

# How the Information Revolution Is Shaping Our Communities

by Pamela Blais

In the last two decades edge cities have emerged, city centers struggled, and many mid-size metro areas boomed. Recently, work has begun moving back to the home (reversing a 200 year trend), while an increasing number of office buildings are being converted to residential use.

These are just some of the shifting patterns linked to the information revolution — a term that refers not only to computer and telecommunications technology, but to the role of information itself, and the accompanying transformations in the public, corporate, and personal worlds that the information and the technology are bringing about.

The information revolution has far-reaching impacts that we are only beginning to understand, affecting local economies, central cities, suburbs and towns, travel patterns, and floorspace requirements. Much of the emphasis so far in the planning field has been on the relocation of work from office to home. But this is just one small part of a complex, multi-layered transformation.

The information revolution is having a profound impact on the kind of economic activity taking place in North America, how it is organized, where it is located, and the kinds of jobs it generates. It is also redefining how that economic activity translates into the demand for development, floorspace, and buildings.

## RESTRUCTURING INDUSTRIES, REORGANIZING COMPANIES

The dynamics and impacts of the information revolution vary from industry to industry. The globalization of the economy and competition — enabled in large part by information technology (“IT”) — have brought about large-scale changes in the industrial makeup of all of the advanced industrial nations. We have witnessed the

explosion of some industries (such as computers, communications, software, and financial services) by enabling new products, services, and efficiencies, while other industries have stalled or contracted.

IN THE INFORMATION SOCIETY, A SMALLER PROPORTION OF JOBS WILL BE ACCOMMODATED IN TRADITIONAL WORKSPACES SUCH AS DOWNTOWN OFFICES OR SUBURBAN BUSINESS PARKS.

However, to get a more accurate picture, we need to also look at what is going on within a given industry as a result of the information revolution. Even in growth industries, some functions are declining; while in declining industries, some functions are growing. For example, design functions in a traditional industry like clothing may still be performed domestically, while the manufacturing takes place offshore (i.e., outside North America).

Generally speaking, the economic well-being of the advanced industrial nations relies on a continual evolution toward value-added, high-productivity, innovation- and knowledge-rich activities. These are the kinds of activities that will also expand in the information economy: design, research and development, high-level management — activities with high creative or intellectual content. On the other hand, IT leads to the automation of routine activities in both manufacturing and the service sector, such as forms processing or data entry. For example, electronic scanners are superior at many data entry functions, while automatic

teller machines are replacing human bank tellers.

The degree to which a particular activity is routine or standardized (and therefore subject to automation and/or relocation to lower-cost locations) is a key clue to the potential impacts of the information revolution.

IT has presented an unprecedented range of organizational options for companies and institutions by enhancing communications linkages through computer networks, phone, fax, modem, video conferencing, or e-mail. This allows different types of functions within a company to be optimally located in different settings: towns, cities, regions, or countries, depending upon the requirements of the activity.

The classic example of this is the relocation of back office functions out of high-cost urban centers to suburban locations or, more recently, to smaller towns or off-shore locations. In larger companies, routine administrative functions may be centralized in one location, manufacturing moved off-shore, R&D performed in campus-like suburbs, and sales offices provided in each market area.

A similar distribution of activities can also occur between autonomous companies linked together by outsourcing (i.e., the practice of acquiring goods and services from outside, specialist firms, rather than providing them internally) and strategic alliances—trends enabled by reliable telecommunications linkages between companies and their supplier networks.

Ownership structures also play a role here. Smaller, independently-owned, single-establishment firms are more likely to be tied to a given community. As national and international companies take over various industries, we can expect to see a geographic redistribution of functions over a wider area — regionally, nationally, or even on a global scale.

## INFORMATION TECHNOLOGY AND JOBS

As IT is transforming the economic landscape, the type of jobs available is correspondingly changing. Some have suggested that we are moving toward a jobless economy. While this is likely a long way off, it is clear that IT is causing a major shift in the job market. In recent decades, the relative growth of managerial and professional occupations — which in the U.S. grew from 22 percent of total employment in 1972 to 30 percent in 1994 — and the relative decline of clerical occupations has signaled an occupational restructuring.

Many analysts have noted that information technology is resulting in a more polarized occupational structure, consisting of highly skilled, well-paying jobs at one end and lower skilled, low-wage “McJobs” at the other — and fewer jobs in between. The implications for residential areas and housing preferences are particularly important. For example, what will become of the conventional, low-density residential suburb, a creation of the burgeoning post-World War II middle class?

The occupational profiles of individual communities are being transformed as well. Those with high concentrations of routine functions may be vulnerable to job losses, while those with creative or non-standardizable activities are more likely subject to growth. Moreover, as multi-locational organizations expand and seek out the best locations for individual functions, communities may become less occupationally and socially diverse, attracting a narrower band of occupations.

### WORKSPACE CHANGES

Jobs generate demand for floor space and buildings. To the extent that jobs are displaced or created within an individual community as a result of the information revolution, there will be direct implications for the amount and kind of space required.

However, jobs are not translating directly into demand for commercial space the way they once did. To the prospect of the jobless economy, we can add the phenomenon of the space-less job. In the information society, a smaller proportion of jobs will be accommodated in traditional workspaces such as downtown offices or

suburban business parks.

A new range of IT-based strategies and options is becoming available to employers to lower costs, increase productivity, and serve customers better. Companies such as Ernst & Young and IBM have reevaluated their office space plans and introduced smaller, more efficient workspaces, particularly in high cost locations. This sometimes involves “hotelling,” in which workspaces are shared by employees who must book them in advance, like a hotel. Some jobs in some industries can be best done out of a mobile office (also known as a car), through the use of cellular communications and portable computing.

A growing number of companies and agencies are setting up remote satellite offices or neighborhood telecenters, providing computing and telecommunications connections from a location close to where workers live. Telecenters enable employees to reduce their commute-to-work distance, while avoiding the isolation of home-based work. Some telecenters are set up to serve a number of different companies.

Another important change enabled by information technology is “just-in-time delivery,” an inventory management technique. Just-in-time delivery requires reliable, on-time delivery of inputs on an as-needed basis. With reduced inventory, companies can reduce their storage space requirements. Just-in-time is spreading from manufacturing to distribution to retail, even to hospitals and other institutions, suggesting a reduced need for bricks and mortar in carrying out these activities.

Last, but not least, we get to the issue where most planners start: teleworking. “Teleworking” simply means conducting work — be it during the workday, after hours, or on an occasional basis — from a remote location (like a home office) using telecommunications technology. Telework includes “telecommuting,” which generally signifies a more formal arrangement under a company-organized program, in which an employee does some work at home instead of at a traditional office. Teleworking also includes the rising tide of self-employed workers and those operating other home-based businesses. Estimates suggest that in 1995 about 46 million Americans conducted some work at home, either telecommut-

ing (8 million), self-employment (26 million), or “corporate after-hours” work (12 million).

All of these trends shift the demand for work space away from the traditional employment environments, reducing the demand for conventional, centralized workspaces, while increasing the need for flexibility in residential neighborhoods to accommodate home or neighborhood — based work.

### SUMMING UP:

The information revolution is probably the most important force shaping communities today. While some of the key forces behind the information revolution are universal, the impacts on any given community will be unique, depending on its individual makeup, economic structure, attributes, and responses.

Planners need to begin identifying the issues and impacts relevant to their communities. What kinds of industries, sectors, establishments, and jobs exist in the community now — and how are these likely to be affected by information technology? Are specific neighborhoods or areas at risk? How will projected office, manufacturing, and retail space requirements be affected by changing workspace needs and just-in-time delivery? What strategies should be applied to residential areas to address the growth in home offices? Perhaps most importantly, what attributes exist in the community that can be turned into opportunities and competitive advantage? ♦

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