COMMUNICATION INNOVATIONS, URBAN FORM AND TRAVEL DEMAND: SOME HYPOTHESES AND A BIBLIOGRAPHY

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ABSTRACT

Hypotheses are developed about the effects of telecommunication advances on urban growth patterns and urban travel demands. It is suggested that CBD (central business district) office employment might decentralize if telecommunications could effectively substitute for short inter-office business trips and that job decentralization would alter journey-to-work patterns and the viability of certain public transit systems. Major research questions are raised and keyed to an extensive bibliography.

Introduction

Advances in telecommunications have been so rapid, so powerful and so widespread that their impact on society has been called a revolution — the communications revolution. With CATV, picture-phone, rapid facsimile, and new data networks on the near horizon this revolution is sweeping in, inexorably, and with increasing power.

A question that has received much speculation and almost no substantive research is that of technology impact or technology assessment. What will be the effects of drastically reducing the cost and effort of communication on social processes, political processes, the conduct of business, the urban form, and on travel? One speculation found often in the literature is that radically improved communications may substitute for inter-office business trips and thus weaken the ties that bind office employment to the center cities. The general result would be a more dispersed urban form, perhaps in the pattern of Los Angeles but even less dense. It has also been suggested that people might work at home and telecommute to work from closed circuit TV consoles. The office might cease to exist except as a switchboard and electronic data bank tucked
away in any convenient location.

The implications of such a dispersal would be of the utmost importance to urban planners, transportation agencies, property owners, and the general public. The purpose of this report is to discuss some hypotheses on communications impact, outline the major research questions, and present a fairly extensive bibliography with the hope that it may stimulate others to conduct investigations in this important area.

Discussion

The concept of substituting communications for transportation is not a new one. Ever since man began using signal fires or writing letters communications have been substituted for travel. The telegraph and telephone have provided real-time communication and it is difficult to imagine how many trips they have saved. Nevertheless, it is almost impossible to imagine how any electronic communications channel could be substituted for many social or recreational trips or how it could be substituted for a patient's trip to the hospital. However, what we are concerned with here is the large number of business trips that are made in order to conduct face-to-face discussions and to work over various written or graphic material. These trips do not require any physical contact between participants. Both intuition and some actual experiments suggest that two-way television and facsimile should suffice in many cases. There is also the possibility that advanced audio conferencing might be quite effective and be far less expensive than two-way video. The question is not whether teleconferencing is better than face-to-face, but rather whether its advantages outweigh its disadvantages. For example, teleconferences eliminate travel time and expense, allow faster information turnaround and decision making, more short unscheduled meetings, more locational freedom, and probably use less material and energy resources.

Therefore, what appears to be emerging is a competition between communications and transportation facilities for servicing the large number of contacts that now require travel but which might possibly be made electronically. Planners are interested in the modal split between travel and teleconferencing, in other words the relative percentage of all contacts that use each mode. They are interested in forecasting the shift of this modal split over the next twenty years. Certainly any improvements in transport will tend to increase its share; however, it appears that communication services can be extended and improved more readily than can transport services since communications facilities have low visibility and are largely controlled by private firms whereas transport facilities are