Intelligent Cities and Globalisation of Innovation Networks

Nicos Komninos



Contents

List of illustrations Acknowledgements

Introduction

PART 1 Globalisation of innovation and intelligent cities

1 An intelligent global world is emerging

A new global setting 7 Globalisation of innovation 8 Europe in search of innovation 11 Innovation reshaping core and periphery 13 Innovation turning a new leaf for cities 15 Trading innovation with intelligent environments 16 Intelligent environments 17

2 Regions of innovation excellence: learning from the best

A new model of regional development 21 The rise of the innovation economy in the EU 23 Regions of innovation excellence in Europe 30 The core of excellence: regional systems of innovation 33 Making the core of excellence: four stages of evolution 38

3 Systems of innovation: continuous spatial enlargement

Widening systems of innovation45Innovation47Towards systems of innovation49

vi Contents

What makes an innovation system? 54 Enlargement I: cluster-type innovation systems 56 Enlargement II: regional systems of innovation 64 Enlargement III: intelligent global systems of innovation 71 Governance of territorial systems of innovation 73

4 Virtual innovation environments: enriching innovation systems with global networks and users participation

Innovation as an environmental condition 77 Virtual innovation environments 80 Functioning of VIEs 89 Reception of VIEs: lessons from the 'VERITE' network 91 'VER1TE' as a virtual community 95 Learning impact 100 Direct impact 102 Innovation on virtual space 106

5 Intelligent cities: the emergence of the concept

Intelligent cities: bridging physical and virtual worlds 110 *Cyberspaces and cyber cities* 113 Smart communities 116 Intelligent communities 117 Intelligent environments of innovation – Living Labs 119 Defining intelligent cities 120 *Three layers of intelligent cities* 123 A glimpse at intelligent cities around the world 125 Metrics 131

PART 2 **Building blocks of intelligent cities**

6 Strategic economic intelligence: global watch on markets and technologies

Innovative regions in search of intelligence 137 Strategic economic intelligence: business, cluster, and regional 140 Main components of strategic economic intelligence 149 Integration of distributed intelligence 156 *Meta-foresight: an experiment in strategic economic intelligence* 160 The Meta-foresight platform 161 Sectoral/cluster intelligence 166 Strategic business intelligence 168 Strategic economic intelligence: the search for the 'next big thing' 172 110

77

135

137

7 Technology transfer and acquisition: virtual spaces valorising academic research

Getting state-of-the-art technology 174 The landscape of technology transfer 175 The turn towards academia 177 Technology transfer as communication 180 Blending cooperation networks and virtual spaces 181 The DRC: a virtual space for the valorisation of academic research 183 Augmented technology transfer 192

8 Innovation through collaboration: managing networks that cross boundaries

Innovation through collaboration 195 The logic of collaborative innovation networks 196 Selection of partners: trust vs. competence 200 Spatiality of collaboration: contact vs. cost 202 Digital spatiality and networking 204 Managing collaborative innovation networks: three experiments 205InnoCentive: innovation based on global networks 205 Regional Innovation Poles: multilevel regional innovation networks 208 New product development based on vertical networks 216 Collaborative innovation as intelligent space 222

9 Digital cities and e-marketplaces: global promotion of localities, products and services

The last mile of innovation 226 Digital cities: broadband networks and online services 227 Broadband network 230 Online services 233 e-City marketplaces 235 e-City promotion 240 e-Government 242 Sustainability of digital cities and e-marketplaces 245

10 Building blocks of intelligent cities: architecture of layers and functions

Two movements shaping intelligent cities247Intelligent cities as territorial systems of innovation249Intelligent cities as digital spaces of collaboration257

viii Contents

Integration: knowledge functions of intelligent cities261The architecture of intelligent cities261Intelligent cities: a window to global innovation networks270

| Appendix: five platforms for intelligent cities | 275 |
|---|-----|
| Notes | 283 |
| References | 284 |
| Index | 301 |