

# telecommunications and the city

electronic spaces, urban places

Stephen Graham and Simon Marvin

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## TELECOMMUNICATIONS AND THE CITY

*Telecommunications and the City* provides the first critical and state-of-the-art review of the relations between telecommunications and all aspects of city development and management.

Drawing on a range of theoretical approaches and a wide body of recent research, the book addresses key academic and policy debates about technological change and the future of cities with a fresh perspective. Through this approach the complex and crucial transformations underway in cities in which telecommunications have central importance are mapped out and illustrated. Key areas where telecommunications impinge on the economic, social, physical, environmental and institutional development of cities are illustrated by using boxed extracts and a wide range of case study examples from Europe, Japan and North America.

Rejecting the extremes of optimism and pessimism in current hype about cities and telecommunications, *Telecommunications and the City* offers a sophisticated new perspective through which city—telecommunications relations can be understood. It will be of interest to students and researchers in urban studies, planning, urban geography, sociology, public administration, communications and technology studies.

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**STEPHEN GRAHAM and SIMON MARVIN**



**LONDON AND NEW YORK**

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First published 1996  
by Routledge  
11 New Fetter Lane, London EC4P 4EE

This edition published in the Taylor & Francis e-Library, 2004.

Simultaneously published in the USA and Canada  
by Routledge  
29 West 35th Street, New York, NY 10001

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*British Library Cataloguing in Publication Data*  
A catalogue record for this book is available from the British Library

*Library of Congress Cataloguing in Publication Data*  
A catalogue record for this book has been requested

ISBN 0-203-43045-X Master e-book ISBN

ISBN 0-203-73869-1 (Adobe eReader Format)  
ISBN 0-415-11902-2  
0-415-11903-0 (pbk)

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## PREFACE

This book explores the complex and poorly understood set of relationships between telecommunications and the development, planning and management of contemporary cities. It provides a new interdisciplinary and international perspective on how remarkable advances in telecommunications affect all aspects of urban development: social, economic, physical, environmental, geographical and governmental. This book represents the first attempt to provide such a broad and synoptic approach to fill the gap left by the long neglect of telecommunications in urban studies and policy-making.

Because of this neglect, the book's 'journey' through the most important types of city—telecommunications relations is analogous to an early expedition into largely uncharted territory. This journey is assisted only by a highly imperfect map; there are many gaps and areas of poorly understood territory. This is because the study of telecommunications in cities remains so immature, but it is also due to the extremely rapid rate of change in the subject. This book develops a new framework to analyse the diverse range of policy and research that is emerging on telecommunications and cities.

We aim to stimulate more sophisticated debate and research on city—telecommunications relationships. We also aim to assist teaching by providing a book that draws together a diverse and eclectic range of material which is presented in accessible form. However, we remain unable to provide answers to all questions about this embryonic subject; inevitably, this book raises as many questions as it answers.

This book was developed because of the problems we have experienced in developing a course on telecommunications and urban development for town planning students. We and our students have all been confused by the range, complexity and diversity of material on the subject. We have also been frustrated by the difficulties often involved in tracking down literature and obscure 'grey' material on the subject. We found that in the literature on the subject profound pessimism

coexists with Utopian optimism but there is very little actual empirical study of how telecommunications relate to cities. At the same time, however, we have been disappointed and surprised that no coherent book exists on the subject which brings the diffuse, specific and specialised material together to introduce how cities and telecommunications are related.

Hence we have written this book. In it we emphasise and illustrate the complex relationships which exist between telecommunications and cities by covering neglected subjects such as the urban environment, urban government and urban utilities as well as the more familiar ground of socioeconomic development, transport and urban form. We set out the debates between dystopian and Utopian theorists and establish a framework for considering the range of relationships between cities and telecommunications. We link these theories to debates about the social, economic, geographical, political and environmental development of contemporary cities, and bring out the technological dimensions of each. Finally, we consider questions of urban management, planning and policy integrally with our wider considerations of urban development and telecommunications.

The book will appeal to students of urban studies, local government studies, geography, planning and technology and communications studies who are interested in new technologies and the city. It will also interest urban policy-makers who are keen to inform themselves about state-of-the-art research and policy in this burgeoning and increasingly important area. The book has been designed to act as a set text for advanced specialised courses in telecommunications and cities. It is also suitable as a basis for exploring specific issues and topics, as each section includes a context-setting introduction and an up-to-date guide to further reading on each subject.

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## ACKNOWLEDGEMENTS

Many people have contributed to the development of this book. Within the University of Newcastle, we have received excellent support and encouragement from John Goddard, James Cornford, Allan Gillard, Patsy Healey and Simon Guy. The Department of Town and Country Planning, particularly John Benson, gave vital financial support to the writing of the book. Within the Department, colleagues in the Centre for Research in European Urban Environments and the Centre for Urban Technology have provided an exciting and stimulating work environment. Next door, the Centre for Urban and Regional Development Studies has provided a lively research environment, which has helped us enormously in the writing of this book. Helen Price in the Town Planning office provided superb secretarial support. Elsewhere in the University, we must thank the librarians in the interlibrary loans section at the Robinson Library and Mick Sharp in the Audio Visual unit for help with the diagrams.

A wide variety of reviewers have given invaluable advice at all stages of the preparation of the book—Peter Hall, Mike Batty, Dave Wield, Ian Miles, Mitchell Moss and Ralph Negrine. Many thanks for your time and useful suggestions. Obviously, we must take the responsibility for the book's contents. Third year students on our Telecommunications and the City option course also provided useful feedback on the material used in the book.

Thanks also to our Editor, Tristan Palmer, and his colleagues, Matthew Smith and Caroline Cautley, for their advice and support. On the copy-editing front, Penelope Allport had the patience of a saint in dealing with our references; Connie Tyler provided an excellent index.

Grateful thanks to Annette Kearney and Nicola Turner—writing this book consumed far too many evenings and weekends. Thanks for your tolerance and encouragement!

Thanks to the following for their generous permission to reprint material in the book from:



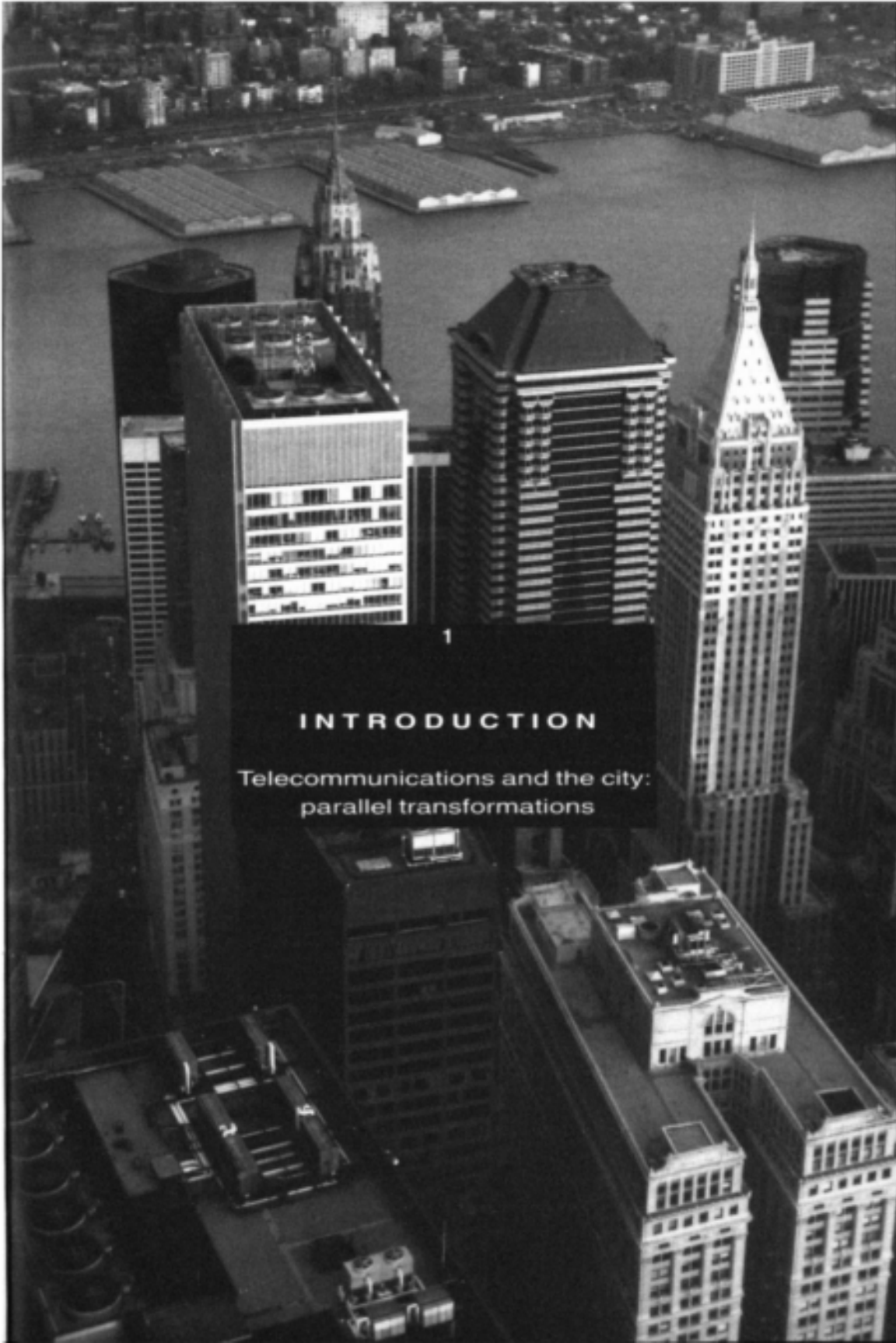
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- Box 3.4 'The politics of citizen access technology: the development of public information utilities in four cities', by K. Guthrie and W. Dutton, *Policy Studies Journal* (1992), vol. 20, no. 4, pp. 574–597.
- Box 4.1 'Telecommunications, world cities and urban policy', by M. Moss, *Urban Studies* (1987), vol. 24, pp. 534–546.
- Box 5.1 'The overexposed city', by Paul Virilio, *Zone* (1987), vol. 1, no. 2. Urzone Inc.
- Box 6.2 *The New Urban Infrastructure—Cities and Telecommunications*, J. Schmandt *et al.* (eds), pp. 107–110 *passim*. Praeger Publishers, an imprint of Greenwood Publishing Group, Inc., Westport, CT, 1990. Copyright © 1990 by the University of Texas at Austin. Abridged and reprinted with permission of Greenwood Publishing Group, Inc. All rights reserved.
- Box 6.3 'Using computers for the environment', by J. E. Young, in L. R. Brown *et al.* *State of the World 1994* (1994). Worldwatch Institute, Norton New York.
- Box 6.4 *An Enhanced Urban Air Quality Monitoring Network: A Feasibility Study*, by Environmental Resources Limited (February 1991). Department of the Environment, Air Quality Division.
- Box 7.1 'New information technology and utility management', *Cities and New Technologies* (February 1992), pp. 51–76. OECD, Paris.
- Box 7.2 *Information Horizons: The Long-Term Social Implications of New Information Technologies*, by I. Miles *et al.* (1988), pp. 119–121. Edward Elgar Publishing Ltd.
- Box 7.3 'Confusing signals on the road to nowhere', by J. Whitelegg, *The Times Higher Education Supplement* (19 November 1993), pp. x–xi.
- Box 7.4 'The intelligent city: utopia or tomorrow's reality?', by J. Laterrasse, in F. Rowe and P. Veltz (eds), *Telecom, Companies, Territories* (1992). Presses de L'ENCP.
- Box 8.1 'Foresight and hindsight: the case of the telephone', in I. de Sola Pool (ed.), *The Social Impact of the Telephone* (1977), pp. 140–145. MIT Press. © I. de Sola Pool 1977.

Box 8.2 'Transportation and telecommunications networks: planning urban infrastructure for the 21st century', by R.E.Schuler, *Urban Studies* (1992), vol. 29, no. 2.

Box 8.3 'Communications technologies and the future of the city', by A. Gillespie, in M.J.Breheny (ed.), *Sustainable Development and Urban Form* (1992), pp. 67-78. European Research in Regional Science v 2, Pion Limited, London.

*Stephen Graham and Simon Marvin*  
*Newcastle upon Tyne*  
*May 1995*





1

## INTRODUCTION

Telecommunications and the city:  
parallel transformations

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## TELECOMMUNICATIONS AND URBAN TRANSFORMATIONS

A rapid transformation is currently overtaking advanced industrial cities. As we approach the verge of a new millennium, old ideas and assumptions about the development, planning and management of the modern, industrial city seem less and less useful. Accepted notions about the nature of space, time, distance and the processes of urban life are similarly under question. The boundaries separating what is private and what is public within cities are shifting fast. Urban life seems more volatile and speeded up, more uncertain, more fragmented and more bewildering than at any time since the end of the last century.

Apparently central to this transformation, according to nearly all commentators, are remarkable leaps in the capability and significance of telecommunications. Much of contemporary urban change seems to involve, at least in part, the application of new telecommunications infrastructures and services to transcend spatial barriers instantaneously. Telecommunications—literally communications from afar—fundamentally adjust space and time barriers—the basic dimensions of human life (Abler, 1977). They connect widely separated points and places together with very little delay—that is, in ways that approach ‘real time’.

As telecommunications themselves become digital and based on microelectronics, they are merging with digital computer and media technologies. These are diffusing into a growing proportion of homes, institutions, workplaces, machines and infrastructures. The result of this merging is a process of technological convergence and a wide and fast-growing range of so-called ‘telematics’ networks and services. Following the French word *télématique*, coined in 1978 by Nora and Minc (1978), ‘telematics’ refers to services and

infrastructures which link computer and digital media equipment over telecommunications links. Telematics are providing the technological foundations for rapid innovation in computer networking and voice, data, image and video communications. It is increasingly obvious that telematics are being applied across all the social and economic sectors and functions that combine to make up contemporary cities. It is also clear that telematics operate at all geographical scales—from within single buildings to transglobal networks. As William Melody argues, ‘information gathering, processing, storage and transmission over efficient telecommunications networks is the foundation on which developed economies will close the twentieth century’ (Melody, 1986).

As part of this transformation, cities are being filled with what Judy Hillman calls ‘gigantic invisible cobwebs’ of optic fibre, copper cable, wireless, microwave and satellite communications networks (Hillman, 1991; 1). The corridors between cities, whether they be made up of land, ocean or space, are in turn developing to house giant lattices of advanced telecommunications links. These connect the urban hubs together into global electronic grids. Such grids now encircle the planet and provide the technological basis for the burgeoning flows of global telecommunications traffic: voice flows, faxes, data flows, image flows, TV and video signals. Instantaneous electronic flows now explode into the physical spaces of cities and buildings and seem to underpin and cross-cut all elements of urban life.

Clearly, then, contemporary cities are not just dense physical agglomerations of buildings, the crossroads of transportation networks, or the main centres of economic, social and cultural life. The roles of cities as electronic hubs for telecommunications and telematics networks also needs to be considered. Urban areas are the dominant centres of demand for telecommunications and the nerve centres of the electronic grids that radiate from them. In fact, there tends to be a strong and synergistic connection between cities and these new infrastructure networks. Cities—the great physical artefacts built up by industrial civilisation—are now the powerhouses of communications whose traffic floods across global telecommunications networks—the largest technological systems ever devised by humans.

Many have argued that these shifts are part of a wider technological and economic revolution which seems to be underway within advanced industrial societies and within which both the development of telecommunications and urban change hold central significance (see Miles and Robins, 1992). A wide and sometimes confusing range of analytical perspectives have developed that try to chart this transformation from an industrial, manufacturing dominated society to one dominated by information, communications, symbols and services.<sup>1</sup> Because western

societies are fundamentally urban societies—with between 60 and 90 per cent of their populations living in towns and cities—cities are at the front line of this revolution. Cities are the dominant population, communication, transaction and business concentrations of our society. This makes them the central arenas within which we would expect the effects of current telecommunications innovations to be felt. As we move towards an urban society based more and more on the rapid circulation of messages, signs and information via global electronic networks, it would therefore be hard to pinpoint a more important set of technology—society relations than those which link cities to telecommunications.

### **THE URBAN ‘IMPACTS’ OF TELECOMMUNICATIONS**

But what are the implications of these shifts? What becomes of cities in an era dominated by electronic flows and networks? What fate lies in store for our urban areas in the world where ‘virtual corporations’, ‘virtual communities’ and the abstract ‘electronic territory’ of ‘cyberspace’ are developing, based fundamentally on the use of telematics as space and time transcending technologies?

The growing use and significance of telecommunications throws up many profound and fundamental questions which go to the heart of current debates about cities and urban life both today and in the future. For example, how do cities and urban life interrelate with the proliferation of electronic networks in all walks of life and at all geographical scales? What happens to cities in the shift away from an economy based on the production and the circulation of material goods to one based more and more on the circulation and consumption of symbolic and ‘informational’ goods? (Lash and Urry, 1994). How are cities to sustain themselves economically given that more and more of their traditional economic advantages seem to be accessible, ‘on-line’, from virtually any location? Are cities being affected physically by advances in telecommunications as many claim they were in previous eras by the railway and the automobile? How does the movement from physical, local neighbourhoods to specialised social communities sustained over electronic networks—such as those on the Internet—affect the social life of cities? How are social power relations and the traditional social struggles within cities reflected in the new era of telecommunications? What is the relevance of telecommunications for burgeoning current debates about the ‘environmental sustainability’ of industrial

cities? And what do all these changes imply for the ways in which cities are planned, managed and governed?

Such questions have recently stimulated much speculation and debate about the future of cities and the role of advances in telecommunications in urban change. Many commentators excitedly predict very radical changes in the nature of the city and urban life as advanced telecommunications, telematics and computers weave into every corner of urban life and so 'impact' on cities. Arguments that this will mean the dissolution of the cities and the emergence of decentralised networks of small-scale communities or 'electronic cottages' are widespread. In fact they are so common that visions of the end of cities seem almost to have reached the status of accepted orthodoxy within some elements of the popular media. Here, speculations abound surrounding the apparently revolutionary importance of the 'communications revolution', the 'information age', the 'information superhighway', 'cyberspace' or the 'virtual community' for the future of cities.

Unfortunately, however, these debates tend to be heavily clouded by hype and half-truth. They have generated much more heat than light. Such debates often tend also to be extremely simplistic, relying on assumed and unjustified assumptions about how telecommunications impact on cities. Many accounts of city—telecommunications relations amount to little more than poorly informed technological forecasts. Often, these are aimed at attracting media attention or generating sales and glamour for technological equipment. As a result, remarkably little real progress has been made in debates about telecommunications and cities. Amidst all the general hype about telecommunications and cities, remarkably little real empirical analysis of city—telecommunications relations exists.

This leaves the terrain open to extremes of optimism and pessimism. On the one hand, utopianists and futurologists herald telecommunications as the quick-fix solution to the social, environmental or political ills of the industrial city and industrial society more widely. On the other, dystopians or anti-utopians paint portraits of an increasingly polarised and depressing urban era dominated by global corporations who shape telematics and the new urban forces in their own image. Meanwhile, the increasing importance of telecommunications in cities has stimulated urban policy-makers, managers and planners to begin to get involved in the development of telecommunications within their cities. But they, too, often remain confused about how their cities are really affected by developments in telecommunications. This, and the need to be seen to be successful means that they themselves can become prone to hyping up their urban telecommunications policies in the language of the quick technical fix.

The immaturity and neglect of urban telecommunications studies means that



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