/properties or markets covered;
- *Value-based*: the pricing is based on the concentration and comprehensiveness of content;
- *Property & vacancy-based*: charging an annual subscription fee per property per year based on the vacancy of the property;
- *Upfront fee + recurring*: this is mainly for ASP & software products with upfront installation or development fee plus recurring maintenance fee.

There are two more components of the different business models that are worthy of discussion. The first one is the marketing strategies of the selected companies. Most of the companies are using traditional marketing distribution channels such as advertisements, event marketing and direct marketing. A few companies use the Internet as a marketing channel through online marketing partners, mass emails or links with traffic aggregators. The second point worth discussing is the integration of the database function with the search/match function. A random check of thirty-eight database-related companies shows that approximately half of them assume a role of searching and/or matching. We will elaborate on the search/match function in the next chapter.

Table 2-3: Database Function – Revenue Models

	Subscription	Listing	Advertising	Revenue Sharing (G&S)	Brokerage/ Referral Fe	ASP & Software
CityFeet						
Commredirect						
Commrex						
Comro						
CoStar						
eProperty						
LoopNet					Mortgage	
Nyproperty						
Offices2Share						
PikeNet			& conference			
Property						
Propertybynet						
PropertyFirst						
Propertygo						
Realcentric						
Realestate						
Reals						
RealtyIQ						
Recyber						
Space4Lease						
Storetrax						
Tenantwise						
Theaskingprice						

Color Key
Interview: Current Revenue Model
Interview: Future Revenue Model
Our research: Current Model

Barriers to Entry and Business Sustainability

The major barriers to entry for e-commerce companies in the database function area are: the first-mover advantage related to creating a solid content base and establishing a user base[38], capital investment and brand name.

[38] Florance, Andrew. Telephone interview. 24 July 2000.

First mover advantage

Building a database for the CRE industry is especially challenging due to the geographic fragmentation of commercial real estate and its heterogeneous property types. It is time-consuming and costly to aggregate the information. First mover advantage is best exemplified within the information manager model, where the content base is critical for the research segment. First mover advantage is also important for the marketing segment where user base cultivation is important.

LoopNet is a classic representative of the marketing segment. LoopNet enjoys the largest market share in the marketing segment, due in part to its equity partnerships with most of the major national brokerage firms. There are numerous small new entrants in the marketing segment; however, we believe that, unless these new entrants can expand into a more vertically integrated model, it will be difficult for them to compete with the larger and more established companies, such as LoopNet. Some of the new entrants have chosen to serve a different clientele than does LoopNet (i.e. tenants and landlords vs. brokers), but lack a clear strategy of how to attract traffic to their sites. One notable new player in this field is PropertyFirst (established in June 1999), which acts like a marketing agency, utilizing its growing database and BuyerMatch™ and PropertyPush™[39] services to add-value to the brokerage community.

Capital investment

The capital investment requirement is greater for the research segment than for the marketing segment in the information manager model, thus raising the entry bar for research-oriented companies. This explains why we see more new entrants in the marketing segment, many claiming to be "the superman of classified ads"[40], than in the research segment.

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[39] These are PropertyFirst's matching systems to get buyers and brokers together. The company's Quality Assurance Team will inspect everything listing submitted by brokers. Once the listing is approved, a list of qualified buyers will be sent to brokers (BuyerMatch) and brokers can use the PropertyPush function to automatically forward space/property information to the interested buyers. Please see the marketing brochure of PeropertyFirst.com.

[40] Tola, Richard. Telephone interview. TheAskingPrice. 10 July 2000.

RealtyIQ is one of the few companies to seriously enter the listing & research segment, backed by its RElocate database (started in 1992) and the purchase of the Research Center of Cushman & Wakefield in March 2000. It competes with CoStar via a discounted pricing strategy, as its content base is not as comprehensive or established as that of CoStar.

The capital investment necessary for the traffic aggregator and communication synchronizer models is relatively less intensive than that required for the information manager model since the traffic aggregator and communication synchronizer models are creating communities rather than dealing with the CRE brokerage process. Additionally, as facilitators rather than managers of the information flows, the traffic aggregator and communication synchronizer models generally need fewer tools. Also, the cost structure of the traffic aggregator and communication synchronizer models is relatively low. For example, PikeNet has two staff members and The Real Estate Cyberspace Society (Recyber) has one key staff member with outsourced web maintenance and sound and print productions, while CoStar employs over 700 researchers and 150 photographers and RealtyIQ has about 200 researchers plus an additional 100 persons on its operations staff[41]. Within the information manager model, the marketing segment requires less capital if companies simply move listings online, acting as an online classified ads.

Brand name

The business models that rely heavily on website traffic and target a wide range of market participants need more "word of mouth" brand recognition than the content-based (e.g. research model of information manager) and community-based (e.g. communication synchronizer) models.

The major barriers to entry for the aforementioned business models in the database function area are outlined in Table 2.4.

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[41] Pike, Peter. Telephone interview. PikeNet. 14 July 2000.
Peckham, John (Jack). Personal interview. The Real Estate CyberSpace Society. 26 July 2000.
Florance, Andy. Telephone interview. CoStar Group. 24 July 2000.
Sapers, Mike. Personal interview. RealtyIQ. 30 June 2000.

Table 2-4: Database Function – Barriers to Entry

	Information Manager		Traffic	Communication
	Research	Marketing	Aggregator	Synchronizer
Barrier To Entry	High	Low	Low	Low
1st-mover Advantage	Important	Important	Important	Not very important
Capital Investment	High	High if providing ASP	Low	Low
Brand Name	Not very important	Important	Important	Moderatly important
Representative Companies	CoStar, RealtyIQ	LoopNet, Propertyfirst	Pikenet	Recyber

Note: Barriers to entry of the individual business models are relative to those of the other business models.

FUTURE OUTLOOK

Revisiting the Brokerage Database Function: Five Years from Now

To summarize what we have discussed in the previous sections, the need for an online comprehensive database is driven by a broad-based desire for market efficiency and is expedited by the Internet. For brokerage firms, outsourcing the database function is driven by the desire to cut cost in order to maintain a reasonable profit margin when commissions have been compressed in the past five years[42]. Our survey shows that the brokerage community anticipates that, in five years time, an average of 50% of their database function will be Internet based, ranking the highest among the six brokerage functions we defined in Chapter 1. However, based on our research, we believe that the percentage will be much higher than 50%. The major e-commerce players in information management will continue to grow and take over more of the brokerage database function, while at the same time expanding their role in the brokerage search/match function in an effort to move up the functional value chain. As a result, the brokerage community will experience a trend towards providing more value-added services such as analysis and negotiation as a matter of survival. Additionally, the number of

[42] This information is reconfirmed during an interview with Roy Hirschland, a senior broker at Meredith & Grew, on July 25 2000, when he told us that taking Cambridge as an example, the rent has increased by over 100% in five years time but the commission stays the same, not considering the inflation.

junior brokers and research staff concentrating their efforts on the database function will shrink dramatically.

E-commerce Company Business Model Success Factors

We next analyze the success factors for the current business models in the database function area from a strategic perspective. As many researchers have pointed out, traditional business strategies remain applicable to e-commerce business[43]. Our research echoes this argument and we conclude that for the current e-commerce players in the database function area, *it is more important to position themselves in the right market than chase the "e-rush"*. Kotler (1997) defined four types of market players according to their market share – market leaders, challengers, followers and nichers[44]. Based on this definition, we categorized some representative database e-commerce players as illustrated in Table 2.6 on the next page.

We did not identify any challengers (i.e., companies with comparable market share or revenue to the market leaders) within each of the business models. This is partially due to the unique first-mover advantage related to establishing a content and user base. *For market leaders, the ability to expand the total market size is important.* However, CRE market size is limited in terms of number and frequency of transactions and the fact that the clientele base for the information manager model is relatively small. *Thus, the most viable way for the e-commerce companies to expand the market size is through vertical integration via the provision of additional goods and services* (Kotler 1997: pp. 374-5). This concept is clearly evident in the business strategy of CoStar and LoopNet which now offer a wide array of real estate products and services. As the market leaders expand their new business services, we will see leaders and challengers in the different business models compete.

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[43] Please refer to the articles on Morgan Stanley Dean Witter's web site <www.msdw.com/techresearch/> and McKinsey <www.mckinseyquarterly.com/ecommerce/>

[44] Kotler, Philip. Marketing Management: Analysis, Planning, Implementation, and Control. pp.372-401. 9th ed. New Jersey: Prentice-Hall, 1997.

Table 2-5: Market Players' Positions

	Market Leader	Follower	Nicher		
			Customer-size specialist	Geographic specialist	Property-type specialist
Information Facilitator					
Research	CoStar	RealyIQ			
Marketing	LoopNet	PropertyFirst	Cityfeet, Offices2share Propertygo, Tenantwise Theaskingprice	Propertybynet Propertygo Lookingforspace	Storetrax Indpkassoc Comnetre Excessspace
Traffic Aggregator	PikeNet	Nyproperty			Hotel-online
Communication Synchronizer	Recyber				

Note: The companies listed here are representatives and the list is not meant to be comprehensive.

The followers are relatively new companies compared with the market leaders but they are growing fast. The strategies that they are attempting to use include lower pricing and/or improved services. Due to the fact that brokers represent a relatively small target market (in absolute terms), it is difficult to achieve high volume and thus lower pricing strategy may not be sustainable in the medium-term. According to Andrew Florance at CoStar, "This business is not a pricing game...it's all about content."[45] Improved services are also difficult to sustain when the services are relatively expensive to deliver and companies lack cost economies of scale. Therefore, the followers that only utilize the lower pricing and better customer services strategies tend to co-exist with the market leader only in the short-term. *In the medium- and long-term, the followers have to expand into new business areas (such as the search/match, analysis and/or negotiation functions) or consolidate among themselves in order to become serious challengers to the market leaders.*

The nicher market is expected to experience the most activity in the coming months as many startups are using the niche market as an entry strategy due to limited resources. However, the niche market size is too small to sustain more than a few of these players and, consequently, we

[45] Florance, Andrew. Telephone interview. CoStar Group. 24 July 2000.

believe that consolidation is inevitable within the next 12-24 months. *The nichers who survive will be the ones that are able to expand their services to their particular clientele beyond the database function (i.e. search/match, analysis and negotiation) and beyond the vertical value chain (i.e. provide non real estate goods and services).* Some companies are already practicing in this manner and are likely to become market leaders in individual niche markets as the e-commerce industry becomes more mature.

Besides positioning themselves in the appropriate target market, pricing strategy is another important success factor. As the e-commerce industry as a whole is at the introduction stage, it is difficult to draw a clear pattern among the companies' various pricing strategies. However, as the cost structure is rather homogeneous across the database companies, a company's pricing strategy for its products and services will have a significant impact on the company's profit margin and overall competitiveness. The Internet database companies are re-bundling the information or content and at the same time functioning as a new marketing media. This overlap between the information supply side and the information demand side[46] should lead to more transparency in pricing in the database models than in the other four functional areas (i.e. search engine, tour-guide, analysis and negotiation). *Thus, value-based pricing based on superior content/service has strong revenue prospects, and the ability to accurately identify the price sensitivity of the different groups of revenue generators (clients) will help the more focused companies grow and prosper.*

[46] Please refer to the previous sections of "Clientele" (demand) and "Information Source" (supply).

Chapter 3 Search Engine Function

FUNCTION OVERVIEW

The CRE brokers' search engine function is different from that of Alta Vista, Excite, or Yahoo! which utilize query programming[47] to search through a system of internet servers. One main reason is that brokers do not have access to a shared platform using a standardized language. The e-commerce database companies are endeavoring to build a comprehensive database to perform the search function. There are two main elements related to brokers' search engine function: sort and match. Sort is to go through information databases to locate and retrieve a list of desired information or alternatives. Match is to preset certain criteria and compare these criteria with the retrieved information or alternatives to arrive at a shorter list for further study. Sorting can be easily achieved through query programming in the database, but matching is more difficult to program due to idiosyncratic characteristics in the space and asset markets, as well as diverse and uncertain tenant and buyer needs. We will elaborate on these two elements below.

The key factor in the search engine function is to define a set of criteria, which is a synthesis of information of all kinds. Setting the appropriate criteria requires CRE domain expertise (i.e. specialized in-depth knowledge of specific geographical areas and/or property types) and a thorough understanding of both the clients' needs and the overall business environment. According to landlords surveyed, brokers' search engine function ranks the highest (a score of 5 on a 1 – 6 scale) among the six functions in terms of its importance.

Our research and interviews uncovered two trends in relation to the search engine function: reintermediation and disintermediation. The reintermediation trend has seen two business

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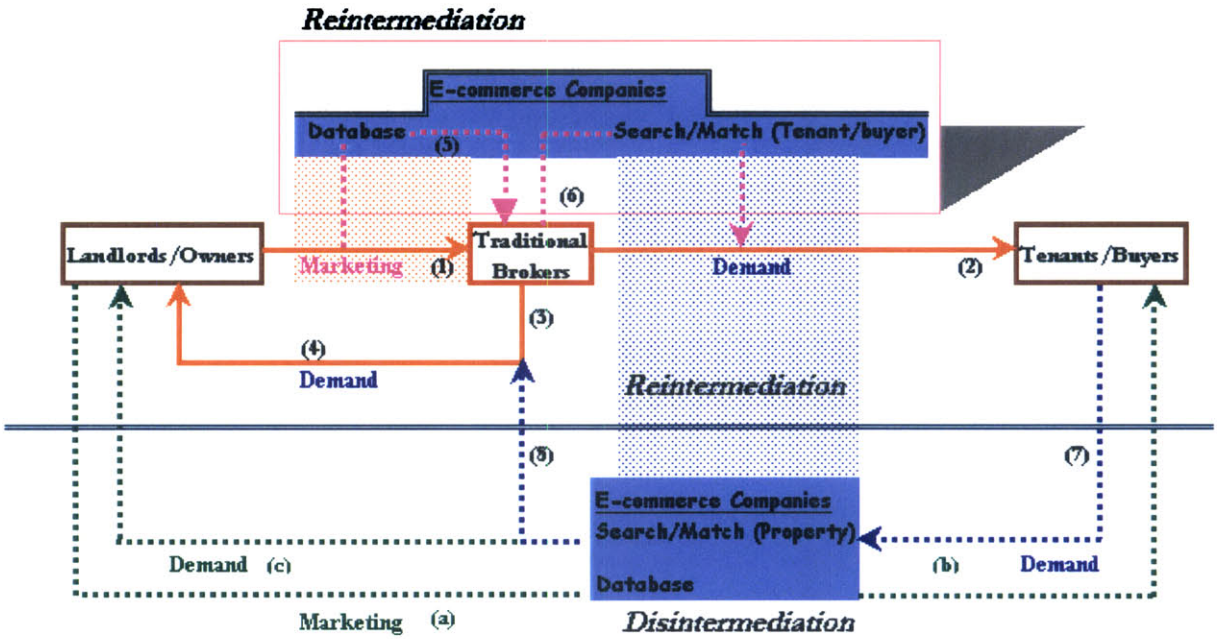
[47] A search engine is defined in technical terms as "an application that is commonly used as a way to query existing information and present a sorted list of matching results". http://www.mdonline.net/se_def.html. 9 Aug. 2000 <http://www.altavista.com/>

models. The first model, which has become the more mainstream practice, is to provide brokers with the necessary information to perform their search function faster. The second reintermediation model, which represents only partial reintermediation, is to co-broke with the traditional brokers or take referrals from traditional brokers to serve certain niche markets. The disintermediation trend is more concentrated in the space market focusing on small tenants with short lease rollovers. The reintermediation and disintermediation trends are illustrated in Figure 3-1[48] on the following page. The relationship of these two trends to the various e-commerce search engine business models will be discussed later in this chapter.

Figure 3-1: Reintermediation and Disintermediation: Push and Pull Strategies Revisited



In Figure 2-1, "traditional brokers" in the red box include both the landlord/owner brokers and tenant representatives/buyer brokers. The activities involved in the diagram can be explained as follows:

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[48] This diagram was based on the concepts of Push and Pull marketing strategies in Kotler (1997). "A push strategy involves manufacturer marketing activities … directed at channel intermediaries. … to induce the intermediaries to order and carry the product and promote it to end users. … A pull strategy involves marketing activities … directed at end users." See Kotler, Philip. Marketing Management: Analysis, Planning, Implementation, and Control. pp.372-401. 9th ed. New Jersey: Prentice-Hall, 1997.

- The **orange arrows** represent the traditional push marketing strategy with which landlords/owners market their properties to tenants/buyers through brokerage community (through investment sales packages and cooperative broker memoranda) and the space/property demand side also feeds their requirements back to landlords/owners through the brokerage community (RFP process).

- The box in **light blue above** the **orange arrows** represent those e-commerce database companies that help brokers perform the search engine function via automated searching and matching across different databases. These companies belong to the first model of the reintermediation trend, *serving the brokerage community* with a focus of searching and matching for tenants/buyers. The activities of this reintermediation are represented by the lines numbered (1) – (5) – (6) – (2) – (3) – (4).

- The **light blue** box **below** the **orange arrows** represents the e-commerce companies that are geared toward the tenant/buyer and whose business plans are centered on either off-loading some broker assignments (e.g. small assignments but client-relationship related) or assisting tenants to make cheaper and faster space decisions. They are primarily search engines for properties or available space for lease and are active in the niche market, especially in the space market for smaller tenants. Some companies in this box represent the second trend of reintermediation, such as Cityfeet, Propertygo and Offices2share. The activities of this type of reintermediation are illustrated by the lines numbered (7) – (8) – (3) – (4).

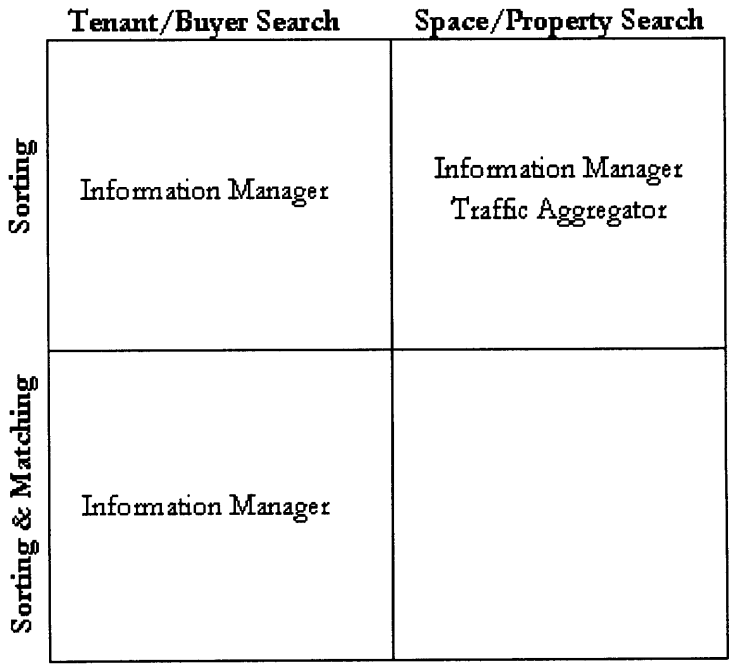
- Disintermediation happens when the flow of activities go directly to the landlords as shown by the **green dotted line** (c); that is, the landlords/owners advertise on the e-commerce companies' web sites which provide a public view for the tenants/buyers who can locate space/property on line free of charge and contact the landlords/owners directly. In these instances, the e-commerce companies act as classified ads for landlords/owners, charging a lower price than traditional media, and functioning as the search engine for property for the tenants/buyers. This disintermediation trend has been led by niche players serving small- to medium-sized tenants (i.e. requiring less than 10,000 square feet).

BUSINESS MODELS

Market Segments

Many of the e-commerce database companies, particularly the business models of information manager and traffic aggregator, also provide a search engine function. However, the search engine functionality varies across the business models. Many of them have programmed the sorting/query function into the database for the retrieval of specified information, but only a few companies can perform matching either through an online, self-generating tenant/buyer database (such as LoopNet's LoopLeads and Porpertyfirst's BuyerMatch & PropertyPush), or a proactively canvassed tenant/buyer database (such as CoStar Tenant). Figure 3-2 illustrates the search engine function with respect to the different business models. Tenants/buyers search is equivalent to the activities shown along the lines (1) – (2) in Figure 3-1; Space/property search encompasses all the activities along the "demand" lines in Figure 3-1.

Figure 3-2: Search Engine Function & Business Models



We did not identify any companies that fall into space/property sorting & matching territory (see the southeast quadrant in Figure 3-2). It is difficult to do space/property matching due to problems of defining specific criteria that can remain relatively constant and be formatted into a standard language, both of which are important for automated sorting and matching. The problems of defining criteria are related to the following factors:

- Real estate economics (e.g. exogenous forces[49]) involved in space/property is hard to be integrated into the space/property database in a standardized format. In addition to these economic factors, other constantly changing factors, such as business competition related to location and demographics, are critical in the tenants/buyers' selection of space/properties.

- Analysis is heavily involved in matching property, and the real estate domain expertise that is critical to define the criteria, is hard to achieve through software programming. The analysis function will be further discussed in *Chapter 5*.

The previous factors lead us to believe that tenant/buyer brokers who possess CRE domain expertise will continue to be in demand. However, the need for tenant brokers will vary greatly in the space market, depending on the tenants' business and space needs. Small tenants searching for space or medium-sized tenants undergoing small expansions will become increasingly process owners themselves using the online search tools provided by some e-commerce companies (*cf.* the disintermediation trend).

Most of the search engine companies provide separate public views and agents view of the listing database. The public view is presented either with or without a query mechanism (i.e. put all listings on the web pages without a sorting element). The e-commerce companies that serve the space end-users (tenants) put all their listings on their websites, an online advertising method aiming to attract website traffic as their revenue is generated from landlords who desire broad listing exposure. The e-commerce companies that serve the brokerage community tend to put only limited or back-dated information on the public view site as their revenue is from subscriptions to brokers[50] and they incorporate the matching function to brokers only to facilitate their prospecting process.

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[49] "By *exogenous forces* we mean factors that influence real estate market outcomes but are not influenced by the real estate market. For example, interest rates have profound impacts on real estate market outcomes...." See DiPasquale, Denise and Williams Wheaton. Urban Economics and Real Estate Markets. p2. NJ: Prentice Hall. 1996.

[50] For example, LoopNet's public view information contains listings that are more than seven days old.

Current State of E-commerce Search Engine Function

The CRE database function will, for all practical purposes, be relinquished to the e-commerce companies at some point in the near future. It is unlikely, however, that the same fate will happen to the search engine function. This is because the database function is almost like electronic filing and it is relatively easy to move files online, except that the companies still need people to collect the information. For the search engine function, although it is easy to program the sorting via query, it is substantially more difficult to perform automated order matching like some other products/commodities due to the heterogeneous nature of real estate and the diverse client base in CRE industry. Therefore, the search engine function of brokers is likely to be in continued demanded by both landlords/owners and tenants/buyers. Our landlord survey results show that brokers' search engine function had the highest importance level (a score of 5.0 on a 1-6 scale) among the six functions. Additionally, the broker's search function achieved the highest landlord satisfaction level (a score of 3.9 on a scale of 1-5).

From the brokers' perspective, the search engine function accounts for the largest amount of work effort (25.5%) among the six functions. The majority of brokers work effort as a search engine involves the analysis and definition of search criteria in order to match relevant prospects with space/property, and vice versa. The mainstream search engine function provided by current e-commerce database companies is still restricted to sorting through the database. The primary reason for the difficulty in executing the matching element, as we discussed earlier, is that it is hard to define the criteria for matching because there are so many factors involved in determining clients' needs and space/property idiosyncrasies, both of which are constantly changing. Related to this criteria definition problem, there is a lack of a comprehensive database platform upon which a system of Internet servers can collaborate across databases. More specifically, many of the database companies are providing overlapping information about space/property and tenants/buyers, but only a few are offering databases (or collaboration with databases) regarding submarkets' demographics, business environment (including tax issues) and local infrastructure, but even these have limited coverage and are generally in the format of local news.

FUTURE OUTLOOK

Revisiting the Brokerage Search/Match Function

As we discussed in the previous sections, the value-added activity in the search engine function is in the "matching" process where brokers' real estate domain expertise and knowledge of respective submarkets can speed the process towards a successful match. As lasting relationships with clients are largely built on the brokers' ability to match prospects and space/property, it is our opinion that there will be a trend for more broker specialization by property type and/or by region in the search engine function area. Meanwhile, brokers will need to become more Internet savvy in order to take advantage of the online tools (including a greater pool of information) which can enhance their searching capability. The threat of disintermediation is most likely to emerge in certain market segments where the tenants/buyers have relatively standard requirements, such as the market for small office space.

E-commerce Company Business Model Success Factors

Since the search engine function is built upon the database function, it is natural to believe that the major players in the database function area will dominate the search engine functional area. This is true in the current marketplace because the established database companies have the resources to expand their service while enjoying their advantages in content base and user base. *Important success factors for the search engine function companies include high quality databases and sophisticated matching.* As we discussed in Chapter 1, most companies are endeavoring to improve database quality in order to build a critical mass of users. The factor that is most difficult to achieve and is most critical to the success of the companies is matching. While defining the matching criteria requires CRE expertise, the e-commerce companies, as a reintermediation tool, can provide *contexts*[51] to help brokers define the criteria in a faster and more informed way.

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[51] A context is an environment within which people can compare alternatives, and standards are established within that environment.

CoStar, for example, has databases of listings, tenants, comparable sales and market research. In addition to improving the depth and width of each of the aforementioned databases, CoStar recently launched CoStar Exchange which integrates the market information (such as vacancy rate, absorption and inventory ratios, etc.) into users' search parameters to provide a market context for the listings. Market context here is the surrounding real estate economic environment that allows users to make more tailored searches for space or property. The context is provided by collaboration across databases of listings and market research. There are also other contexts that help brokers define criteria in the matching process, such as infrastructure context (i.e. roadways, utilities, etc.) and business context. These contexts can be provided either from within a database or through alliances with other existing databases that specialize in a specific area (e.g. local research consultants, infrastructure database by the government, financial databases by Bloomberg and Edgar Online). Our interviews with brokers demonstrated their desire to keep abreast of the business context within which their potential prospects or existing clients are operating in order to keep their matching criteria up-todate.

We believe that the e-commerce search engine function will take longer to evolve than the database function and will require higher capital investment in technologies that enable different databases to "talk" to each other. New entrants into this area will need to have deep pockets and the first mover will have a long-lasting advantage. The followers in the database space are also likely to start moving away from general market reports and towards more specialized areas, such as customer-specific reports and statistics of tenants/buyers, which better-define the context of individual real estate transactions. This collaborative structure for the search engine function will lay the necessary groundwork for any future online transaction collaboration.

Chapter 4 Tour Guide Function

FUNCTION OVERVIEW

The tour guide function is the most straightforward of the six functional areas of CRE brokerage. The tour guide function involves showing the space (or property) to potential tenants (or buyers), describing the space (or property) to potential tenants (or buyers) and soliciting feedback to better understand the needs of the tenants (or buyers). Common problems associated with traditional brokerage tour function include: tour scheduling, time delays and coordination issues. However, there are certain nuances of a space that a personal tour captures, such as its ambience and character, which will be hard for online tours to replicate.

According to the results of our survey (please refer to Appendix 2), the use of the Internet for the tour function is expected to experience faster growth over the next 5 years than is the use of the Internet for any of the other five brokerage functions. This result is consistent from the perspective of brokers, landlords and tenants. Specifically, brokers expect their use of the Internet in a tour function capacity will grow from 4% internet-based currently to 22% internet-based five years from now; landlords expect their use of the internet to tour properties to grow from 9% currently to 28% in five years; and tenants anticipate their use of the internet to tour properties to grow from 1% currently to 10% five years from now. These figures represent substantial compounded annual growth rates of 38.6%, 25.5% and 58.5%, respectively[52].

Our survey also evaluated the importance landlords and tenants place on the six functions of brokerage, as well as their satisfaction level with the brokers' performance of those functions. Based on the survey results (please refer to Appendix 2), the tour function was considered by landlords to be the third most important function of brokers, after the search/match (1st) and

[52] Please refer to Appendices.

database (2nd) functions. Additionally, the tour function had the third highest satisfaction level, after the database (1st) and search/match (2nd) functions. On the tenant side, the tour function's importance level and satisfaction level were the highest among the six functions.

BUSINESS MODELS

Major Players

The e-commerce companies impacting the CRE brokers' tour guide function uncovered during our research include: IPIX (Internet Pictures Corporation), Anything3D, VRViews, Streaming Voices, BeThereNow and VideoHomeTours-Commercial. These e-commerce tour guide competitors are summarized in Table 2-1 based on our evaluation of their business models with respect to the following factors: technology, services, tour package and pricing.

Table 2-1: Comparison of Tour Guide Companies

	Technology	Services	Standard Tour Package	Price	Comments
IPIX	360 degree by 360 degree virtual tours; no plug-ins required; can move left, right, up and down; can zoom in and out. Voice narration available upon request.	Free hosting on LoopNet for twelve months; free hosting on IPIX servers for life of listing; IPIX photogaphers take pictures and create tour (also have self-service model).	Four, 360 degree by 360 degree images.	$199.95; $50 each additional image; $20 additional for e-mail tour; self-service model: buy the equipment (Nikon 990 or Olympus 660) for $2,100 and pay software licensing fee; voice narration available for an additional charge.	Market leader; IPO in August, 1999; acquired Bamboo Tours in January, 2000; diversified among various industries - auto, travel, sports, real estate, etc.; provides tours on CD-Rom (optional).
Anything3D	3D virtual tours; no plug-ins required; can move left and right.	Free hosting on Anything3D servers for life of listing, 90% of tours posted within 24 hours of photo shoot; Anything3D photographers take pictures and create tour.	Four 3-D images & three flat images.	$149.95; $20 each additional 3-D image; $10 each additional flat image.	Clients include: Cox Interactive, New York Times Company, Apartment Guide, Harmon Homes and For Rent Magazine.
VRViews	360 degree virtual tour; no plug-ins required; can move left and right; can zoom in and out.	Free hosting on VRViews server for life of listing with link to LoopNet listing; VRViews photographers take picture within 24-48 hours and post links to tour within 24-72 hours after the photo shoot.	Four 360 degree virtual tours.	$150.00; $30.00 each additional view; audio optional for an additional charge.	Additional optional features/services include: portfolios of tours on CD; tours embedded into Power Point presentations, e-mail tours and room-to-room floorplans.
Streaming Voices	Slide show with voice narration; stream technology.	Free hosting on LoopNet for twelve months.	Five picture slide show with voice narration.	$149.00; $10.00 each additional slide.	Users must send pictures and property information to the company.
BeThereNow	3D virtual tours; BeThereNow Viewsets create an enhanced virtual experience allowing users to manuever all around as if actually in the space; users need to install Cortona VRML Client to run.	Free hosting on Loopnet for life of listing.	Customized 3D Virtual Tour (no standard tour).	Pricing varies.	Multiple viewers physically located at different locations are able to access a Viewset over the Internet at the same time, allowing one of the viewers to conduct the tour from his or her office; users must send the film or upload digital images to the company.
VideoHomeTours-Commercial	Full-motion video tour with voice narration.	Service representatives work with user for approx. one hour to establish length and highlights of the tour; transitions, graphics and music added later by company.	2-4 minute full-motion video tour; free hosting on LoopNet for six months.	$295; $495 for 2-4 minute tour with voice over narration and free hosting on LoopNet for twelve months.	Customized, high-service solution using older technology. Tours also available on VHS and CD-Rom (optional).

Technology

The tour guide technology itself is not what matters most to the user; what is most important to the user is the completeness of his or her viewing experience and the ability of the viewing experience to narrow down the number of potential space or building alternatives that meet his or her requirements. Only to the extent that the technology can help achieve those goals is technology important. Although all of the companies are targeting the tour guide function, the technology being utilized varies from VideoHomeTours' traditional full-motion video with voice narration to IPIX's 360 degree by 360 degree virtual tour. BeThereNow's Viewset technology creates an enhanced virtual experience allowing users to maneuver all around as if they were actually in the space. Similarly, IPIX is in the process of developing "goggles", which will make users feel like they are walking through the space. BeThereNow's technology also enables multiple viewers physically located at different locations to access a Viewset over the Internet at the same time, allowing one of the viewers to conduct the tour from his or her office. IPIX (optional), Streaming Voices (optional) and VideoHomeTours all provide voice narration to enhance the completeness of the user experience.

Services

The service packages are designed for user education and sales promotion, with special attention given to the speed of delivery and convenience. The speed of delivery relates to how long it takes from the time of order for the tour to the time the tour is posted on the Internet. Anything3D is reported to be the fastest service provider with 90% of its tours posted within 24 hours of the photo shoot. On the other extreme, VideoHome tours take approximately one week to produce from the day they are taped. VRViews photographers take the pictures within 24-48 hours of the order and post links to the tour within 24-72 hours of the photo shoot. IPIX and Streaming Voices have turnaround times similar to VRViews, while the turnaround time for BeThereNow is longer but difficult to ascertain due to the customized nature of its tours.

Convenience factors include: the level of service provide by the companies, and the tour's accessibility via the Internet. The two basic service models are: 1) the tour guide company

taking the pictures, developing the tour and then posting the tour on the Internet, and 2) the user sending pictures to the company which then develops the tour and posts it on the Internet. The former represents a more full-service model, while the latter is a more limited-service model. Of the tour companies we examined, IPIX (full-service option), Anything3D and VRViews would be classified as basic full-service models. The extreme of the full-service model, would be VideoHomeTours, which has company representatives work with the user for approximately one hour to establish length and highlights of the tour before the company adds the necessary transitions, graphics and music and posts the tour on the Internet. StreamingVoices and BeThereNow would be classified as more limited-service models with the users sending pictures and property information to the companies. The extreme of the limited service model would be IPIX's self-service option whereby do-it-yourself users can buy the equipment (Nikon 990 or Olympus 660) for $2,100 and license the software from IPIX. Most of the companies provide free hosting of the tour for the life of the listing via their own company website or LoopNet's website.

Standard Tour Package

The standard tour packages offered by each of the companies vary significantly. Specifically, IPIX's standard tour features four, 360 degree by 360 degree images; Anything3D's tour includes four 3-D panoramic images and three flat images; VRViews' tour offers four 360 degree virtual tours; Streaming Voices' tour comprises a five picture slide show with voice narration; and VideoHomeTours offers a 2-4 minute full-motion video tour. BeThereNow features customized 3D Virtual Tours (i.e. no standard tour). Based on the completeness of the virtual experience, the standard virtual tours of IPIX, VRViews and VideoHomeTours are considered superior to the standard slideshow tour featured by Streaming Voices, despite Streaming Voices' voice over narration.

Pricing

According to IPIX's Bill Schieck, "the profit margin is thin, so companies have to go for volume and market share."[53] The pricing of the various companies' standard tour packages reflects Schiek's sentiment, as the tours must be affordable to the mass of potential users in order for the companies to obtain volume. Specifically, excluding VideoHomeTours whose pricing is considered an anomaly, the standard tour prices range from a low of $149.00 for Streaming Voices to a high of $199.95 for IPIX. More interestingly, the prices of the standard tours of Streaming Voices, Anything 3D and VRViews are all approximately $150. VideoHomeTours pricing of $295 for a standard tour is not considered comparable because VideoHomeTours is a nicher[54] targeting less price-sensitive users willing to pay for the company's more extensive services. One significant drawback of this service-oriented strategy is the company's longer tour turnaround time of seven days, which could be a potential problem in today's high-speed marketplace. With VideoHomeTours aside, the other companies' pricing strategies would seem to indicate that IPIX is the established market leader and the other companies are followers[3] trying to compete against IPIX on the basis of discounted pricing.

Barriers to Entry

Technology

The technology development costs necessary for companies to compete in the e-commerce tour guide market are significant. IPIX, with its 360 x 360 degree virtual tours, and BeThereNow, with its Viewset technology, are considered the technology leaders among the tour guide companies. In order to achieve its high resolution, 360 x 360 degree technology, IPIX acquired Bamboo Tours in January of 2000 and combined IPIX's higher resolution, 360 degree panoramic tours with Bamboo's 360 degree up/down tour technology[2].

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[53] Schiek, Bill. Personal Interview. IPIX, Inc. 13 July 2000.

Brand awareness

Due to both the thin profit margins and resultant high volume nature of the e-commerce tour guide business, brand awareness is essential for the individual companies to succeed. Other factors that contribute to the importance of brand awareness in the e-commerce tour guide marketplace are that: 1) significant differences between the tour guide technologies are hard to discern by many users, and 2) the price differential between the standard tour packages of the various companies, excluding VideoHomeTours, is relatively small (only $50). Recognizing the importance of brand awareness, many of the existing companies have started to emphasize user education. Taking this strategy one step further to achieve increased word-of-mouth advertising, IPIX offers a self-service option whereby users can buy the necessary equipment, license the IPIX software, and shoot and create the tour themselves. Disadvantages of this option are that the software can only be used with Nikon 990 or Olympus 660 equipment, and the equipment can quickly become obsolete[55] as a result of a shortened product lifecycle brought about by rapid technology advancement. In addition to emphasizing user education, the virtual tour companies, like many other businesses, are taking full advantage of the recent proliferation of marketing-oriented websites, such as LoopNet and Property First. These websites serve as extremely effective distribution channels for virtual tours, providing broad tour exposure and brand awareness that might otherwise have been difficult to attain in the highly-fragmented CRE industry.

Driving Forces

The major driving forces behind the emergence of several e-commerce tour guide companies are the convenience and time savings that the online tours provide to the various CRE market participants. The online tours serve as an extremely effective screening mechanism which allows a large pool of potential tenants or buyers to be pared down to a substantially smaller number of interested tenants or buyers, thus saving the time of tenants, buyers, brokers,

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[54] Kotler, Philip. Marketing Management: Analysis, Planning, Implementation, and Control. pp.372-401. 9th ed. New Jersey: Prentice-Hall, 1997.

[55] Assaraf, John. IPIX. Interview with Jack Peckham. Online posting. Cybermaster Briefings. 2 June 2000. <http://www.recyber.com/>

landlords and sellers. With the geographic dispersion of many potential buyers or tenants, the time savings are substantial. According to Schiek, virtual tours will save the broker time "by weeding out buyers and tenants that don't like the general look and feel of the property as viewed over the Internet.[2]" Another related driving force is the downward pressure being applied to the CRE transaction time by today's high-velocity business environment.

Restraining Forces

The major restraining forces for wider adoption of e-commerce tour guide technology are the low perceived value of the virtual tours by landlords and sellers (according to some market participants) and the incomplete user experience. The former restraining force is especially important because the landlords and sellers are typically the persons who pay for the virtual tours to be posted on the various marketing websites. In an attempt to make the user experience more complete, some companies have added audio features to the tours; however, most people still prefer to take a five to ten minute drive to get a "real" feel for the property and surrounding environment.[56]

FUTURE TRENDS

Looking forward, a few leading companies with superior technology, such as IPIX and BeThereNow, are likely to dominate the e-commerce tour guide market across various industries. The expansion will be driven by a desire for economies of scale, which will be essential for continued success in the low profit-margin tour guide business. Strategic alliances with major Internet service providers (ISPs), mainstream PC operating system providers, and database and search engine e-commerce companies are also likely, as the e-commerce tour guide companies look to increase brand awareness and create higher switching costs for their users. In comparison to the e-commerce database space, of which we examined a sample of 48 companies, consolidation in the tour guide space is expected to be limited due to the space's relatively small number of e-commerce players. Despite resistance in some instances by

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[56] Stevens, Joseph. Telephone Interview. Storetrax. 28 July 2000.

landlords to pay for the virtual tours, it is our opinion that widespread adoption of virtual tours within the CRE community is inevitable, as tenants and buyers come to demand virtual tours with online listings and increased pressure is placed on compressing the transaction process.

Chapter 5 Analysis Function

FUNCTION OVERVIEW

The analysis function of CRE brokerage, if taken seriously by the broker as a significant value-added opportunity, is the most complicated of the six functional areas of CRE brokerage and typically serves as a catalyst for the transaction process. In terms of technology adoption, the analysis function is also one of the most mature functions of brokerage, starting in the 1980's with broker adoption of electronic spreadsheet software enabling faster processing of discounted cash flow analyses.

With the traditional "informediary" role of CRE brokers eroding with the growing acceptance of the e-commerce database companies as legitimate sources of reliable information, brokers will need to reposition themselves as the necessary interpreters of the massive volumes of information that Internet users now have at their fingertips. In order to accomplish this, brokers will need to use their extensive knowledge base of the local real estate market and analysis of recent transaction details to effectively screen the data and arrive at a short list of alternatives that are worth the client's time to consider in more detail. We have classified this aspect of the broker's analysis function as search-related analysis.

Another component of the broker's analysis function is negotiation-related analysis. Negotiation-related analysis involves the brokers using their real estate expertise to help participants make informed negotiating decisions. This is not an easy task, as sellers, buyers, landlords and tenants all have their own investment objectives, business objectives and personal objectives for the transaction. Brokers serve as behind the scene players helping each side make a decision. According to Bill Walsh of Cornish & Carey[57], the CRE brokerage business is "like a three-legged stool, with one leg being information, the second leg being the

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[57] Walsh, Bill. Telephone interview. Cornish & Carey. 19 July 2000.

decision-making process and the third leg being relationships". Walsh recognizes that the information leg has diminished in value, but feels strongly that the decision-making process and relationships aspects of brokerage will remain strong for the foreseeable future.

The types of analyses performed by brokers varies between the space market and the asset market. In the space markets, the key areas of analysis typically include: local market conditions (i.e. supply and demand of space), effective rental rates, net occupancy cost, tenant improvement allowances, operational issues and comparative occupancy costs using discounted cash flow techniques. It is important to note that CRE brokers with knowledge of financial accounting and real estate tax law can add substantial value in the analysis stage because the lease decisions of many tenants and landlords tend to be more accounting-based than cash-based. The lease decisions for public companies are particularly accounting-oriented due to the GAAP presentations for disclosure purposes. In the asset markets, the important areas for analysis include: local market conditions (i.e. supply and demand of buildings), industry investment trends (i.e. capitalization rates), risk-adjusted rates of return, buy versus lease scenarios and property valuation via discounted cash flow techniques. GAAP considerations are also important for investment analysis in the asset markets.

The analysis activities of CRE brokers are summarized in Table 5-1, based on our industry research and interviews with various market participants.

Table 5-1: Analysis Activites of CRE Brokers

	Space Market	Asset Market
Search-Related Analysis	Space supply trends Space demand trends Tenant improvement allowances Comparative occupancy costs	Property supply trends Property demand trends Industry capitalization rates Rough opinion of value
Negotiation-Related Analysis	Effective rental rates Cash occupancy costs GAAP occupancy costs Operational issues Tax Impacts	Risk-adjusted rates of return Buy versus lease scenarios Sell versus hold scenarios Supportable value conclusion After-tax cash flow scenarios

According to our survey results (please refer to Appendix 2), the use of the Internet for the CRE analysis function is expected to experience significant growth over the next five years, from the perspective of brokers, landlords, tenants and lawyers. Specifically, brokers expect their use of the Internet in an analysis capacity to grow from 6% internet-based currently to 19% internet-based five years from now; landlords expect their use of the Internet for analysis to increase from 9% currently to 14% in five years; tenants anticipate their use to grow from 2% currently to 11% five years from now; and CRE lawyers expect their Internet use for analysis purposes to increase from 2% to 19% in five years time.

Overall, the analysis function was considered by landlords to be the second least important function of brokers, with documentation & closing considered the least important function. Additionally, the analysis function had the second lowest satisfaction level for landlords, followed again only by the documentation & closing function. From the tenants' perspective, the analysis function was the fourth most important function, but the tenants' satisfaction level with the brokers' performance of the analysis function was the lowest among all six of the brokerage functions[2].

BUSINESS MODELS

Major Players

A sample of the e-commerce companies impacting the CRE brokers' analysis function uncovered during our research include: CoStar, Realestate, RealData, Reis, Planease, and Propertybynet. These e-commerce companies were evaluated based on the analytical products and/or services provided to the space market and asset market, as classified above in Table 5-1. It is important to note that, in addition to these and other e-commerce companies, there are several hundred off-line companies (i.e. Argus, Dyna, Project, F.W. Dodge, etc.) also providing analytical software tools for the CRE industry. Real estate consulting firms also provide market and financial analysis for their clients. Thus, it would be naïve to believe that the any

changes in the CRE brokers' analysis function are directly attributable to the impact of e-commerce.

The market positioning of the analysis competitors is summarized in Table 5-2.

Table 5-2: Market Positioning of E-commerce Analysis Providers

	Space Market	Asset Market
Search-Related Analysis	CoStar Tenant Reis	CoStar Exchange (COMPS) Reis
Negotiation-Related Analysis	Planease RealData	Planease RealData Propertybynet

Search-Related Analysis

Costar has several analysis products which provide brokers with useful tools for search-related analysis in both the space market (CoStar Property) and the asset market (Costar Exchange via COMPS historical sales database). More specifically, CoStar Property provides space supply and demand trends, while CoStar Exchange provides property supply and demand trends, historical sales analysis and capitalization rate trends. CoStar's products, which can cost companies as much as several thousand dollars per month depending on the number of users in the office, are the most expensive among the analysis competitors. Reis is an online CRE community site providing market analysis that can also assist brokers in search-related analysis activities. The depth of Reis' analysis is inferior to that provided by CoStar; however, the cost of Reis' market reports are considerably less, ranging in price from $79 for historical supply and demand trend reports for specific sub-markets to $99 for future metropolitan trend reports.

Negotiation-Related Analysis

Planease, RealData and Propertybynet offer online financial analysis software packages which can serve as useful tools for brokers in their negotiation-related analysis activities. Planease financial analysis software enables faster processing of discounted cash flow analyses, investor

rates of return, buy versus lease scenarios and sell versus hold scenarios. Planease has also incorporated current tax provisions and allows the user different choices for the handling depreciation, passive losses and partnership models. Planease software products' range in price from $295 for the basic financial utilities package to $995 for its expanded financial services package. RealData's software provides a comprehensive ten-year cash flow projection (before-tax and after-tax) with lease-by-lease analyses, discounted cash flow and resale analyses, partnership pro formas and lease vs. buy analyses. The RealData financial software costs $495. Propertybynet, a database listing site, also offers financial analysis software which features discounted cash flow scenarios, investor rates of return and price sensitivity analysis. Propertybynet's software, referred to as the "Analyzer", can be purchased on its website at a cost of $139.

Barriers to Entry

The two largest barriers to entry in the analysis function are market knowledge (i.e. by product type or locality) and analytical expertise. Although it is relatively easy to standardize the decision-making tools, it is extremely difficult to standardize knowledge. Rich Lombardi of Propertybynet admits that "the computations can't be very accurate if you don't put in the right numbers"[58]. Knowledge and experience are crucial in formulating appropriate inputs, without which the results of the model will be meaningless (i.e., garbage in = garbage out). This knowledge and experience represents an often overlooked opportunity for motivated brokers to add value to the process. On the asset market side, the difference between an opinion of value and supportable value conclusion can be significant. For a rough opinion of value, any participant can take the property's previous year's net income and divide by a published capitalization rate (obtained via the Internet, trade journals, etc) for the particular property type. However, it is substantially more difficult and time consuming to evaluate and understand a property's future operating performance based on anticipated market conditions. Brokers with strong valuation skills can provide substantial benefits to their clients, especially during the negotiation process.

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[58] Lombardi, Rich. Telephone interview. Propertybynet. 18 July 2000.

Another barrier to entry is that the costs necessary to develop the software applications are difficult to justify for many e-commerce companies given the limited market size of potential users and CRE trading infrequency. Additionally, despite the limited market size, the software solutions need to be flexible, because, unlike more commoditized industries, the CRE industry is heterogeneous across different regions and property types. This need for flexibility further adds to the software development costs. An example of a regional difference that software solutions need to incorporate would be that some markets report rent per square foot per month rather than the more generally-accepted rent per square foot per year[3].

Driving Forces and Restraining forces

There are several driving forces behind the e-commerce analysis companies. The most important of the driving forces is the compression of the transaction process. By providing powerful analytical tools, the companies are aiming to reduce the time that the transaction participants spend in the search and negotiation phases of the process. A second driving force behind the analysis software companies is their ability to reduce the principals' due diligence costs. Principals also like the fact that they can control the analytical process; however, this can be dangerous given that many participants, especially on the tenant side, have limited CRE knowledge. A final driving force that should not be overlooked is the perception in the CRE marketplace that many brokers have limited analytical skills.

The major restraining forces for the expanded use of analysis software as a tool for CRE market participants are the lack of standardization of leases and purchase & sales agreements as detailed in Chapter 1 and the fact that the reliability of the results still depend largely on the knowledge and sophistication of the user due to the heterogeneous nature and complexities of CRE.

FUTURE OUTLOOK

In the future, the depth of brokers' knowledge and analytical skill sets will become increasingly important. Additionally, increased specialization by both property type and sub-market location is anticipated. As the e-commerce companies continue to evolve, the search-related analysis activities will be more impacted by e-commerce than the negotiation-related analysis activities. Vertically-integrated companies (such as CoStar) which consider search-related analysis as a natural extension of their comprehensive database and search engine functions, which can all be bundled together, will be the most likely firms to thrive in the analysis space. Collaborative process management e-commerce companies, such as Zethus (see *Chapter 6*), will provide increased access to technical analysis packages but still won't provide the knowledge or expertise to implement the negotiation-related analysis activities. Of all the six functions of brokerage, the analysis function, especially as it relates to negotiation, will be the least impacted by e-commerce and provide brokers with the best opportunity to continue adding substantial value to the transaction process.

Chapter 6 Negotiation Function

FUNCTION OVERVIEW

Level of Involvement

The parties that are involved in negotiations are: principals, brokers and lawyers. Principals are involved throughout the negotiation process and lawyers are generally consulted with respect to legal points toward the end of the negotiation[59]. The brokers' level of involvement in negotiations varies across 1) which party they represent (i.e., the supply side or the demand side, Table 6-1); 2) the property type[60]; 3) the size of the transaction; and 4) market conditions (tight market or soft market). Above all, the competencies of brokers will largely affect the level of their involvement in negotiations, as exemplified by comments by Lisa Picard[61] at Hines.

Table 6-1: Parties' Involvement in Negotiation (*adjusted*)
(0% = not involved; 100% = the only party involved)

Parties Involved	Lawyer Survey	Landlord/Owner Survey	Tenant Survey
Client (Principals)	37%	57%	37%
Broker	11%	19%	39%
Lawyer	53%	24%	24%
	100%	100%	100%

"On landlord representative side, mediocre brokers will be involved through the LOI, good brokers will be involved through the negotiation process and great brokers will be involved through tenant occupancy."

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[59] Please refer to Chapter 1 for the level of each parties' involvement at different stages (RFP, LOI, Negotiation and Closing) in a typical transaction.

[60] The differences in the level of involvement here are resulted from different transactional and contractual structures required by different property types. Standardization of leases or sales agreements will reduce the differences. Since our thesis focuses more on Offices in CRE, we will not discuss the property type in detail.

[61] Picard, Lisa. Telephone interview. Hines. 13 July 2000.

These competencies include analytic ability, real estate expertise, knowledge of local markets, creativity and interpersonal skills. A good broker not only provides advisory service to the principals related to market analysis and contractual terms, but also helps execute the transactions via successful negotiations.

Brokers are, in general, more involved in large transactions where they add vale to the understanding and structuring of transactions. This is evidenced in the comments by Christopher Donovan[62] at McDermott, Will & Emery:

"In large transactions, a good broker will be involved in structuring a deal that accomplishes everyone's objectives and can add value by facilitating compromise and finding solutions. In smaller transactions with straightforward leases, it is more difficult for the broker to add value."

In regards to small- to medium-sized transactions, the brokers' involvement typically depends on the principals' objectives. Some principals will rely more on brokers because they have to attend to other businesses and the transactions are not as complicated as are large ones. Other principals might avoid using brokers altogether due to their desire to reduce the cost of transaction costs.

In a tight market like today's market, good brokers are in high demand by tenants/buyers. The value added by brokers in this instance is that they help the tenants/buyers achieve a fair market value when landlords/owners have much stronger bargaining power (*cf.* negotiation-related analysis). "When you have less options [in the space market], you need brokers to negotiate on your behalf", said Lisa Picard[63] of Hines. On the other hand, in a soft market, good brokers are needed to sort through a vast amount of data and match alternatives with clients' needs (*cf.* search engine-related analysis).

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[62] Donovan, Christopher. Personal interview. McDermott, Will & Emery. 10 July 2000.
[63] Picard, Lisa. Telephone interview. Hines. 13 July 2000.

Roles in the Negotiation Process

Regardless of the level of involvement in negotiations, brokers have been undertaking the following roles in the negotiation process as a: *buffer, consultant and communication channel.* The role of buffer is mainly reflected in providing room for the opposite parties to maneuver their expectations without showing the bottom line or leading to direct clashes. This is captured by Tom Martindale[64] at TRI Commercial, "Clients want a buffer (especially when big money is involved), [as there are] many variables in CRE, brokers bridge gap between comparables and opinions of value or fair market rent."

Brokers' role as a consultant could be two-fold. One is to offer advice to principals (e.g., opinion of value resulting from comparables and market conditions or comparisons of effective occupancy costs); the other is to provide real estate knowledge to principals and their lawyers, such as helping to "explain certain terminology or comment on certain types of property types"[65]. A brokers' role as a communication channel in negotiations has two aspects: one is related to the buffer role since they are the "voice" of the negotiating parties; the other is related to relationship building and/or tenant/buyer screening. That is, brokers are the liaison among the parties involved, especially in large transactions, to reduce principals' day-to-day administrative burdens and conducting preliminary "due diligence" of the potential tenants/buyers.

How successful a broker would be in carrying out the above negotiation roles depends largely upon how effective they are in managing the transaction process. Analyses based on real estate expertise and market knowledge are merely a tool to assist brokers in initiating the process[66], the more important factors that make brokers good process managers are their communications skills and creativity that help create a collaborative environment to stage and facilitate the negotiations.

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[64] Martindale, Tom. Telephone interview. TRI Commercial. 21 July 2000.
[65] Donovan, Christopher. Personal interview. McDermott, Will & Emery. 10 July 2000.
[66] Please refer to Chapter 5.

MARKET FORCES

The negotiation function, unlike the other functions discussed earlier, cannot sustain stand-alone business models because it is more of an interactive process rather than specific activities. The ability to utilize the tools to enhance the interaction and process management comprises one of the competitive advantages of the brokerage community.

Our lawyers and brokers surveys revealed that one of the most widely used tools for faster communications and effective facilitation of negotiation process is the electronic mail. Lawyers, brokers and principals review and comment on contractual terms via e-mail. Though we have not discovered many instances of negotiating transactions solely on the Internet, there do exist examples of successful transactions conducted online. Kristin Blount at Meredith & Grew has completed a transaction with a client located in Ireland almost exclusively via emails.

Technologies for online live (i.e., real-time audio-video) interactions are in place and undergoing improvements. However, several corporate and technical restraining forces need to be resolved prior to widespread adoption of online negotiations:

- The decision-making process is not clearly defined by many companies and decision makers are yet to be convinced of the effectiveness of online live interactions over personal face-to-face interactions or conference calls. This is expressed by Kathleen MacNeil[67] at MDA/Millennium Partners.

  "The Internet is great for information and facts. Use of the Internet rather than face-to-face negotiations will prolong the negotiation process."

- The technology investments associated with real time and live interaction need to be justified by all parties. Since negotiation is interactive, all parties involved in negotiations need to adopt the same or similar technologies in order to set up the

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[67] MacNeil, Kathleen. Telephone interview. MDA/Millennium Partners. 21 July 2000.

stage/platform for online negotiations. Due to the infrequency of transactions in CRE, it is difficult for many companies to justify such capital investments.

- Technology companies create barriers to entry by building specific operating systems or software into their online conferencing products, thus generate user-base fears of switching costs related to hardware, software and employee trainings. This leads to more resistance of early adoption of the technology / products. In addition, the quality of current videoconferencing products need to be improved and stabilized.

- Other technological issues are related to ease of use and security. Christopher Yates[68] at PC Week Labs reviewed that, "Real-time Windows collaboration and conferencing software is nothing new. We've tested many products in this category and found that, from a purely technical standpoint, most work well; the roadblock has always been ease of use", and videoconferencing requires collaboration. But "because collaboration often involves connecting several systems at once, there are inherent security issues -- data sharing, application sharing and exchanging files."

On the other hand, increasingly globalized business environment and business velocity will proliferate the applications of technologies to achieve cost savings and increase productivity. This is already evidenced by the indispensable e-mail communications in today's business world. The early adoption of live communication will be via electronic mails as a benefit of low incremental costs integrating audio-video with emails. The reasons are that the technology operating platform is fairly universal for emails and in general no additional software requirement is necessary. Companies such as Cubic Video Technologies Inc. are targeting this opportunity with products like CVideo-Mail (please refer to the picture and commentary on the page 72)[69]. CVideo-Mail can also be used with Microsoft NetMeeting 2.1 for audio-conferencing (i.e. Internet telephony) and video-conferencing at multipoints in real time.

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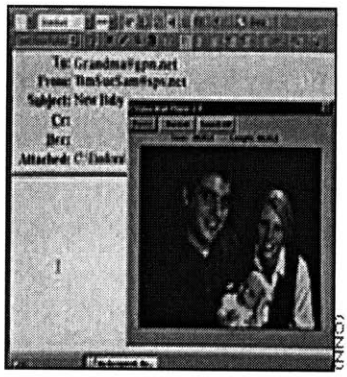
68 Yates, Christopher. "NetMeeting Knocking On Corporate Door: Microsoft's real-time collaboration package creates valuable shortcuts; IT should control deployment". E-week Labs Review. August 23, 1999 12:00 AM ET. 14 Aug. 2000. < http://www.zdnet.com/eweek/stories/general/0,11011,2317429,00.html>

69 Dillon, Denise. "Video E-Mail Changes Online Communication". August 12, 1998. 12 Aug. 2000. <http://www.cvideomail.com/>

Video e-mail changes online communication
August 12, 1998
Web posted at: 9:35 a.m. EDT (1335 GMT)
(CNN) – While many people still think of e-mail as communicating by the written word, new software is changing that notion. Video e-mail now allows users to attach a brief video-and-sound file to the traditional written message.



FUTURE OUTLOOK

As we discussed previously, negotiation is a collaborative process and brokers have assumed three roles in the negotiation process: buffer, consultant and communication channel. One major Internet related tool that is used by all parties to facilitate negotiation process is e-mail and technology companies are expanding the functionality of emails.

Moving forward, brokers' roles in negotiation will not change dramatically as they consist of an indispensable part of an interactive process. Two factors that will impact the brokers' negotiation function include: the standardization of leases and purchase and sales agreements, and the growing information transparency. However, the standardization has a long way to go due to the different state legislation and local practices. In addition, pricing information will be difficult to become transparent as the brokerage community strives to protect this information as a component of their competitive advantage and the landlords/owners continue to treat pricing information as proprietary.

The negotiation process will remain the same but the collaborative platform will move from single-point face-to-face to multiple-points online video conferencing. The rapid advancement and innovations in technology development will bring down the startup cost of building the technology platform to support negotiation and other business processes. Such a technology platform will speed up the decision making process, especially in a more globalized business environment, reduce the transaction costs for clients and improve margins for brokerage firms.

As a result, we have seen that traditional brokerage companies, especially those with global operations, are among the first movers in collaboratively building such a technology platform to support the transaction process from origination to completion. These brokerage firms have deep pockets and want to reposition themselves in the CRE industry as high value-added participants and innovators. Examples of such companies are Zethus[70] and Octane[71].

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[70] "WASHINGTON, DC-Zethus, Inc. (www.zethus.com), the innovative commercial real estate transaction platform backed by Goldman, Sachs & Co., announced today that it has entered into a multi-year agreement with major international brokerage firm Cushman & Wakefield, Inc. to use Zethus' patent-pending web-based technology platform to conduct its commercial transactions. Scheduled to launch in the first quarter of 2001, Zethus will empower users by providing state-of-the-art technology and tools needed to conduct transactions online." Zethus Press Room. 28 June 2000. 14 Aug. 2000 <http://www.zethus.com/zethusrelease1.htm>

[71] "Octane Partners Fuel SiteStuff.com with $30M Investment: E-business alliance of CB Richard Ellis, Jones Lang LaSalle and Trammell Crow to back dot-com in bid to establish an electronic procurement platform. ..... Within the next 60 days, Wirta [CB Richard Ellis chief executive] added, he expected Octane would announce a similar agreement with another service provider to establish an 'online transaction platform' capable of supporting complex, broker-assisted leasing and sales transactions as well as simple, 'principal-to-principal' deals." CoStar news. 14 July 2000. 14 Aug. 2000 <http://www.costargroup.com/body/stories/2000/july/octane.asp>

Chapter 7 Documentation and Closing Function

FUNCTION OVERVIEW

The documentation & closing function involves the on-going record keeping and legal facilitation necessary to close the real estate transaction. Based on our survey results (please refer to Appendix 2), this function experiences only limited broker involvement. Specifically, tenants reported broker involvement of 25% in the closing stage and the landlords reported broker involvement of only 7%. In the closing, the lawyers appear to be the dominant participants, accounting for 53% of the involvement from the perspective of both tenants and landlords. The tenants reported their own involvement in the closing at 22%, while the landlords reported their closing involvement at a significantly higher 40%.[72] These results our consistent with landlords being in the business of real estate, while the tenants are generally less comfortable with the intricacies of CRE and thus rely more heavily on the broker's expertise throughout the various stages of the transaction process.

E-commerce Developments

The E-commerce players most likely to impact the documentation & closing function are the online transaction platforms, such as Zethus, or other lawyer-client collaboration companies, such as eJur. Additionally, Octane (an alliance between CB Richard Ellis, Jones Lang LaSalle and Trammel Crow) is planning to establish an "online transaction platform" capable of supporting complex, broker-assisted leasing and sales transactions as well as simple, "principal-to-principal" deals.[73] No additional details were disclosed by Octane, but an announcement will reportedly occur within the next few months. The barriers to entry for these transaction

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[72] Please refer to Appendix 2.

[73] "Octane Partners Fuel SiteStuff.com with $30 million Investment." CoStar News. 24 July 2000. <http://www.costargroup.com/>

platforms are significant due to the significant technology costs associated with providing real time collaboration in an online environment.

Driving Forces and Restraining Forces

The major driving forces behind the increased automation of the documentation & closing process include: the market pressure to compress the transaction time, principals' ability to better control the transaction process and increased globalization which enables electronic communication to both save time and significantly reduce the cost of doing business for geographically dispersed companies.

The historic restraining forces for the adoption of e-commerce technology, other than basic e-mail, for the documentation & closing function have been the need for binding electronic signatures and the lack of standardization for lease contracts and purchase and sales agreements. However, in regards to e-signatures, President Clinton recently signed into law the Electronic Signatures in Global and National Commerce Act, which states that "a signature, contract or other record, may not be denied legal effect, validity or enforceability, solely because it is in electronic form."[74] The statute, which regulates only transactions in interstate or foreign commerce (strictly intra-state transactions still being subject to state law), is set to take effect on October 1, 2000. Donovan feels that, although the execution of the e-signature legislation will still need to occur at the state level, the passage of the e-signature act represented a major step in the direction of more automated closings[2].

In regards to document standardization, standardization of the lease contract is likely to be more difficult than the purchase and sales agreement due to the on-going nature of the lease contract in relation to caps on expenses and liability issues such as casualty insurance. However, with more concerted standardization efforts with strong industry backing, such as the Data Consortium discussed in *Chapter 1*, increased standardization of CRE contract documents is likely within the next three to five years.

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[74] "Electronic Signatures Statute". Real Estate TechLaw Advisor. Vol. 1. No. 3. E-mail dispatch from McDermott, Will & Emery. 14 July 2000.

FUTURE OUTLOOK

Our survey results indicated that the landlords and tenants are more comfortable finalizing documents and transferring money online than they are negotiating or making offers online. This would appear to indicate that the documentation & closing function will be one of the functions most likely to be impacted by e-commerce in the years ahead. This trend can already be seen in collaborative websites, such as Zethus, which are aiming to make the streamline the transaction process and reduce its dependency on paper documentation. The evolution of e-commerce companies, such as CoStar, along the transaction process chain may also lead to a few established players adding closing & documentation to their list of online real estate services. However, due to the limited broker involvement in documentation & closing, which isn't anticipated to change in the foreseeable future, any impact on documentation & closing will be felt more by lawyers than by brokers.

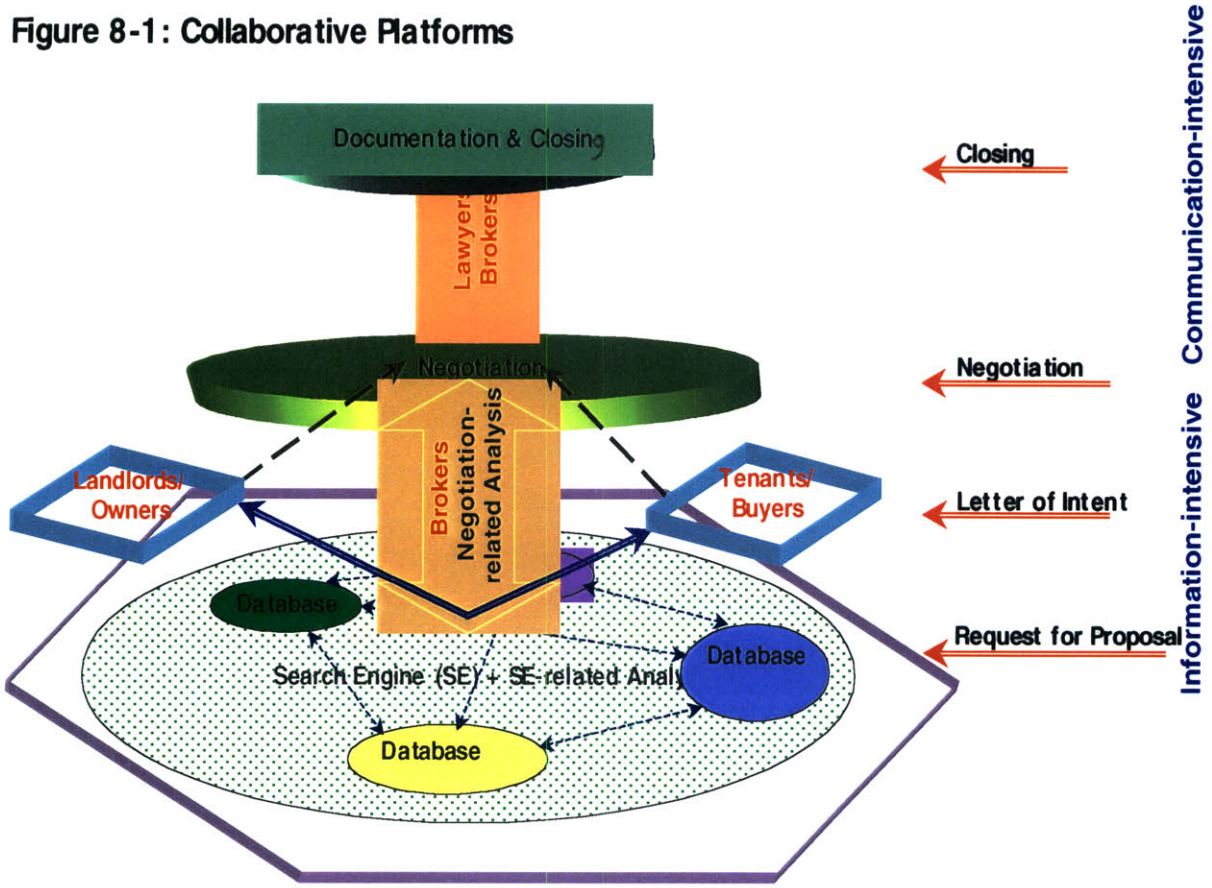
Conclusion

FUTURE OUTLOOK OF THE E-COMMERCE COMPANIES

Opportunities = Collaboration

We have evaluated the six functions[75] related to CRE brokerage along with the e-commerce companies that are impacting those functions. We also discussed in Chapter 1 the four phases[76] in a typical CRE transaction. The following diagram depicts the dynamic relationship among the six functions and four phases.

Figure 8-1: Collaborative Platforms



[75] The six functions are: database, search-engine, tour-guide, analysis, negotiation, and documentation & closing.
[76] The four phases are: request for proposal (RFP), letter of intent (LOI), negotiation and closing.

In the current CRE brokerage-related e-commerce marketplace, the activities are concentrated in the first two phases: request for proposal and letter of intent (please refer to the bottom pentagon-shaped platform in Figure 8-1). These two phases, which comprise the initiation of the transaction, are *information-intensive* and require heavy investment of time and effort from the brokerage community. The main activities in these two phases are matching (*cf.* Chapter 3) and search engine-related analysis (*cf.* Chapter 5), supported by database and tour-guide functions. The majority of current e-commerce players are mainly targeting the database and tour-guide functions, freeing up tremendous amount of time and effort for brokers. These two functions make searching more efficient and effective. As an efficiency tool, the e-commerce companies are welcomed by the brokerage community. A few of the major database companies are leveraging off their databases of listings, prospects (tenants/buyers) and market information to assist brokers in the search engine function, especially in the matching of space/property with tenants/buyers.

Looking forward, we anticipate that the database companies will continue to focus on information management, increasing the depth and width of their content; meanwhile, they will also improve the search engine function via search-related analytical tools (ASP/software). In regards to the search-related analysis, we might start to see some consolidation of current ASP / software providers with the database companies due to the collaborative nature of analyses (i.e., the interdependence of information and analysis). The evolution of the tour-guide function will rely on technology advancements and the integration of the touring technology with various databases. It might expand into a wider range of applications such as integrating/linking the public maps, satellite images and infrastructure of roadways or fiber routes into individual listings. This future integration is essential for an online transaction platform and can be achieved through alliances or partnerships.

In the negotiation phase (please refer to the middle oval-shaped platform in Figure 8-1), more parties are involved and the platform is communication-intensive because the interactions are built upon different expectations and information/knowledge discrepancies. This communication intensity explains why e-mail, as one of the most efficient way of communications, is currently the most widely utilized medium in the process of negotiations.

However, our research showed that principals' comfort level of using the Internet to negotiate is the lowest among making offers, negotiating, finalizing document and transferring money. Some landlords/owners attribute faster decision-making to face-to-face interactions. Despite the user-uneasiness with online negotiations, technology companies are progressing with video-conferencing technology to achieve multi-point, real-time communications over the Internet. We believe that video-conferencing will come to the CRE industry, probably through consortiums where interactions are frequent and all the participants are actively involved.

The documentation and closing phase (please refer to the top oval-shaped platform in Figure 8-1) is dominated by lawyers both on an on-going basis and at the finalization point. It is communication-intensive in the sense that correspondence is frequent among the transaction participants. However, this phase is not as communication intensive as the negotiation phase because the general legal parameters are more standardized than the business issues and the expectation levels of principals (buy-side and sell-side) are not very different. Current e-commerce players in this functional area mainly serve lawyers with project-based, collaborative online environments. The future e-commerce activities in this functional area will continue to focus on lawyers, while extending to support the negotiation phase in a collaborative manner.

Based on our research and analysis, we have formulated our own future vision for CRE brokerage-related e-commerce. The early transaction collaborators will take the form of ASP/software, assisting information management, while the more sophisticated transaction collaborators with deep-pockets will invest in technologies and build collaborative platforms as outlined in Figure 8-1. Potential entrants will target the information-intensive platform, the communication-intensive platform or a vertical platform encompassing both information and communication. Within the next several years, there will be a shared database platform upon which all data will be easily transferable, thus enabling brokers to package all the information necessary to complete the request for proposal and letter of intent phases within a much shorter time period. The negotiation phase will have the ability to be conducted live on the Internet with video-conferencing, and documentation will be stored in private "online filing cabinets". Lastly, e-signature will be tested and adopted by certain groups of people for the closing of transactions.

A notable phenomenon in regard to potential entrants into the transaction collaborator area is that big brokerage firms are building alliances among themselves, while at the same time investing heavily to improve their technology infrastructure. With strong capital support for both internal and external technology applications along with a superior business network, the major brokerage firms are well-positioned to succeed in the Internet marketplace.

Challenges

The e-commerce marketplace, especially collaborative platforms, will continue to evolve over the next several years. There are challenges ahead but actions are being undertaken for their effective resolution. Some of the important challenges include: 1) the difficulty of achieving pricing transparency because landlords treat the contracts as proprietary information and brokers are generally unwilling to disclose the pricing information for the protection of their competitive position in the marketplace; 2) the standardization of documentation and computer languages, which is critical for the free transfer of data across databases.

FUTURE ROLE OF CRE BROKERS

Historically, the broker's role has been primarily as an informediary with the majority of the broker's work effort spent in the database, search engine and tour guide functions. Analysis, negotiation and documentation & closing have typically represented only a small component of a broker's role in the transaction process. However, in recent years the value of the broker's traditional informediary role has been diminished by e-commerce which has enabled the database, search engine and tour guide functions to be processed more efficiently in an online environment. So where has this left the CRE broker?

CRE brokers, while still playing a reduced role as an informediary, will now have to add value in other components of the process in order to maintain the same amount of value added services for their clients. The three possible functions where brokers could bolster there historical roles are negotiation, analysis and documentation & closing. However, with broker

involvement in documentation & closing expected to remain limited for the foreseeable future due to its legal nature, the remaining two functional areas where significant value can still be added are analysis and negotiation. As mentioned, these areas have historically been underrepresented in the broker's work effort.

Analysis is a catalyst for the transaction process and affords significant opportunities for brokers, as the enormous amount of information available via the Internet often leads to information overload, especially for tenants with limited real estate knowledge. The analysis function was evaluated in two components: search-related analysis and negotiation-related analysis. The distinction was important because the analysis activities undertaken for search and negotiation are quite different, as detailed in *Chapter 5*. More importantly, as the e-commerce companies continue to evolve, the brokers' search-related analysis activities are more likely to be eroded by the impact of e-commerce than are the negotiation-related analysis activities. It is inevitable that vertically-integrated companies will start bundling the database base, search engine and search-related analysis into one package. The early stages of this trend are already evident in the CoStarTenant and CoStar Exchange product lines. Negotiation-related analysis, on the other hand, will be significantly harder for the e-commerce companies to bundle into their product offerings. Collaborative e-commerce companies, such as Zethus, will provide increased access to technical analysis packages but still won't provide the knowledge or expertise to implement the negotiation-related analysis activities. Consequently, in the future, the depth of brokers' knowledge and analytical skill sets will become increasingly important.

The brokers' roles in the negotiation function, as discussed in *Chapter 6*, are threefold: as a buffer, as a consultant and as a communication channel. Moving forward, the nature of the brokers' roles in negotiation are not likely to change dramatically as they consist of an indispensable part of an interactive process. However, the brokers' success in carrying out their negotiation roles will depend increasingly on their ability to manage the transaction process. Brokers' communications skills and creativity will be key for creating a collaborative environment to facilitate the negotiations. Additionally, as a result of the brokers' consultant role gaining significance within the process, we anticipate increased specialization by both

property type and sub-market location. In the future, strong relationships between brokers and their clients will be built more on the brokers' ability to analyze and assist in negotiating the transaction, and less on the brokers' access to information.

FUTURE CRE BROKERAGE COMPENSATION

Based on our review of the six functional areas of brokerage, it is clear to us that e-commerce will have an impact on the compensation of CRE brokers. Recognizing that the topic of brokerage compensation is one of significant debate within the CRE industry, we felt it appropriate to weigh in with our opinion. However, it is important to first recognize that business does not occur in a vacuum and it is difficult to separate the impact of current market conditions on compensation from the impact of e-commerce on compensation. For example, in the investment sales market, transaction activity has slowed significantly in recent years and, as a result, brokerage commissions have fallen as more firms compete for fewer deals.

As mention in *Chapter 1*, the most commonly-used compensation structure within the CRE brokerage industry remains the traditional commission-based compensation whereby the brokerage firm receives a percentage of the purchase price for asset market transactions or a percentage of the annual rent for space market transactions. Alternative compensation structures, such as a flat fee plus incentives for purchase prices or lease rates above (below) a pre-determined benchmark, or a simple flat fee, have also emerged in recent years.

The two competing arguments in the marketplace are: 1) brokers' compensation will stay commission-based for the foreseeable future, and 2) brokers' compensation will gravitate towards an hourly rate. The theory behind the first argument is that brokers are paid on a commission basis in order to align the brokers' interests with the clients' interests whereby the broker only gets paid if the deal gets completed. Additionally, proponents of this argument believe that the value added to the transaction process by brokers is more difficult to measure than for consultants which are typically hired to complete more process-oriented tasks. The theory behind the hourly compensation argument is that as brokers transition away from

functioning as information intermediaries and towards serving as value-added transaction consultants, their compensation will become hourly similar to that of consultants and other real estate service providers, such as lawyers.

Based on our research and analysis, it is our opinion that, although brokers will undoubtedly need to transition into value added transaction consultants, especially during the analysis and negotiation stages, their compensation will remain commission-based as many clients will remain unlikely to compensate brokers unless the transaction gets completed. As mentioned, the value of brokers in three of the six functions (database, search engine and tour guide) will be greatly diminished by e-commerce and a fourth function (documentation & closing) incorporates little broker involvement. Consequently, within the next several years, it is likely that only two of the brokerage industry's six functions will remain as areas in which brokers can add significant value to the overall process. Market conditions aside, it can reasonably be argued that, as CRE markets become increasingly transparent, future commission levels as well as net brokerage profits (after related expenses) will be significantly reduced, in both real and nominal dollars, by the impact of e-commerce. On a positive note, however, there will be fewer brokers doing a higher volume of transactions, as brokers with weak analytical and negotiation skills are gradually forced out of the increasingly competitive brokerage industry.

Appendix 1: Survey Questions

LANDLORDS/INVESTORS & TENANTS SURVEY QUESTIONS

SURVEY for the thesis

"The Impact of the Internet on Commercial Real Estate Brokerage"

Please fill out this survey based on your experience as a landlord/investor (or a tenant).

1. Rank the following broker functions in order of their importance to you. (*Rank order 1 ~ 6: 1=least important; 6=most important. Please use each number only once.*)
   _____ Market Data Sourcing & Maintenance
   _____ Searching for Properties / Prospects
   _____ Touring / Showing Properties / Prospects
   _____ Analyzing Transaction Terms
   _____ Negotiating Transaction Terms
   _____ Documentation and Closing

2. Rate your satisfaction in regards to the following broker functions. (*Rating scale 1 ~ 5: 1=not satisfied; 5=extremely satisfied*)
   _____ Market Data Sourcing & Maintenance
   _____ Searching for Properties / Prospects
   _____ Touring / Showing Properties / Prospects
   _____ Analyzing Transaction Terms
   _____ Negotiating Transaction Terms
   _____ Documentation and Closing

3. (a) Of the commercial real estate-related Internet activities that you currently undertake,
   _____ % are related to searching for properties / prospects
   _____ % are related to showing properties / prospects
   _____ % are related to analyzing transaction terms
   _____ % are related to negotiating transaction terms
   _____ % are related to documentation and closing
   Total: 100%

   (b) Of the commercial real estate-related Internet activities that you expect to undertake 5 years from now,
   _____ % will be related to searching for properties / prospects
   _____ % will be related to showing properties / prospects
   _____ % will be related to analyzing transaction terms
   _____ % will be related to negotiating transaction terms
   _____ % will be related to documentation and closing
   Total: 100%

4. How involved are the following parties in the activities/tasks outlined below? (*0%=not involved; 100%=the only party involved*)

	Request for Proposal	Letter of Intent	Negotiation	Closing
Client (You)				
Broker				
Lawyer				
Total	100%	100%	100%	100%

5. In general, how comfortable are you making offers on-line? (1=not comfortable; 5=extremely comfortable)
   1 2 3 4 5

6. In general, how comfortable are you negotiating on-line? (1=not comfortable; 5=extremely comfortable)
   1 2 3 4 5

7. In general, how comfortable are you finalizing document on-line? (1=not comfortable; 5=extremely comfortable)
   1 2 3 4 5

8. In general, how comfortable are you transferring money on-line? (1=not comfortable; 5=extremely comfortable)
   1 2 3 4 5

9. How many years of real estate related transaction experiences do you have? _____ years.

For those completing the survey who would like a copy of our thesis e-mailed to them, please write your e-mail address below:

E-mail address:

_____

LAWYERS SURVEY QUESTIONS

Thesis Survey

"The Impact of the Internet on Commercial Real Estate Brokerage"

Please fill out this survey based on your experience as a real estate lawyer.

1. In a typical transaction, what percentage of your work effort do you spend on the following functions?

Function	% of Work Effort
Analyzing Transaction Terms	_____
Negotiating Transaction Terms	_____
Documentation and Closing	_____
	Total: 100%

2. In a typical transaction, what percentage of your work effort on each of the above functions is currently Internet-based?

Function	% Internet-Based
Analyzing Transaction Terms	_____
Negotiating Transaction Terms	_____
Documentation and Closing	_____

3. What percentage of your work effort on each of the outlined functions is anticipated to be Internet-based five years from now?

Function	% Internet-Based Five Years from Now
Analyzing Transaction Terms	_____
Negotiating Transaction Terms	_____
Documentation and Closing	_____

4. How involved are the following parties in the activities/tasks outlined below? (*0% = not involved; 100% = the only party involved*)

	Request for Proposal	Letter of Intent	Negotiation	Closing
Client				
Broker				
Lawyer				
Total	100%	100%	100%	100%

5. In general, how comfortable do you think your clients are using the Internet to help complete each of the following functions? (*1=not comfortable; 5=extremely comfortable*)

Function via the Internet	Client Comfort Level				
Analyzing Transaction Terms	1	2	3	4	5
Negotiating Transaction Terms	1	2	3	4	5
Documentation and Closing	1	2	3	4	5

6. How many years of experience do you have providing legal services to the real estate industry? _____ years.

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E-mail address: _____

BROKERS SURVEY QUESTIONS

SURVEY for the thesis

"The Impact of the Internet on Commercial Real Estate Brokerage"

Please fill out this survey based on your experience as a real estate broker.

1. In a typical transaction, what percentage of your work effort do you spend on the following functions?

Function	% of Work Effort
Market Data Sourcing & Maintenance	_____
Searching for Properties (or Prospects)	_____
Touring/Showing Properties (or Prospects)	_____
Analyzing Transaction Terms	_____
Negotiating Transaction Terms	_____
Documentation and Closing	_____
	Total: 100%

2. In a typical transaction, what percentage of your work effort on each of the following functions is currently Internet-based?

Function	% Internet-Based
Market Data Sourcing & Maintenance	_____
Searching for Properties (or Prospects)	_____
Touring/Showing Properties (or Prospects)	_____
Analyzing Transaction Terms	_____
Negotiating Transaction Terms	_____
Documentation and Closing	_____

3. What percentage of your work effort on each of the following functions is anticipated to be Internet-based five years from now?

Function	% Internet-Based Five Years from Now
Market Data Sourcing & Maintenance	_____
Searching for Properties (or Prospects)	_____
Touring/Showing Properties (or Prospects)	_____
Analyzing Transaction Terms	_____
Negotiating Transaction Terms	_____
Documentation and Closing	_____

4. In general, how comfortable do you think your clients are using the Internet to help complete each of the following functions? (*1=not comfortable; 5=extremely comfortable*)

Function via the Internet	Client Comfort Level				
Market Data Sourcing & Maintenance	1	2	3	4	5
Searching for Properties	1	2	3	4	5
Touring/Showing the Properties	1	2	3	4	5
Analyzing Transaction Terms	1	2	3	4	5
Negotiating Transaction Terms	1	2	3	4	5
Documentation and Closing	1	2	3	4	5

5. Roughly estimate the percentage of your transactions falling within each category over the given time periods.

	Last 12 months	Last 2 years	Last 5 years
% Completed in 0-45 days	_____	_____	_____
% Completed in 46-90 days	_____	_____	_____
% Completed in 90+ days	_____	_____	_____
Total:	*100%*	*100%*	*100%*

6. In your opinion, how much time (in % terms) has/will the Internet saved/save across the following functions?

Function	% Time Saved Now	% Time Saved 5 Years from Now
Market Data Sourcing & Maintenance	_____	_____
Searching for Properties (or Prospects)	_____	_____
Touring/Showing Properties (or Prospects)	_____	_____
Analyzing Transaction Terms	_____	_____
Negotiating Transaction Terms	_____	_____
Documentation and Closing	_____	_____

7. How many years of experience do you have providing commercial brokerage services to the real estate industry? _____ years.

For those completing the survey who would like a copy of our thesis e-mailed to them, please write your e-mail address below:

E-mail address:

_____

Appendix 2: Survey Results

Landlord/Investors Survey Summary

(Suvery sample size: 105; Response rate: 36.2%)

Q1-2	Database	Search Engine	Touring	Analysis	Negotiation	Doc. & Closing
Importance	4.50	5.00	3.74	3.00	3.08	2.42
Satisfaction	3.77	3.86	3.81	2.50	2.57	1.88

Q3 (a)&(b)	Search Engine	Touring	Analysis	Negotiation	Doc. & Closing
Current	55%	9%	11%	6%	19%
5-yrs from now	36%	25%	14%	10%	16%

Q4	RFP	LOI	Negotiation	Closing
Client	59%	66%	56%	44%
Broker	38%	22%	19%	8%
Lawyer	3%	11%	24%	49%
Total	100%	100%	100%	100%

Q5-8	Making offers	Negotiating	Finalizing document	Transferring money
Comfort Level	2.39	2.14	2.92	2.92

Years of RE transaction experience:	13.87

Tenants Survey Summary

(Suvery sample size: 243; Response rate: 7.8%)

Q1-2	Database	Search Engine	Touring	Analysis	Negotiation	Doc. & Closing
Importance	3.94	3.94	4.29	3.53	3.00	2.82
Satisfaction	3.18	4.06	4.18	2.94	3.18	3.06

Q3 (a)&(b)	Search Engine	Touring	Analysis	Negotiation	Doc. & Closing
Current	8%	1%	2%	3%	11%
5-yrs from now	35%	10%	11%	11%	12%

Q4	RFP	LOI	Negotiation	Closing
Client	44%	32%	37%	22%
Broker	51%	45%	39%	25%
Lawyer	4%	23%	24%	53%
Total	100%	100%	100%	100%

Q5-8	Making offers	Negotiating	Finalizing document	Transferring money
Comfort Level	3.25	2.63	3.69	3.75

Lawyers Survey Summary

(Suvery sample size: 119; Response rate: 31.1%)

Q1-3 & 5	Analysis	Negotiation	Doc. & Closing
Work effort	15%	31%	52%
Internet current	2%	5%	14%
Internet 5-yrs later	19%	24%	45%
Client comfort level using the Internet	2	3	3

Q4	RFP	LOI	Negotiation	Closing
Client	49%	40%	37%	22%
Broker	37%	25%	11%	5%
Lawyer	14%	35%	53%	72%
Total	**100%**	**100%**	**100%**	**100%**

Years of RE transaction experience:	19.76

Brokers Survey Summary

(Suvery sample size: 2060; Response rate: 5.3%)

Q1-4	Database	Search Engine	Touring	Analysis	Negotiation	Doc. & Closing
Work effort	11.1%	25.5%	17.2%	13%	20%	13%
Currently Internet-based	29%	28%	4.3%	5.6%	6.6%	8.9%
5-yrs from now Internet-based	50%	47%	22%	19%	21%	30%
Client comfort level using Internet	3.28	3.14	1.92	2.44	2.15	2.36

Q5

% of Total Transactions	Last 12 mon.s	Last 2 years	Last 5 years
% completed in 0-45 days	11.1%	8.7%	7.3%
% completed in 46-90 days	28.9%	27.8%	25.2%
% completed in 90+ days	59.5%	63.8%	67.5%
Total	**100%**	**100%**	**100%**

Q6	Database	Search Engine	Touring	Analysis	Negotiation	Doc. & Closing
Time saved now	26.7%	30.0%	8.3%	9.6%	8.8%	11.5%
Time saved 5-yrs from now	50.1%	52.7%	27.6%	24.7%	24.1%	31.4%

Years of experience	14.05

Appendix 3: Interview Questions

INTERVIEW QUESTIONS FOR DOTCOMS

Business:

1. What are your core products or services?
2. What's the market size for your product/service? Who are your clients and how do you attract them to your web site?
3. What are your information sources? How do you control the information quality?
4. What are your revenue models? What is your cost structure?
5. What's your business model?
6. What are your marketing strategies?
7. Please describe the distribution channel of your products/services.
8. What are the short-term, medium-term and long-term objectives in your business?
9. How important is the standardization of document in your on-line business model?
10. How many hits do you have per day on average?

Competition:

11. Who are your major competitors?
12. What kind of barriers to entry do you think your business has?
13. How are your major business strategies different from your competitors? What are the advantages and disadvantages that your business has compared with your competitors?
14. How do you describe the driving forces of the business that you are in?

Technology:

15. What are the major technology platforms that you are using?
16. Do you feel that the current technology is sufficient for your business? What would you like to see in five years time in terms of technology development?
17. How will the development of technology affect your business?

Relationship with current brokerage activities:

18. Given the following brokerage activities, what is your relationship with each of them respectively?
    - Obtaining listings
    - Matching prospective buyers/tenants with sellers/landlords
    - Showing the property to prospective buyers/tenants
    - Analyzing and evaluating the details of the transaction
    - Negotiating the transaction with the involved parties
    - Documentation and closing

INTERVIEW QUESTIONS FOR LANDLORDS

1. What are the criteria when you choose a broker as your representative?
2. Rank the following factors based on their relative importance in your selection process of brokers:
    - Time
    - Fee
    - Reputation
    - Full-service
    - Other
3. How much do you rely on the brokers to do each of the following vs. using internet yourself (in % terms)? Of the function you do yourself, how much is Internet-based?

	Brokers	Internet
Data collection		
Prospect matching		
Marketing the property (tour guide)		
Analyzing transaction terms		
Negotiating transaction terms		
Documentation and closing		

4. How comfortable would you be today using the Internet to lease space without the use of brokers? How comfortable will you be 5 years from now?
5. How comfortable would you be today using the Internet to sell/buy properties without the use of brokers? How comfortable will you be 5 years from now?
6. Is there a maximum sale price or lease size that you will not consider the use of Internet for the entire transaction process?
7. What's the average transaction time?
8. What are your other technology initiatives? Other burning issues?
9. What are your preferred listing web sites? Are there any other types of web sites that you would like to use to facilitate your transactions?
10. Thoughts on brokers' fee structure.

INTERVIEW QUESTIONS FOR LAWYERS

1. The "Internet" means different things to different people -- what does it mean to you?
2. What is the extent of your interaction with real estate brokers?
3. How often and in what ways do you use the Internet? More specifically, how much do you use the Internet with regards to the following activities?
    - analyzing and evaluating the details of the transaction
    - negotiating the transaction with the involved parties
    - documentation and closing
4. With the technology expected by the end of this year, would your clients go to the internet to buy, sell, or lease commercial real estate when it becomes available? In five years?
5. What are the driving and restraining forces behind the adoption of the internet into the transaction-oriented component of real estate services?
6. How would you describe the extent of the broker's role in the following processes?
    - d request for proposal
    - letter of intent
    - closing and documentation
7. How has/will the internet impact the broker's role in the same processes?
    - request for proposal
    - letter of intent
    - closing and documentation
      (E-mail included or not)
8. What are the transaction-related internet products and/or services being used by your firm? What new products and/or services would you like to see developed?
9. What services (or components thereof) would you expect your company to provide via the internet in the next few years that are currently being provided in person?

INTERVIEW QUESTIONS FOR BROKERS

Part #1: Industry-Specific

1. The "Internet" means different things to different people -- what does it mean to you?
2. How often and in what ways do you use the Internet?
    a. More specifically, how much do you use the Internet with regards to the following activities?
        - obtaining listings
        - matching prospective buyers/tenants with sellers/landlords
        - showing the property to prospective buyers/tenants
        - analyzing and evaluating the details of the transaction
        - negotiating the transaction with the involved parties
        - documentation and closing
    b. Which Internet and/or online service products do you find most useful? Which activities are the currently available products targeted at? Are there any non-existing products or services that you would like to have?
3. Does your company use the Internet to research any of the following pertaining to commercial real estate:
    a. general economic market data
    b. specific inventory / vacancy rate / rental rate data
    c. Specifically, where do you generally look for this information? (own in-house database or 3rd party resources)
4. How do you differentiate between the Internet and on-line services? What information are you willing to pay for? How do you price the value of the information?
5. How has the Internet changed your clients' perception and/or expectations of your role as the real estate broker? What do you anticipate in the future?
6. How do you feel the Internet will affect the process of buying and selling commercial properties in the next five years?
7. How do you feel the Internet will affect the process of leasing commercial properties in the next five years?
8. What are the driving and restraining forces behind the adoption of the Internet in commercial brokerage services? Specifically, what are the factors that are moving brokers toward Internet adoption and what are the barriers that are slowing the adoption process?
9. How would you describe the extent of the broker's role in the following processes?
    a. request for proposal
    b. letter of intent
    c. closing and documentation
10. How has/will the Internet impact the broker's role in the same processes?
    a. request for proposal
    b. letter of intent
    c. closing and documentation

Part #2: Company-Specific

11. What are your company's current e-commerce initiatives? How do they compare to other brokerage companies' initiatives? Are there any additional e-commerce initiatives that you think should be pursued?
12. What services (or components thereof) would you expect your company to provide via the Internet in the next 2 (and 5) years that are currently being provided in person?
13. How does the structure of your company lend itself to the adoption of the Internet into future business models?
14. How will the competitive landscape change with the increasing use of the Internet in the next 2 (and 5) years?
15. What are the advantages of your firm in relation to your competitors?
16. What is the compensation structure for brokers in your firm? How do you expect this to change in the next 2 (and 5) years considering the increasing use of the Internet for real estate related activities?

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