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# YOU SAY YOU WANT A REVOLUTION? TECHNOLOGY TURNS OUT TO BE A PLUS FOR REAL ESTATE DEMAND

by Hugh F. Kelly, CRE

On June 30, 1975, *Business Week* magazine featured an article on "The office of the future." Nearly a quarter of a century ago, futurists were confidently predicting that word processing systems would move document creation and handling into electronic formats so exclusively that corporations could anticipate the advent of the "paperless office."

In 1997, American manufacturers shipped 12 million computer printers from their U.S. plants for domestic consumption and for export markets. Offshore manufacturers, that same year, shipped 17.2 million printers to U.S. business and personal computer users, according to the Census Bureau's Current Industrial Reports. The 29 million unit total for 1997 was up 16.8 percent from the shipment figures tallied in 1993.

The American Forest & Paper Association, a paper producers' trade group, estimates that printer and copy paper usage has increased by 30 percent during the 90s. The *Wall Street Journal* has reported that as companies adopt e-mail, paper usage jumps by 40 percent. It is a worldwide phenomenon. Japan's paper consumption increased from 28 thousand metric tons in 1990 to 33 thousand metric tons in 1998. Western Europe's demand for paper is growing at about three percent annually, Latin America at 3.3 percent, and Eastern Europe at more than five percent. In the United States, paper output from computers, scanners, copiers, and multifunction devices was estimated at 4.6 million tons in 1998, up 198,000 tons in just two years, according to analysts at CAP Ventures, a firm specializing in strategies for document management and related industries.

Rather than triggering a shrinkage in office paper, the unquestionable advances in office technologies since 1975 created a complementary

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explosion in the volume of documents we need to read, assimilate, circulate, and store – in the old, familiar “letter size or legal size; portrait or landscape” formats. Whole forests have given their lives in the process.

The startling saga of the paperless office is just one example of how difficult it is to predict the path of technological change and its effect on business behavior. Many prognosticators, surveying the potential effects of emerging technologies on the real estate industry, posited a real reduction in demand for property. Telecommuting, internet shopping, teleconferencing, and other behavioral shifts were anticipated to mark a day in which cyberspace replaced physical space as the locus of business. As far as real estate is concerned, the evidence thus far indicates that complementarity rather than substitution is the operative principle governing the technology revolution.

### THE HOME-WORKING MOVEMENT

Take the “work-at-home” movement, for example. Widely publicized studies by market research companies specializing in the information/communications industry, such as IDC/LINK, estimate the number of home offices at about 35 million, and growing at a rate of about 8,000 per day. Pretty impressive numbers. In fact, they are rather startling when put into the context of the real estate industry as a whole and even when measured against the entire U.S. economy.

Let us consider the gross assumption of one worker per home office and estimate how much demand has purportedly been shifted away from conventional space. Using a crude rule of thumb of 200 square feet per worker, those 35 million home-based office workers would need seven billion square feet of suburban or downtown office space. This compares to a total inventory of office space in the United States of 3.5 billion square feet, according to the 1999 edition of *Comparative Statistics*, (the annual compendium of market data assembled by the Society of Industrial and Office Realtors and Landauer Associates). This survey covers about 130 metropolitan office markets across the U.S. The work-at-home numbers are, to use the statistician’s euphemism, “not intuitively correct.”

IDC/LINK’s reports do recognize that most of the “home offices” are supplements used by folks extending the workday or workweek by bringing files home from conventional office space. Or they are the domains of self-employed workers, either

generating income on a part-time basis or keeping administrative records for field jobs such as sales or services which are not conventional office occupations to begin with. A study published by the Department of Labor in March 1998 indicates that more than half of those “working at home” in 1997 were not paid expressly for doing so, and that no more than 3.6 million were telecommuters who were paid for the hours worked at home.

The estimate that 8,000 workers join the home-working movement each day comes from the American Home Business Association, and roughly gibes with IDC/LINK growth rate for all home offices, (i.e., the 35 million worker figure). The AHBA growth figure translates into 2,920,000 new “home workers” annually. The average growth rate for all civilian employment in the United States since 1988 has been 1,624,000 jobs per year. The total civilian labor force in the nation is now 138 million. If the 35 million worker figure were accurate, that would imply that 25 percent of all jobs were being performed out of the home. These figures surely look plausible neither to economists nor to those still routinely commuting to jobs by overcrowded mass transit or freeways.

By contrast, real estate industry figures (not often regarded as paragons of statistical purity) have considerably greater credibility. The annual *Comparative Statistics* volume tallies total absorption of 422 million square feet in the six year period 1992 – 1998, a take-up rate of 12.1 percent of total inventory. During this period, office vacancies declined from 18.6 percent to 8.8 percent. Construction during the period accounts for the difference between the net absorption rate and the lesser decline in percent age vacancy. The annual average absorption, as a percent of total office inventory, was 2.1 percent for the six-year interval, closely matched with the 1.8 percent growth rate for non-agricultural wage and salary employment over the period.

It is often an excellent idea to cross-check published reports of technology trends against established statistical standards. On July 31, 1998, the *New York Times* ran a story about the explosive growth of Internet shopping. The picture is indeed dramatic, with the estimated sales of goods over the Internet increasing about fifty-fold from 1996 (\$707 million) to 2002 (a projected \$37 billion).

But, to those accustomed to monitoring retail sales figures, the *Times* article (and the Jupiter Communications, Inc., study it cited for its estimates and

projections) is all about context – context which was never provided to the readers. Personal consumption expenditures in the U.S. exceed \$5 trillion per year. Sales of goods are less than half the total, though, at approximately \$2.4 trillion. Nevertheless, Internet sales in 1998 were not even one-half of one percent of all goods. It always pays to keep in mind some basic rules. One of these is enunciated in Edward R. Tufte's masterly study, *The Visual Display of Quantitative Information*: "To be truthful and revealing, data graphics must bear on the question at the heart of quantitative thinking: 'Compared to what?' . . . Graphics often lie by omission, leaving out data sufficient for comparison."

### **INTERNET RETAIL vs. THE "SHOPPING EXPERIENCE"**

So, what about that huge growth rate? Even with the Internet commerce growing fifty-fold between 1996 and 2002, that is just \$36 billion in added spending in this sector (notice how cavalierly economists can apply the word "just" to the number "\$36 billion"). Suppose total goods expenditures increase at a modest three percent overall (unadjusted for inflation). That equates to a spending rise of \$450 billion over the period – meaning that sales in traditional venues will grow by \$414 billion (\$450 billion minus \$36 billion), or 11 and one-half times the amount of Internet sales growth. Even at its eye-catching growth rate, Internet sales in 2002 would still be just 0.8 percent of all retail sale of goods. These are hardly numbers to leave mall managers and retail property investors quaking in their boots.

Of course, that little subtraction embedded in the previous paragraph should not be simply taken for granted. The minus sign might seem to indicate that Internet sales are "taking away" sales from traditional shopping venues. But that is not necessarily the case, as economists who study the multiplier factors in input/output tables know. Those Internet sales should, in fact, be producing some "induced demand" in stores. How? Well, where are all the computers and peripherals necessary for the new cyberstore going to be bought? It is a good bet that most consumers will be traipsing down to CompUSA, Circuit City, or The Wiz to buy their hardware. Just look at your local Main Street or suburban mall, and count the outlets that are selling technology. That is part of the context of the skyrocketing E-Commerce chart.

### **TECHNOLOGY & THE ENTERTAINMENT INDUSTRY**

The cascade of effects, often unanticipated, is the

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place where many writers about technology change go astray. Frequently, the analysis is simply a one-dimensional and unidirectional estimate of the relationship between a technology producer and the end-users. There is no sense of the logistics of production and distribution functions in the creation of the products and in getting them to the markets. An excellent case in point involves the entertainment industry. With the advent of home video players, many thought that "The Last Picture Show" was going to capture the state of the movie industry at the end of the twentieth century.

Look what has happened. Certainly, the proliferation of retail outlets for the videos has created a whole new tenant category in the retail arena, from main street outlets to national chains like Blockbuster Video. Some facilities are large enough to use "big box" space. But it turns out that the marketing function for the videos depends heavily upon release for theatre distribution, so that the very function that was supposed to become obsolete was in more demand than ever before. This has created ever-increasing requirements for multiplex theatres, and has transformed many malls by creating an ever-larger "entertainment" component to the retailing experience.

Here are some of the numbers depicting the interaction between the home-based and theater-based entertainment since 1980. In that year, there were 1,850,000 households with video cassette players, or 2.4 percent of all households with televisions. Three million pre-recorded video cassettes were sold to U.S. dealers that year. By 1997, there were 80,360,000 VCR households in the U.S., an 82 percent penetration of the market. The number of pre-recorded cassettes sold to dealers across the country had soared to 673.5 million. So the growth of the home entertainment video industry in the 80s and 90s has measured in the thousands of percent, a rate that even the Internet can be envious of.

And what are the figures for cinemas over the same time span? Not as impressive in percentage terms,

but positive to be sure. Box office gross receipts were up 131.6 percent between 1980 and 1997, from \$2.75 billion to \$6.37 billion. Individual admissions were up 35.8 percent, from 1.022 billion in 1980 to 1.388 billion in 1997, an indication that exposure to movies on video stimulated, rather than suppressed, movie-going by consumers. And, critically from the real estate standpoint, the total number of indoor movie screens jumped 119.7 percent over the period, from 14,029 to 30,825. The growth of multiplex cinemas has not only transformed the movie-going experience, it has brought huge synergies to suburban malls and vitalized the nightlife of downtowns as well. The only losers, it appears, have been that icon of America, the drive-in movie. Drive-ins have dwindled from 3,561 screens in 1980 to just 815 in 1997.

Keepers of statistics often struggle to keep up with economic change. The U.S. Department of Commerce recognized during the 80s that the Standard Industrial Classification (SIC) system required some adjustment to capture the introduction of new technologies into the workforce. The spectacular growth of the video industry and its connection to the more traditional motion picture business was one such change. Unfortunately, one of the effects of the new (1987) SIC categories was to render comparison with pre-1987 data difficult.

Nevertheless, the employment effects of the technology explosion in the entertainment field are evident – and no less dramatic – when examined over a shorter span of history. Between 1990 and 1998, job growth in movie theaters (SIC 783) has measured 18.2 percent, or 22,300 new positions. But the more striking growth has been in the movie production side of the industry, up 75,900 jobs since 1990; a 49.7 percent increase in less than a decade. Overall, the industry (including its video production and distribution components) has expanded 36.9 percent, or 151,500 jobs, since the beginning of this decade.

The real estate industry has benefited from the technologically-enhanced growth in the entertainment business. In New York City, Manhattan's West Side agglomeration includes such giants as the News Corporation and Fox Broadcasting, NBC's Rockefeller Center complex, CBS's "Black Rock" headquarters, and ABC/Disney's Lincoln Center Production complex. In Brooklyn and Queens as well, historic studio space has been put back into production. Los Angeles, meanwhile, has seen submarkets like Century City and Burbank lead the

way in its real estate recovery during the 90s, while expanding to new areas like Playa Vista for state-of-the-art production space. The ramifying effects extend across a whole range of businesses, from law to catering, all of which are real estate space users.

## CONCLUSION

Additional and equally compelling evidence can be adduced from the industrial sector of the economy where, after all, the technology is researched and manufactured. But this would require at least as much discussion as this article has already developed.

Suffice it to say that technology has proven to be an ally, not an enemy, to the real estate industry during the course of the 90s. Like the U.S. economy itself, commercial property has proven to be remarkably adaptable to change and ready to accept the challenge of technology. But more fundamentally, it appears that there is a growth imperative in technology itself. As innovation arises, applications seem to branch out. If the 90s have been a decade of productive technological change, so too have they proven a period when renewed productivity growth has gone hand in hand with robust job creation. Together these have produced extraordinary levels of net absorption in commercial real estate of all kinds.<sup>REI</sup>

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