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The Internet, E-Commerce and the Real Estate Industry

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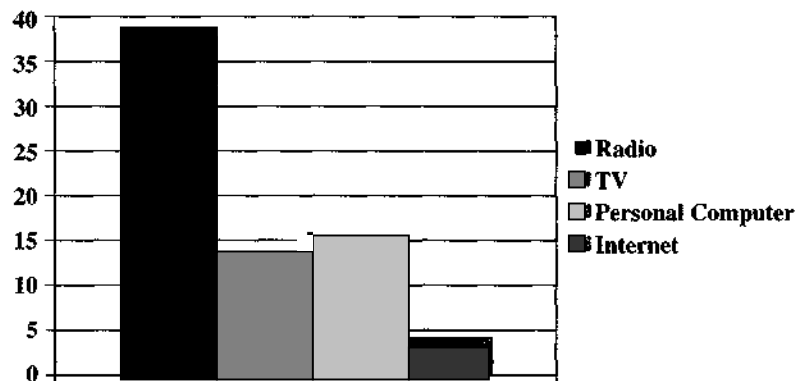
The rapid penetration of the Internet into households, businesses and all spheres of economic activity continues. The number of hosts on the Internet has risen to approximately 80 million, an increase of nearly 100% over the last year.¹ Worldwide nearly 300 million people are estimated to be online.

While data related to any aspect of the Internet is quite unreliable, it appears that the diffusion of the Internet has been much more rapid than that of the other modern technologies shown in Figure 1.

In the US, the number of adults regularly using the Internet is fast approaching the 50% mark, and the number of corporations with some Internet-related purchases or sales is well over 50%.² The new technology has wrought changes in the organizational structure of the firm, distribution networks of businesses, competitive strategies, their cost of doing business, and ultimately the bottom-line itself.

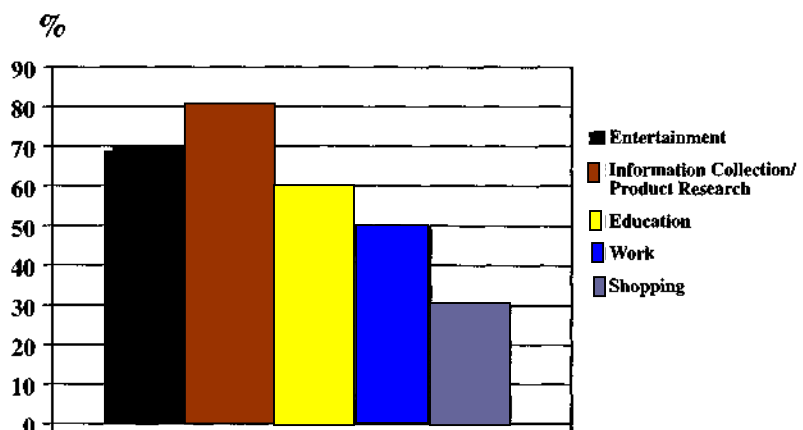
While both for consumers and businesses the Internet is still primarily a medium of efficient and inexpensive information access and dissemination, its other uses are now being increasingly exploited. As shown in Figure 2, consumers use the WWW as frequently for informa-

Figure 1
Dissemination Speeds of Technologies:
Years Taken to Reach 50 mill. Consumers



Source: Dept. of Commerce

Figure 2
Web Use by Consumers



Source: FCREUE from various sources

¹ Network Wizards (www.nw.com)

² Internet Economy Indicators, (www.internetindicators.com)

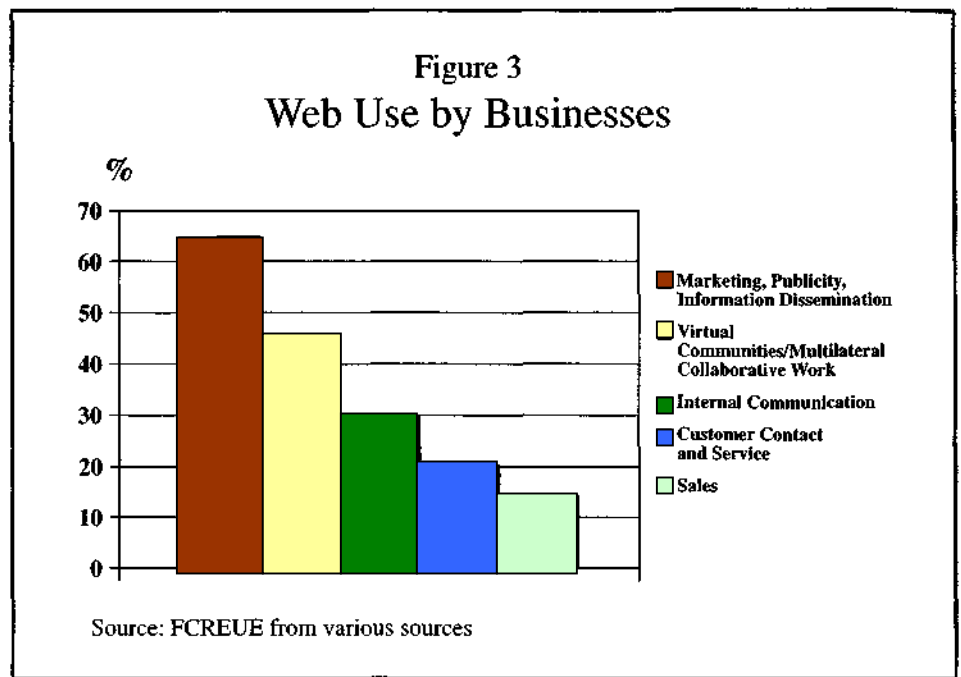
tion and product research for entertainment and education. While businesses still primarily use the WWW for marketing and information dissemination, they are also taking advantage of Web features to enable collaboration among firms and for communications within . firms. (See Figure 3).

In this article, we look at the impact of e-commerce and the Internet on the real estate industry. We discuss the characteristics of e-commerce that make it a new force in business operations; we describe the ways in which the Internet and World Wide Web may be incorporated in a business' operations; and we describe alternative strategies by real estate firms in dealing with the challenges and opportunities of the WWW.

What's New about E-Commerce and Why Does it Matter for Real Estate?

Several features distinguish e-commerce and the Internet from other aspects of business operations, particularly those that affect real estate. First, it provides a new form of communication. After the initial (possibly quite costly) investment in a network, communication is possible worldwide, at any time, at very low cost.

Second, using the new communications networks, e-commerce is based on a new means of disseminating information, with the change from present media to the WWW comparable to the change from newspapers to radio, and from radio to television. Information reach is a key factor of the WWW, but of greater importance is the interactive nature of the information provider. Unlike with newspapers, catalogues or television, the technology offers



the user the opportunity to respond immediately to information provided. This greatly expands the scope for advertisers and retailers in terms of the numbers of customers reached and their locations. Finally, for business, it facilitates the role of a firm as a customer as well as a producer or retailer of goods. Networks supported by the WWW give firms access to a wider variety of supplies more quickly than before the Internet. Network linkages offer the possibility of new forms of inventory control and ultimately new approaches to production and service provision. Finally, for many of these changes, there are large economies of scale, with heavy introductory costs but very low marginal costs, once the system is up and running.

Businesses incorporate these new communications, information and networking advantages in several ways, as shown in Figure 4. In an initial phase, businesses establish basic internet connections, allowing them to communicate via e-mail and make use of the information on the Web. In Stage 1, the business

develops a basic Web site, which disseminates simple information on the company (the presence signaling stage). In Stage 2, the firm expands its Web site to a more extensive marketing and publicity service, equivalent to a newspaper or television advertising campaign. In Stage 3, the firm provides services on the Web, becoming a virtual store or office site. Now, a fourth stage of Web use is emerging, where the firm builds on the networking capabilities of the Web to establish new supply and service or sales networks that may ultimately change the production or service provision structure for the firm. In this last stage, the World Wide Web is an important tool in trends that had already begun in "virtual production lines," where products or services are developed through the cooperation and participation of a network of firms.

All of these e-commerce activities and stages of Web use have implications for real estate firms, both as their own operations are affected by the Internet, WWW and e-commerce, and as providers of real

Figure 4
Stages of Business Web Use

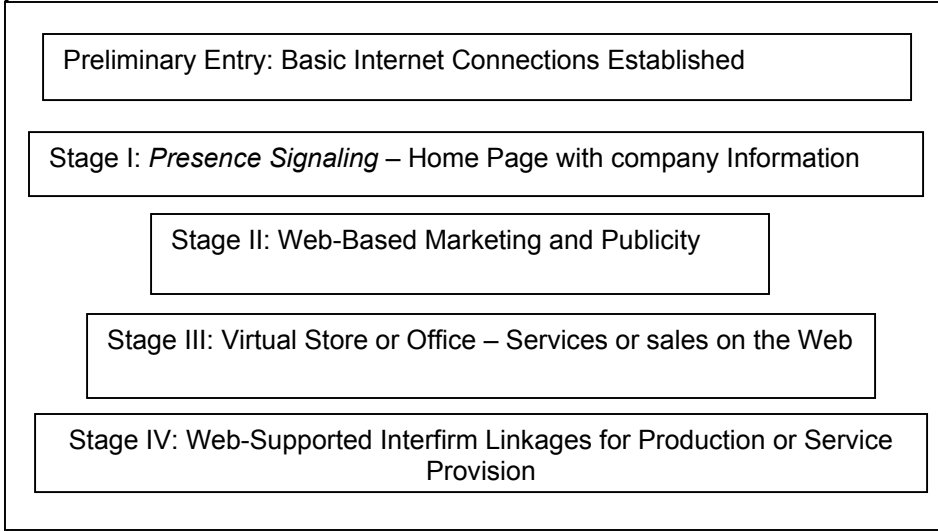
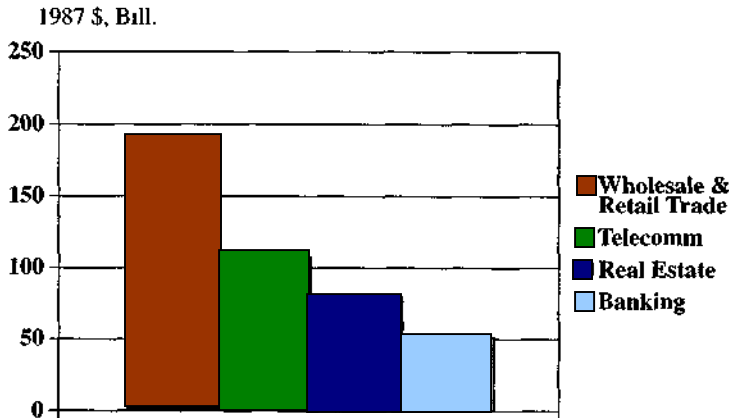


Figure 5
Industries with Large Information Technology Investments



Source: Bureau of Economic Analysis, Note. Data as of 1994

estate services and products to other businesses. Our earlier research has shown that real estate firms have quickly incorporated several aspects of e-commerce into their own operations. The Department of Commerce ranks the real estate industry as one of the most highly information technology intensive sectors in the economy (Figure 5). It

also ranks real estate as among the top 10 sectors of the economy in terms of capital investment in information technology per employee.³

Virtually all of the major players in real estate have established a presence on the World Wide Web and also make use of the Internet for

internal and external communications. Many have complex sites that market products and provide information to a customer or client base. More and more of these sites are developing interactive components, and some are the centers of broader networks of companies. At the same time, firms involved in many real estate products are closely watching e-commerce developments to determine how these affect the demand for their products.

There are some features of common importance to real estate and other industries that have also resorted to the Internet. These are the efficient marketing capability of the Web, its low transactions costs, as well as customer contact and support. However, the Internet also possesses features that are of particular significance for real estate. Although by its very nature real estate is bound to the local environment, community and economy, the Internet has extended its geographic reach. Now it is possible to research properties situated at the other end of the globe, whether for purposes of relocation or investment. The graphics capability of the Web is another feature of the Web that real estate can exploit to great advantage, particularly with the more recent advances that now include virtual tours of hotels, homes and convention centers.

Table 1 summarizes the ways in which Internet and WWW characteristics may affect real estate firms both in their internal operations and structure, and in the demand for the product or service they provide. Many different types of real estate related businesses are taking advantage of the opportunities provided by

³ U S Department of Commerce, "The Emerging Digital Economy II, June 1999

Table 1

Major Internet and Web Characteristics and Implications for Real Estate Firms

Internet/Web Characteristic	Examples of Real Estate Firms	Advantages/ Opportunities	Challenges to Existing Firms
<i>Interactive Search Capability; Graphics Capability; Virtual Tours; Geographic Outreach</i>	<i>Listing Brokers; Vacation Rentals; Architects; Relocation Services</i>	Improves communications within firms and with customers or clients. Expands geographic range within which a firm can operate.	May reduce value-added of existing offices.
<i>Creation of Online Communities and Markets</i>	<i>Project Finance; Real Estate Investment; Brokerage</i>	Increases market efficiency and depth; B2B coordination for new kinds of transactions.	Low Barriers to Entry; Increase in competition; May be a challenge to intermediaries such as brokers.
<i>Online Tracking and Analysis</i>	<i>Consulting Firms; Property Management; REITs</i>	Product/service information can be provided at a depth and complexity that is not possible in other media (newspaper, tv).	Information providers such as real estate consultants may face competition from low cost Web services.
<i>Web-Based Interactive Transactions</i>	<i>Project Management; Developers; Property Management; Mortgage Firms</i>	Speed, low marginal costs, and interactive component. Firm may be able to change staffing needs or the geographic location of staff.	Gives customers more flexibility where to locate; Issues of security and privacy; May change location needs; Potential shift from retail to warehouse and from central to peripheral

the Web, while at the same time facing some of the challenges brought about by the Internet-generated transformations of the rest of the economy. The following two sections describe some of the real estate industry responses in more depth.

Real Estate Brokerage Services

Residential real estate information services were among the first branches of real estate to take advantage of the Internet. Even

before the Web became readily accessible, Prodigy provided a real estate classified bulletin board. Currently the World Wide Web is replete with listing services, ranging from traditional brokerage firms with links to the multiple listings service (MLS), to technology companies such as Microsoft and Yahoo.

A review of some of these sites shows both the opportunities and challenges of incorporating the Web into a home search. Ideally, the Internet would expand access to

information on homes, and shorten the search process for buyers and renters, and the listing times for sellers or landlords. The Web graphics capabilities would be used to show the home through photos and layouts. Linkages would be used to link the buyer with related services such as mortgages and insurance.

While all of these features can be found at some Web sites, the use of the Web for buying or renting a home does not necessarily work as smoothly as this ideal description

would imply, First, from a consumer's point of view, the choice of sites is numerous, and the information provided varies widely. Some sites can provide a broad overview of a market (for example, the range of price levels of homes sold in an area), while others specialize in a particular area. Many sites do not have a comprehensive listing of homes available, and listings are not necessarily up to date. For rentals, the most detailed listings, with visual information on available units, may be available on a property manager basis rather than through a more comprehensive listing service. From a seller or property manager's point of view, having a Web presence does not ensure wide coverage of potential buyers or renters. Because many buyers still rely on an agent or broker to shepherd them through the process, the seller needs to identify networks that will reach as many brokers as possible.

Furthermore, it appears that most buyers and sellers of single-family homes continue to need the services of real-life real estate agents and brokers. These services include advice on listing prices for sellers and offer prices for buyers, individual advice on house attributes (location and quality), and referrals to other experts. The implication is that the web and real-life agents are likely to be complements, not substitutes, over a broad range of home-buying services. On one side, most brokerage firms are creating a significant web presence. On the other side, e-commerce startups, such as Ziprealty.com, are combining their web presence with a team of real-life agents.

For commercial and industrial brokers in general, the immediate advantages of the Web were less and the challenges greater. The residen-

tial brokerage system, at least for sale situations, already had a database in place with shared listings, making transition to a Web based system of sharing information fairly straightforward. The commercial and industrial sectors had nothing equivalent, either for leasing or sale situations. Within a local area, the number of choices for a particular tenant are likely to be less than for a family looking for a new home. Thus, the broker would have less to gain from a shared information base. If the tenant is looking to move beyond the local area, then a shared information base becomes much more attractive, but without anything equivalent to a multiple listing service, the challenge of developing this database becomes much greater.

Despite these conditions, the commercial/industrial brokerage sector is now a major user of the Web. Individual brokerage companies have complex Web sites that provide information on the local area as well as nationwide markets. New listing services have developed that allow potential tenants to search databases locally or nationally for suitable buildings or sites (and many brokers link to these services). The Internet and the Web have also become major marketing tools for commercial and industrial brokers, providing detailed information about the companies and services offered and also providing ongoing means of communications with regular customers through features such as e-mail and newsletters on the Web.

In summary, while the Internet has greatly widened the opportunities for disseminating information, there are no signs that this is diminishing the role for brokers. Instead, those brokers who are knowledgeable about Web resources are using it to expand their market bases.

Other Examples of Adoption of the Internet by Real Estate Firms

The use of the Web goes well beyond the brokerage arm of real estate. The Web is offering opportunities to a number of other real estate related businesses.

1) Property Management

Large property management companies with a portfolio of apartments in the hundreds and thousands feel a need to integrate specialized property management software with effective communication with investors, customers and managers. Both the Internet and its segmented, private version - the Intranet, are now being used for accessing data output from the applications. At any given time it is possible to retrieve the latest data regarding revenues, expiring leases, vacancies etc. The two-way transfer of processed information makes real-time online tracking and database accessing a possibility.

2) Project Management/ Development

The complex coordination needs of large projects are now being met by a new generation of web sites that combine virtual community creation, online collaboration and support services to create an environment in which the entire process from the design stage to the construction process is streamlined. These web sites bring together architects, engineers, developers and others through proprietary windows in order to facilitate quick changes in blueprints, fine-tuning of work in progress, and resolving supply bottlenecks. Some developers, construction firms and contractors have their own specific, project-linked Intranets to manage their supply-chain issues.

New web sites have emerged that offer a one-stop, full-service center for all the communications needs of offices and businesses, including voice, data, video, fax and the Internet. These communication and computation providers eliminate the multiplicity of vendors specializing in different modes of communication and help simplify the non-core activities of businesses. For new projects, a number of developers have started incorporating broadband communications needs of businesses as an integrated utilities package.

For public development and real estate management companies, the Web is also a vehicle for communicating with current and potential investors. REITs may provide their Annual Reports on the Web, and other summaries of their investment activity.

3) Relocation Services

The US has an extraordinarily high internal mobility, with more than 20 million people moving each year. A number of Internet based relocation services firms have appeared offering complete relocation packages (packing, shipping, trucking etc.), with links to moving companies, listings for the destination point, short-term rentals, and other relevant information about the destination-city. Some sites also come with a range of excellent tips and checklists, both a "before move" and "after move" versions. For corporate customers there are modules for cost comparisons, as well as absorption, vacancy rates, and office, retail or industrial spaces available.

4) Real Estate Finance

The premium on rapid dissemination of quality information has made finance a very fecund field for Internet usage. The range of real

estate related web sites extends from online mortgage firms to those reporting CMBS spreads. Online mortgage firms provide a cost-less entry point in the arcane search for information on mortgages, rates and fees. Closing is still a traditional transaction but thousands have started using the Internet to "originate" their mortgages. The CMBS related sites offer data and information on ratings, duration, spreads and upcoming offerings.

Project and development finance, as well as investment financing needs are being served by a host of web sites that are creating virtual loan and financing markets in cyberspace by bringing developers, brokers, investors and lenders together. Developers and sellers of projects and properties make their presentations and solicit offers on these web sites. The sites involve variations on interactive meetings facilitating free flow of information, and in some cases incorporate due diligence filtering procedures.

5) Listing/Matching Services

Sophisticated listing and buyer matching services, particularly in the commercial sector are now complementing simple listing web sites. Registered members at some of these sites can execute buyer-matching exercises and generate lists of buyers to which they can submit their proprietary listings. Another version of listing/matching services is being offered by those web sites that cater to new homebuyers and builders. By creating a forum for both parties, the site mediates specific requirements, price ranges and locations.

6) Wiring and Information Services for Commercial Buildings

The owners of commercial buildings traditionally have not participated in a significant way in

the wiring of their building or in the provision of information services. Instead, individual clients contracted directly with third-party providers, and the building owner simply provided a free easement for the wiring requirements. This is rapidly changing, with many building owners now providing both the wiring and the information services directly as part of an integrated utilities package.

All of these Web experiments show both the potential of the medium and the types of complications described for the brokerage activities. The Web is an important enhancement for established companies and for established networks between companies, but reaching new customers with new products remains a challenge.

Implications of the Internet for Real Estate Firms and Demand for Real Estate

The Internet has brought change to the real estate sector as it has to many other industries. For real estate firms, the changes are in both

early stages, and it is uncertain how large the transformation will be. Several of the key issues are:

1) *Disintermediation and Reintermediation*: One of the key features of the Internet is that it brings buyers and sellers closer together by rapidly lowering transactions costs through efficient transmission of information. Any technology that does that is theoretically a threat to the middlemen, the brokers and the intermediaries. Since the real estate industry has significant numbers of middlemen, the possibility of disintermediation has loomed

. However, some of the existing intermediaries have made use of Web-based information to strengthen the service they offer. In addition, the extensive spillover effects of the new technology have created opportunities for new kinds of intermediation through development of new combinations of transactions, new channels of distribution, and specialized niches. For example, some brokers have gone beyond simple listings and diversified their web sites into home purchase portals that use the buying of a house as an anchor to lead consumers into other transactions. Within a year of buying a house people tend to spend substantial amounts on appliances, remodeling and furniture. By embracing a wider range of services, these web sites have redefined themselves as new kind of intermediaries.

2) *Changing Organizational Structure:* The Internet is encouraging real estate firms to change their structure in several ways. Generally speaking, long-established firms may begin their Internet activities seeking the benefits of lower costs, while e-commerce startups are seeking new revenue sources. Even Web experiments that begin for cost-related reasons may bring other organizational changes to the firm. First, the Web makes it much easier for firms to create linkages to related activities. Thus, a real estate broker may create a regular link with a mortgage broker, and a builder may create links with broadband network providers. Second, it has provided the opportunity for firms to create new products or services. They may begin use of the Internet as a cost-driven activity, but move from it to a revenue-based model, where new sources of income are generated. This may happen with new firms (for example a relocation company with

links to real estate information) or from existing firms adding new products or services (the office developer who provides information services to his tenants). Third, it is forcing firms to change the way that they provide existing services. This is particularly apparent in brokerage settings, where firms that do not develop some type of Internet-based service are likely to lose market share, while those expanding their Web presence are likely to expand their roles as intermediaries.

3) *Demand for Office Space:* A great deal of speculation has occurred about the effects of telecommunications through the Internet on the demand for office space. Concepts such as hotelling have allowed some types of businesses to greatly reduce their need for office space. However, to date, the net effect of these changes have been small on total demand for office space. Technological advances, however, may well be a factor in the shifting balance between downtown and suburban office space. Suburban locations have become a more viable option for many types of office-based activities, and the differential between downtown and suburban rents and vacancies has shrunk or even reversed in some markets. Not to be overlooked is the most direct effect of Internet and Web growth on office space demand - through the growth of companies creating and servicing the Web. San Francisco, for example, is facing the tightest office market in 20 years, generated by a growing demand by multimedia and dot com firms for space near downtown.

4) *E-Commerce and Retail Store Real Estate:* Retail real estate is at first glance one of the most vulnerable sectors to the growth of e-commerce. Yet the effects are much

more complex than a simple shift of sales from store to Web. The most immediate impact of e-commerce may be on catalog divisions, rather than on retail stores, with little net effect on the demand for space. For retail stores, there is often a complementarity rather than a loss/gain situation between Web sales and store sales. Retail Web sites can provide information on the nearest store locations, while some retailers offer Web access from their stores, allowing customers easy access to alternative products not in stock at the store location. Retail sectors that are facing heavy competition from e-commerce (books, for example) are rapidly expanding their Web sales as well, while maintaining a store presence. In contrast, Web start-ups, over time, are finding the need for "bricks" as well as "clicks," and are adding operations in either retail locations or warehouse space.

5) *E-Commerce, Technological Change, and Warehouse Space:* Because all goods take up space and most goods go through intermediate locations in the process of shipping from factory to final consumer, expansion of e-commerce could increase the demand for warehouse space. If e-commerce increases net demand, then warehouse space is likely to increase. If it shifts demand from retail stores to the Web, the effect again would be an increase in demand for warehouse space. Apart from increases in demand, e-commerce in combination with other computer advances is changing some characteristics of warehouse space, with a shift from space designed for storage and inventory control, to space focused on the pass through of goods in transit to other locations, often within a few hours.

6) *The Potential for a Shakeout:* The net effects of growth in e-

commerce and in Internet companies has been an increase in the demand for space, most strongly in office and warehouse sectors but also, through wealth increases, in the residential sector, and through business activity in the hotel sectors. It is quite possible that in a number of locations the boom in demand is temporary, and new investments are overshooting the mark for long term demand growth. Areas that have been beneficiaries of venture

investment and "new economy" growth may also be particularly vulnerable to drops in demand as some Internet start-ups and e-commerce ventures fail.

The market real estate firms face as a result of the Internet and e-commerce is one defined by business start-ups and innovations, whose early stages are often defined by rapid growth. Over the next few years, the one certainty is that there

will continue to be many additional changes. Some of the firms in their early stages of growth will mature with a more established, slower growing presence. Others will face adjustments ranging from cut-backs in activity to failures. Real estate firms face the challenge of incorporating the technological changes into their own business practices while responding with caution to the rapidly changing demands from other sectors.

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