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Journal Article

'Teleworking and the City: Myths of Workplace Transcendence and Travel Reduction'

from *Cities in the Telecommunications Age* (2000)

Andrew Gillespie and Ranald Richardson

Editor's Introduction

Our fourth cybercity economy reading examines the changing work practices which surround teleworking, mobile working and remote working. Our interest, in particular, is centred on the complex relationships between ICT-mediated work, physical travel and the city. The authors of this extract are Andrew Gillespie and Ranald Richardson, both of whom are geographers at Newcastle University's Centre for Urban and Regional Development Studies in the UK (a major centre in the analysis of communications geography over the past twenty-five or so years).

Drawing on extensive empirical work on these relationships, Gillespie and Richardson examine whether or not the relationships between teleworking, physical commuting and the city are characterised by broad substitution tendencies (with ICT-mediation being used to reduce physical trips). They argue that, despite long-standing assumptions that people will increasingly work from isolated 'electronic cottages', true electronic home working is actually likely to occur on only a limited scale. This is because most workers will still need to physically travel to work for part of the working week. Thus, the vast majority of people remain tied to locating their homes within easy reach of urban regions so that they can physically commute to work within a reasonable time and cost.

Gillespie and Richardson next examine the phenomenon of mobile teleworking through which workers operate on the move to service an extended geography of clients, while keeping in touch through ICTs. With the growth of 'hot desking' firms in some sectors are attempting to reduce the fixed costs of maintaining offices for every staff member whilst using mobile ICTs to support nomadic working practices. This can reduce the amount of travelling done by workers. However, as service personnel may spend more time with clients, actual distance travelled by nomadic workers may also increase.

The third type of teleworking involves group or team teleworking. This involves cross-organisational teams working together on tasks through ICTs. Whilst research on the travel and urban impacts here is very limited, Gillespie and Richardson suggest that, because such practices involve extending ICT-based contacts with wider and wider groups of personnel, efforts to back these up with physical trips and face to face meetings may actually lead to greater physical, as well as virtual, mobilities.

Gillespie and Richardson's final category involves the use of ICTs to support remote offices (also called back offices or call centres). These deliver mass services to more or less distant markets. A rapidly growing phenomenon – as firms restructure face-to-face service outlets distributed across geographic space – and replace them with

large, centralised call centres in low-cost locations, these offices are probably the most important, but also the most neglected, form of telework. Their urban and travel implications are ambivalent. As Gillespie and Richardson argue, the restructuring which leads to the establishment of call centres often involves the geographical decentralisation of administration centres from high-cost global and second tier cities to low-cost, peripheral urban regions (see Ewart Skinner, p. 218). It can also involve the replacement of small, customer-facing service outlets across cities and regions, and the commuting that made them function, with large scale call centre complexes, usually in new edge of city business parks of the old industrial or low-cost peripheral regions. The latter are usually almost completely reliant on car-based commuters because of their 24-hour shift patterns and locations away from good public transport facilities.

Gillespie and Richardson's work is notable for the way in which they analyse teleworking as a complex range of ICT-mediated practices, rather than just the substitution of traditional city commutes by homeworking (as is usually the case). As a result, their analysis suggests that the links between teleworking, physical transport and cities are far more complex and complementary than the usual perspective which simply emphasises teleworking as a simple threat to the traditional economic centrality of the corporate city core.

TELEWORKING AND THE NEED TO TRAVEL

Much of the rhetoric around teleworking, particularly in the United States, has concerned its potential to substitute for travel, specifically the journey to work. Although the implications for travel would therefore at first sight appear to be obvious, in reality the outcomes can be rather complicated. Mokhtarian (1990) reminds us that there are four possible interactions between telecommunications and travel:

- (i) substitution (i.e., telecommunications decreases travel);
- (ii) enhancement (i.e., telecommunications directly stimulates travel);
- (iii) operational efficiency (i.e., telecommunications improves travel by making the transportation system more efficient);
- (iv) indirect, long-term impacts (e.g., telecommunications may affect locational and land use decisions, thereby affecting travel).

Based on an extensive review of the literature, Graham and Marvin (1996, p. 269) conclude that:

the relationship between telecommunications and the urban environment is not as simple as the substitutionist perspective would imply. Instead, electronic and physical transformation proceed in parallel, producing complex and often contradictory effects on urban flows and spaces.

As a means of illustrating the validity of this conclusion, this essay will examine the travel implications of various types of teleworking, drawing upon a report undertaken for the U.K. Parliamentary Office of Science and Technology by the authors (Gillespie, Richardson, and Cornford, 1995) ...

Electronic homeworking

From the evidence reviewed, we can surmise that the growth of electronic homeworking (EHW) will be relatively modest, and that it will in the main be part-time in nature, perhaps being undertaken for a day or two a week (this is certainly the case in the United States). Its impact upon urban form and travel will be hardly revolutionary therefore, both because its incidence will be relatively limited and because most electronic homeworkers (except those who are self-employed) will still need to commute to their office for the majority of their working days.

Because of the latter feature, and because the incidence of electronic homeworking is higher in those professional occupations and service activities that are concentrated in cities, EHW in the United Kingdom is overrepresented in metropolitan regions, particularly London. Huws's (1993) survey of employers in the United Kingdom established that while London accounted for 16 percent of the country's total sample of employers, it accounted for 24 percent of employers with teleworkers. Although we do not yet have access to data on the residential location of

teleworkers, we can assume that they are geographically constrained by the need to travel to their employer's premises and, frequently, to the premises of clients as well, for home-based teleworkers working for a single employer spend on average a quarter of their time on the employer's premises and a further quarter elsewhere. Even freelance teleworkers, who might be assumed to have the greatest degree of locational freedom and who are most usually associated with rurally based lifestyles, are often constrained by the need to be close to clients, and survey evidence reveals that more than half of such teleworkers live in the centers or suburbs of cities

[. . .]

Mobile teleworking

Although there is agreement that nomadic or mobile teleworking is growing significantly, there are few reliable statistics on its incidence or rate of growth. Gray, Hodson, and Gordon (1993) estimate that there are more than 7 million nomadic desk jobs in the United States, and over 1.5 million in the United Kingdom, but the basis for their estimates is not stated. There has always been mobile work, of course, such as sales staff and field engineers; our interest is in the way some firms are starting to look strategically at how new technologies can be used to change working practices, with a view to reducing costs and improving customer service, and the locational and travel implications of such changes.

One example of a new working practice with potentially significant implications for the demand for office space, the location of office space, and the substitution/generation of travel is "hot-desking," introduced first in computer companies such as IBM and Digital, but now spreading more widely into firms with other mobile staff. In the case of IBM, the stimulus for hot-desking was cost competition, coupled with a recognition that the company was overprovided with expensive office space, given that many of the staff spent much of their working days out on the road or at customers' premises. The hot-desking scheme developed and introduced by IBM involved providing an average of one desk for two workers, with all of the desk space shared, and increasing the amount of space for meetings. The new working practices have proved successful in terms of productivity, generating the following changes in employee time use:

- travel time -13%
- time with customer + 36%
- time in office -23%
- total space saved -30%

A significant increase in nomadic working in conjunction with concepts such as hot-desking, if taken up widely, would have obvious implications for office space demand, with a significant reduction in the average space requirements of certain sectors. The increased emphasis on the mobility of the workforce is also likely to encourage firms to locate in out-of-town sites with easy access to the road network and with plentiful parking space rather than in city-center locations, thus reinforcing existing trends toward out-of-town developments.

To the authors' knowledge, no published studies have been carried out on the transport implications of this form of mobile teleworking, and there are a range of possible outcomes – some contradictory – if the practice continues to grow. Where workers have traditionally been mobile but are now being discouraged from traveling to their office base, the number of miles traveled per worker should fall, as in the IBM case reported above. However, as part of the rationale behind strategic changes in working practices such as hot-desking is to "get closer to the client," one would also expect that there would be more visits to each client than previously. If customers come to expect more site visits as a matter of course then more, rather than fewer, miles may be traveled. A further possibility is that if mobile working spreads to new areas of work, the overall travel could increase even though time traveled per worker falls (new groups of mobile workers could also have an impact on existing modal splits, with more workers having to take the car). Finally, new travel patterns may emerge as the classic commuting trip to the office declines and workers stay at home until it is time to visit the client. We can assume that these trips are likely to be less city-center-dominated than the classic commute trip, as well as being more car-dependent.

Group or team teleworking

Despite the existing technological limitations on the development of team teleworking, there can be little doubt that new forms of work organization are pulling in this direction. An increasing business focus on quality

and customer service, the need for flexibility to cope with turbulent markets, and an emphasis on innovation are leading to new structures within information-based organizations in which "task-focused teams," often crossing organizational boundaries, are becoming the new paradigm of work organization. Of course, not all teamworking involves spatially distributed teams, but multiple pressures are pushing in this direction. The process of globalization, the increasing need for organizations flexibly to combine and recombine their spatially dispersed specialized human resources, and the requirement to forge strategic alliances with other organizations possessing complementary assets are all leading to the construction of task-focused teams with geographically distributed participants.

As with the other forms of telework considered above, one might assume that team telework would cut down on demand for travel. As far as we are aware, however, no detailed studies have been carried out into this aspect of team telework, so we cannot make detailed comments on the travel patterns it generates. We would, however, make the following observations. Generally speaking, computer-supported team telework not only means more telemediated contact with groups across space; it also means telemediated contact with groups with whom contact has been limited or nonexistent, as firms or networks reorganize to take advantage of distributed resources (for example, skilled labor and laboratory facilities). These new contacts also generate new travel demands as groups find that technological and organizational capacity is not (for the moment, at least) sufficiently developed to take shared tasks from inception to fruition. So, for example, it is likely that distributed R&D teams will travel for face-to-face meetings across the world, whereas previously they may have worked only locally. Even for teams working within national boundaries, more travel can be generated by teamwork. In the case of IBM, for example, distributed teams focused on business sectors, so as to get "closer to the client," mean that teamworkers may be physically further away from both their clients and their fellow teamworkers. Despite the sophisticated supporting electronic networks, face-to-face meetings are still required, both with clients and with other team members, but now instead of popping next door to meet work colleagues, or traveling a few miles to meet clients, workers have to travel up and down the motorway on a regular basis.

We would therefore anticipate that team teleworking, in expanding the geographical spread of

participants in the virtual work activity space, is likely to lead to new demands for travel and to substantial increases in the distances over which business travel takes place.

Remote offices: the example of call-centers

The locational and travel implications of call-centers are particularly complex and interesting, due to two features; first, the work concerned frequently moves between cities as well as between different types of location within cities; and second, the travel implications extend beyond work travel to also encompass travel to consume.

In the case of telebanking in the United Kingdom, for example, there are two clear locational implications with respect to employment. First, the possibility of separating production and consumption is allowing the relocation of substantial parts of the production process to lower-cost parts of the country, with cities such as Leeds, Edinburgh, and Glasgow gaining appreciable numbers of telebanking jobs. To an extent, therefore, travel to work to a bank branch in say, London, or to a small town in the outer Southeast of England is being replaced by a journey to work to a call center in, say, Leeds (with an appreciable degree of job downsizing en route, due to the much higher levels of labor productivity associated with telemediated service delivery).

Second, "in contrast to most bank branches, nearly all telebanking operations are on business parks on the edge of cities, rather than in town or city centers. There is no need for an expensive city-centre location" (Marshall and Richardson, 1996, 1855). The two locational effects are usually compounded such that jobs are in effect moving from the center or suburban high street of one city to an out-of-town business park location in another city. The shift in the type of intraurban location is inducing a clear modal shift in that out-of-town call centers tend to have a much higher car mode share than the jobs they are replacing. The modal shift due to locational change is exacerbated by the greater incidence of shift-working in telebanking operations, militating against the use of public transport

[...]

CONCLUSION

What can we conclude about the implications of teleworking, broadly defined, for urban form and for travel patterns and travel behavior? First, it might be observed that it is remarkable that so much research effort has been expended on studying the locational and travel implications associated with a handful of electronic homeworkers, when so little has been expended on studying the locational and travel implications associated with a very much larger number of workers whose working practices are being radically changed by new ICTs [. . .]

Second, the notion that teleworking will lead to reduced travel, and hence to more environmentally sustainable cities, is, at the very least, open to question. Even with respect to EHW, where the most obvious potential for travel substitution is to be found, we have concluded that the most likely long-term effect in the United Kingdom is that the geographical extent of the London "daily urban system" will be expanded, and the nodality of the region in terms of travel patterns will be further reduced. When we consider the likely travel impacts of the growth of mobile working and of spatially dispersed teamworking, we are at once confounded by the almost complete absence of empirical research. However, both of these significant developments in working practices appear likely to expand the daily activity spaces of individual workers and to lead to significantly increased journey distances. It also seems likely that significant modal shifts in the direction of increased car dependency will be associated with these new ways of working. Finally, the location of teleservice employment in large call centers has, within the context of the particular planning regime in the United Kingdom over the last ten years, clearly been associated with a shift from city center and high-street locations to out-of-town/edge-of-town business park locations, and will have helped fuel the growth in car dependency in the journey to work.

The "reduced demand for travel" scenario, which is usually invoked with respect to teleworking may, then, be decidedly misleading in terms of its apparently positive contribution to building more sustainable cities. Not only are communications technologies expanding the "activity spaces" within which work takes place, leading to longer distances traveled, but in addition, journey patterns associated with new ways of working are becoming more diffuse and less nodal, and hence more difficult to accomplish by public

transport. This effect is exacerbated by companies adjusting their premises stock to accommodate more effectively new ways of working, leading to a reduction in demand for conventional city-center offices and an increase in demand for office space in office park environments with high levels of accessibility to the motorway system. At the same time, the substitution of telemediated for face-to-face banking and other services risks further undermining the role of city centers and high streets, as branch offices are closed and customers are served from large teleservice centers, themselves usually located on business parks. Far from contributing to more sustainable urban ways of life and travel behavior, therefore, teleworking and teleservices seem to be developing hand in hand with lower-density, less nodal urban forms and with travel behavior that is more car-dependent than before. Teleworking and tele-activities are, then, perhaps best understood not as developments that suppress the demand for mobility but, rather, as forms of what might best be described as "hypermobility."

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