

telecommunications and the city

electronic spaces, urban places

Stephen Graham and Simon Marvin

ROUTLEDGE

**Also available as a printed book
see title verso for ISBN details**

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.

Stephen Graham and **Simon Marvin** are both Lecturers at the Centre for Urban Technology, Department of Town and Country Planning, University of Newcastle. They can be contacted on e-mail (s.d.n.graham@ncl.ac.uk and s.j.marvin@ncl.ac.uk) or World Wide Web:<http://www.ncl.ac.uk:80/~ncut/>.

**TELECOMMUNICATIONS
AND THE CITY**

electronic spaces, urban places

STEPHEN GRAHAM and SIMON MARVIN



LONDON AND NEW YORK

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

© 1996 Stephen Graham and Simon Marvin

All rights reserved. No part of this book may be reprinted or reproduced or utilized in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

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)

CONTENTS

<i>List of plates</i>	viii
<i>List of figures</i>	ix
<i>List of boxes</i>	xii
<i>Preface</i>	xiii
<i>Acknowledgements</i>	xv

1 INTRODUCTION

Telecommunications and the city: parallel transformations	1
<i>Telecommunications and urban transformations</i>	2
<i>The urban 'impacts' of telecommunications</i>	4
<i>The neglect of telecommunications in urban studies</i>	6
<i>The need for more sophisticated approaches to city—telecommunications relations</i>	8
<i>The transformation of telecommunications: from the 'Plain Old Telephone Service' (POTS)</i> <i>to telematics</i>	11
<i>The transformation of cities: towards planetary urban networks</i>	33
<i>The structure of the book</i>	43

2 TELECOMMUNICATIONS AS A PARADIGM CHALLENGE FOR URBAN STUDIES AND POLICY

<i>Introduction</i>	48
<i>Telecommunications as a paradigm challenge</i>	49
<i>Ways forward: post-modernism, electronic spaces and the tele-mediated city</i>	64
<i>Towards new conceptions of the city</i>	71
<i>Conclusions</i>	75

3 APPROACHING TELECOMMUNICATIONS AND THE CITY

Competing perspectives	77
Introduction	78
Technological determinism	80
Futurism and utopianism	85
Dystopianism and political economy	94
The social construction of technology (SCOT) approach	104
A critical evaluation	110
Conclusions: towards an integrated approach to cities and telecommunications	112

4 URBAN ECONOMIES 123

Introduction	124
Urban economies as the information-switching centres of the global economy	125
The metropolitan dominance of telecommunications investment and use	129
Cities as nodes on corporate telematics networks	135
Telematics and urban concentration: the global command centres	138
Telematics and urban decentralisation: tele-mediated producer and consumer services	145
Teleshopping: the prospect for tele-mediated retailing	155
Manufacturing, innovation and new industrial spaces	157
Conclusions: an electronic requiem for urban economies?	162

5 THE SOCIAL AND CULTURAL LIFE OF THE CITY 171

Introduction	172
Post-modernism, telecommunications and urban culture	176
Social equity and polarisation	189
The home as a locus of urban social life	206
Social surveillance and the city	213
Cyberspace and the city: virtual urban communities and social interaction	228
Conclusions	234

6 URBAN ENVIRONMENTS 239

Introduction	240
Towards the dematerialisation of cities?	243
Complementary physical and electronic interactions	256
Electronic monitoring of the urban environment	269
Conclusions: blurring boundaries between physical and electronic cities	275

7 URBAN INFRASTRUCTURE AND TRANSPORTATION 277

Introduction	278
Urban infrastructure networks and telecommunications	280
The new urban infrastructure crisis	285
Telematics and the urban control revolution	288

CONTENTS / vii

<i>Towards the intelligent city?</i>	300
<i>Conclusion: cities shaping infrastructure networks</i>	308
8 URBAN PHYSICAL FORM	311
<i>Introduction</i>	312
<i>The development of the city and the telephone</i>	313
<i>Telecommunications and the contemporary city</i>	317
<i>Mapping city—telecommunications relations</i>	327
<i>Conclusions: what future for the city?</i>	333
9 URBAN PLANNING, POLICY AND GOVERNANCE	337
<i>Introduction: city policy-makers as ‘social shapers’ of telematics</i>	338
<i>Telematics policies for urban development and planning</i>	345
<i>Telematics and urban governance</i>	364
<i>Conclusions: telematics and new visions for urban policy and governance</i>	373
10 CONCLUSIONS	
<i>Telecommunications and urban futures</i>	375
<i>Introduction</i>	376
<i>A new type of urban world, not a post-urban world...</i>	377
<i>The city as an amalgam of urban places and electronic spaces</i>	379
<i>Overcoming the myths of determinism: contingency with bias</i>	381
<i>Telecommunications and urban futures</i>	384
<i>Guide to further reading</i>	385
<i>Bibliography</i>	392
<i>Index</i>	421

PLATES

- 1 An aerial view of the financial district in Manhattan, New York 1
- 2 Newcastle upon Tyne, UK, showing the city's main microwave telecommunications node for Mercury Communications on top of a central housing block 47
- 3 One of the closed-circuit television cameras which survey Newcastle upon Tyne city centre, UK 77
- 4 Office buildings with satellite facilities, Battery Park Manhattan, New York 123
- 5 The control room for the closed-circuit television surveillance system, Newcastle upon Tyne, UK 171
- 6 Laying optic fibres in Wall Street, New York 239
- 7 New tram system in Roubaix, France, with the Roubaix teleport behind 277
- 8 View across Manhattan towards New York's suburbs from the top of the World Trade Center 311
- 9 Poster advertising a United Nations conference on advanced telematics and urban infrastructures in Gifu, Japan, 1991 337
- 10 The central square in Lille, France, with telematics-based municipal information display behind 375

FIGURES

- 1.1 Metaphorical characterisations of the contemporary city 9
- 1.2 General characteristics of the transformation from the 'Plain Old Telephone Service' era (POTS) to the 'telematics era' 13
 - 1.3 Technological convergence and the development of telematics 15
 - 1.4 The expanding range of telecommunications services: prospects for the year 2000 16
 - 1.5 The expanding optic fibre network in Melbourne, Australia 19
 - 1.6 The number of voice paths across the Atlantic by satellite and transoceanic cable 20
 - 1.7 An example of the urban bias of market-led telecommunications development: the availability of GSM digital mobile telecommunications services in Europe, 1992 22
 - 1.8 The superimposition of different telecommunications infrastructures within a typical medium-sized western city 24
 - 1.9 The exponential growth of the Internet 1989–1994 26
 - 1.10 Equipment plugged into the world's telecommunications networks 1992–1997 (estimated) 28
 - 1.11 The plummeting cost of personal computers: the French case 1988–1993 29
 - 1.12 The plummeting costs of telecommunications services: the French example 29
 - 1.13 Industrial investment in the USA in telematics and other industrial machinery 34
 - 1.14 The global market for computing and communications services 1987–1991 35
 - 1.15 The structure of the book 44
 - 2.1 A Christallerian urban hierarchy 57
 - 2.2 A 'hub' and 'spoke' urban network 59

FIGURES / x

- 2.3 An example of the use of the urban metaphor as a telematics interface—
‘Cyberville’ in Singapore 70
- 2.4 New conceptual approaches for the telecommunications-based city: old and new
characterisations of urban space and development 72
 - 3.1 The four approaches to studying the relations between cities
and telecommunications 79
 - 3.2 The relations between cities and telecommunications and time and
space constraints 115
 - 3.3 Characterising urban places and electronic spaces 116
- 4.1 Share of information occupations in the labour force by sector in London and
the UK, 1981 127
 - 4.2 European cities ranked by their importance as centres for
telecommunications 132
- 4.3 The urban dominance of telecommunications investment and use: examples from the
USA, UK, France and Japan 133
 - 4.4 Australian cities and their share of international telecoms traffic 134
 - 4.5 Examples of the linkage of cities into corporate telematics networks 137
 - 4.6 British Airways’ ‘virtual single office’ for dealing with customer reservations
in the UK 152
- 4.7 Renater: an example of a national telematics network aimed at supporting collaborative
research and development 161
- 4.8 Vicious circles and virtuous circles: how telecommunications are contributing to more
uneven development between cities and regions 169
- 5.1 Penetration rates of consumer telecommunications into the home in various advanced
capitalist nations 174
 - 5.2 *Private Eye* cartoon 191
- 5.3 The combined use of urban place and electronic space in a hypothesised daily routine for
an office worker (adapted from Hägerstrand’s time geography) 192
- 5.4 UK households with telephones: (a) by socioeconomic status, 1988; (b) by housing and
social status, 1991 194
 - 5.5 Proportion of households with use of a telephone in Newcastle
upon Tyne, 1986 195
 - 5.6 Citizen access to telephones and computers by occupation in
the UK, 1991 197
 - 5.7 Citizen access to computers by income level in the USA, 1993 197

5.8	<i>Independent</i> cartoon	221
5.9	Map of the Newcastle city centre closed circuit TV system	226
5.10	Cherry picking and social dumping: a schematic diagram showing how trends in telematics are underpinning the shift to more socially polarised cities	236
6.1	Energy consumption of transport and telecommunications	251
6.2	Growth of passenger transport and communications in France	262
6.3	The direct and indirect effects of telecommuting on fuel consumption in 2010	266
6.4	CO ₂ effects of 1 per cent of the UK population teleworking	267
6.5	Electronic monitoring of the physical environment	270
7.1	The convergence of urban infrastructure	291
7.2	Telematic applications in utilities	293
7.3	Smart metering technologies	294
7.4	The scope of road transport informatics technology	298
7.5	Electronic route guidance	299
7.6	The use of mobile telecommunications to reduce the effects of road congestion—the example of a Kenwood communications advertisement for trunked mobile radio	306
8.1	Evolution of urban form of a North American city: 1820–1970	314
8.2	Mapping telecommunications—city interactions: a typology of the relations between urban places and electronic spaces	328
8.3	The post-Fordist global metropolis	334
9.1	A diagram of the planned telecommunications systems for Tokyo Teleport Town	352
9.2	Map showing the telematics-based urban plan for the transformation of Kawasaki City, Japan, into a network of ‘intelligent plazas’	353
9.3	The technological basis for the ‘Telecities’ initiative: municipal host computers on the global Geonet system	358
9.4	The European Urban Observatory initiative	359
9.5	The ‘menu’ offered by the Freenet system in Cleveland, Ohio, showing the analogies made with the physical elements of cities	362
9.6	The Manchester Host Computer Communications System	363
9.7	An example of an integrated municipal Wide Area Network (WAN)—the London Borough of Camden	366

BOXES

- 3.1 The vanishing city 81
- 3.2 The electronic cottage 90
- 3.3 Electronic spaces: new technologies and the future of cities 102
- 3.4 The politics of citizen access technology: the development of public information utilities in four cities 108
 - 4.1 International information capitals 140
- 4.2 The back officing of consumer services: the case of the First Direct Bank 149
 - 5.1 The overexposed city 184
 - 5.2 The myth of universal telephone service 193
- 5.3 City centre closed circuit TV systems in the UK 225
 - 6.1 BT Environment Policy Statement 245
 - 6.2 Structural decentralisation and telecommuting 253
 - 6.3 Environmental information 271
 - 6.4 The air quality monitoring programme in Berlin 273
- 7.1 Telecommunications and the management of urban networks 288
 - 7.2 Utilities and information technology 292
 - 7.3 Confusing signals on the road to nowhere 296
 - 7.4 Evaluating the intelligent city 301
- 8.1 The early telephone and the structure of cities 315
- 8.2 Speculation about the future size and form of urban areas 320
 - 8.3 Telecommunications and the centrality of cities 324
- 9.1 Telematics for futuristic urban development: the case of Japan 346
- 9.2 *Le Réseau Villes Moyennes* (RVM)—an example of national collaborative urban network 356
- 9.3 Public Information Utilities (PIUs), the Freenet movement and Host computers 361

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.

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!

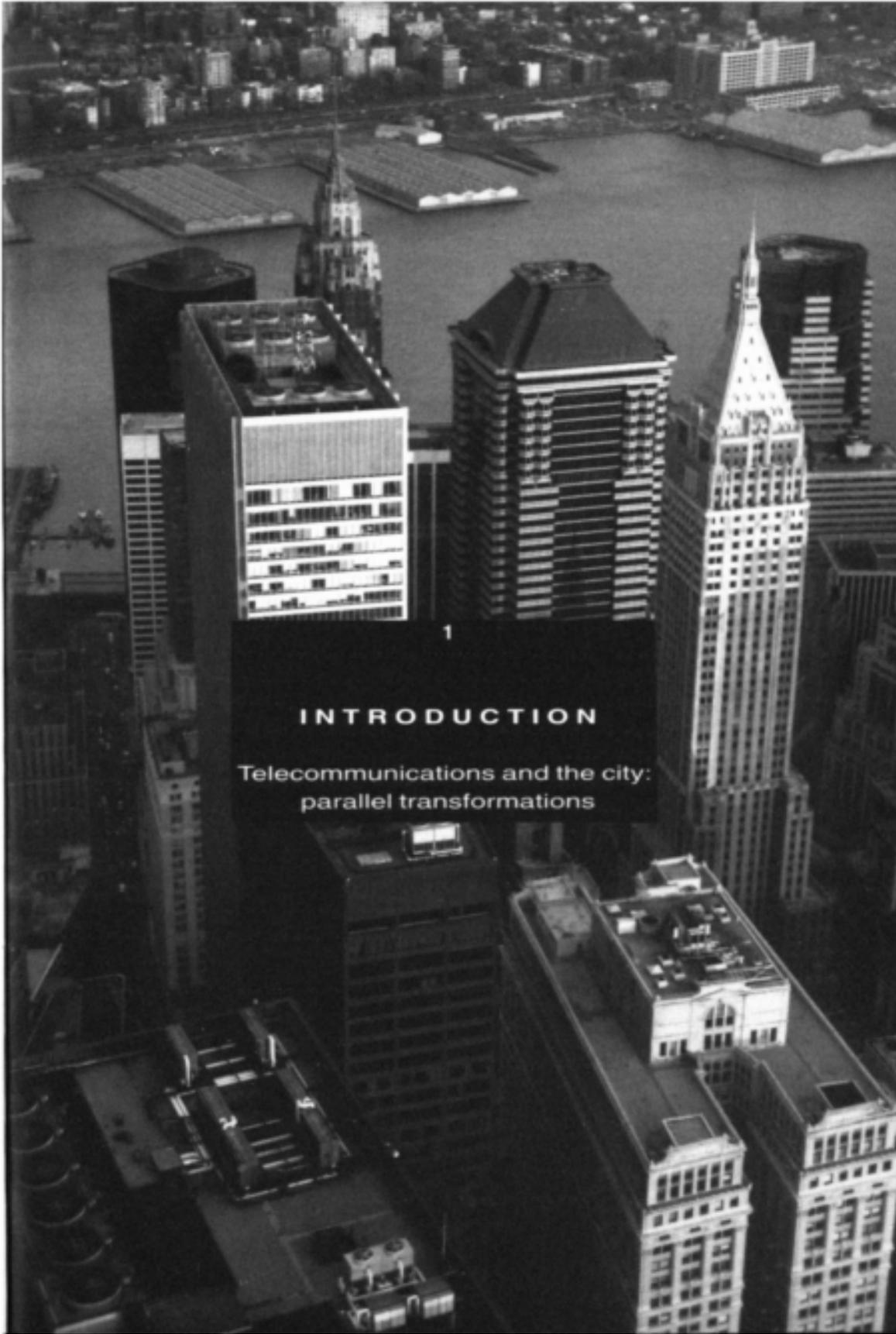
Thanks to the following for their generous permission to reprint material in the book from:

- Box 3.1 'The Vanishing City', by Anthony Pascal, *Urban Studies* (1987), vol. 24, pp. 597–603.
- Box 3.2 'The electronic cottage', from *The Third Wave* by Alvin Toffler. Copyright © 1980 by Alvin Toffler. Used by permission of Bantam Books, a division of Bantam Doubleday Dell Publishing Group, Inc.
- Box 3.3 'Electronic spaces: new technologies and the future of cities', by K. Robins and M. Hepworth. This article was first published in *Futures* (April 1988), vol. 20, no. 2, pp. 155–176 and is reproduced here with the permission of Butterworth-Heinemann, Oxford, U.K.
- 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

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.¹ 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

- [*read online Network Science and Cybersecurity online*](#)
- [read Frozen in Time: The Fate of the Franklin Expedition pdf](#)
- [Love + Hate: Stories and Essays pdf, azw \(kindle\), epub](#)
- [The Rough Guide to Norway \(6th Edition\) pdf, azw \(kindle\)](#)
- [read online How to Be Parisian Wherever You Are](#)

- <http://kamallubana.com/?library/Ship-of-Death--Destroyer--Book-28-.pdf>
- <http://www.khoi.dk/?books/Growing-Elite-Marijuana--The-Complete-Guide.pdf>
- <http://www.shreesaiexport.com/library/Sweet-Maria-s-Italian-Cookie-Tray--A-Cookbook.pdf>
- <http://www.satilik-kopek.com/library/The-Geek-Manifesto--Why-Science-Matters.pdf>
- <http://honareavalmusic.com/?books/Cranial-Nerves--Anatomy-and-Clinical-Comments.pdf>