

# Contents

<b>1</b>	<b>Introduction.....</b>	<b>1</b>
1.1	The Economics of Regionalisation vs. Globalisation .....	1
1.2	Bridging the Gap: Places and Extra-territorial Spaces.....	2
1.2.1	The Advantages of Place: Innovation Systems .....	2
1.3	The Fragmentation of Production – Despatialisation?.....	4
1.3.1	Constructing a Cluster Complexes Framework.....	5
1.4	Specifying the Research Problem.....	6
1.4.1	The Key Questions .....	7
1.4.2	The Structure of the Book .....	8
1.4.3	Boundaries and Contributions of this Research .....	10
1.5	Overview .....	11
<b>2</b>	<b>Systemic Innovation and Nation States.....</b>	<b>13</b>
2.1	Knowledge, Technology, Innovation and Nation States.....	13
2.2	Technology, Competitiveness and Systems.....	14
2.2.1	EconomicG rowth.....	14
2.2.2	Innovation Aids All Sectors from Agriculture to Services.....	16
2.2.3	Innovation Embedded in Nations .....	18
2.2.4	Systems Theory .....	19
2.3	The Historical and Continuing Importance of Nations .....	23
2.3.1	Learning Nations .....	23
2.3.2	Production System Specialisation and Trajectories.....	27
2.4	Nations in a Changing World: Weaknesses of NIS .....	28
2.4.1	NIS and National Geography .....	29
2.4.2	NIS Politically Defined.....	30
2.4.3	NIS, Borders and Economic Space .....	32
<b>3</b>	<b>Innovative Regions, Clusters and Milieux .....</b>	<b>33</b>
3.1	Innovation Territories .....	33
3.2	LocatingC lusters.....	35
3.2.1	Clusters, Regions and Sectors .....	36
3.2.2	Defining and Finding the Places of Interest .....	37

3.3	The Geography of Agglomeration .....	39
3.3.1	Knowledge and Innovation Geography .....	40
3.3.2	Supply Architecture.....	42
3.4	Cluster Based Theories of the Drivers of Proximity .....	44
3.4.1	Traded Interdependencies: Supply Architectures .....	45
3.4.2	Users and Producers: Linking Production and Innovation .....	48
3.4.3	Untraded Interdependencies: Knowledge Flows .....	50
3.5	Cluster Boundaries and Extra-territorial Linkages.....	52
3.5.1	Contiguous Regions.....	53
3.5.2	Clusters Beyond Proximity.....	54
3.6	Multi-spatial Production and Innovation Spaces.....	57
<b>4</b>	<b>Beyond Borders: Trade and Networks.....</b>	<b>59</b>
4.1	Traded Interdependencies Beyond Borders.....	59
4.2	Trade, Borders and the Sourcing of Products.....	60
4.2.1	Trade Specialisation Patterns.....	61
4.2.2	Bilateral Trade Relations .....	63
4.2.3	International Value Chains and Spatial Specialisations.....	71
4.3	Proximity and Multi-Spatial Innovation Systems .....	78
4.3.1	Spatial Innovation Systems: NIS and Clusters .....	78
4.3.2	The Multi-Spatial Gap: Cluster Context and Trade Linkages .....	80
4.3.3	Linked Clusters: Specialised Nodes, Globalised Products.....	81
4.4	Clusters, GPNs or Multi-Spatial Cluster Networks?.....	83
4.4.1	Australia's Aerospace Micro-Cluster .....	83
<b>5</b>	<b>Measuring Inter-Cluster Interdependencies .....</b>	<b>89</b>
5.1	Identifying Multi-Spatial Innovation Systems .....	89
5.1.1	The Appeal of I-O Modelling.....	90
5.1.2	Criticisms of Using I-O in Innovation Studies .....	91
5.1.3	Benefits of I-O Modelling .....	92
5.2	Multi-Country Input-Output Data .....	96
5.3	Inter-Regional I-O Modelling.....	97
5.3.1	Constructing the I-O Tables.....	97
5.3.2	Limitations of Trade Data.....	101
5.3.3	Inter-Country Modelling Analyses.....	102
5.3.4	NetMultipliers.....	103
5.4	Data Analysis: Chaps. 6–9 .....	105
<b>6</b>	<b>Clustering Internationalisation.....</b>	<b>107</b>
6.1	Dependence on Imported Components .....	107
6.2	Complexity, Clustering and Imports .....	113
6.2.1	Knowledge Economy and Clustering .....	113

6.2.2	R&D Intensity .....	114
6.2.3	Pavitt's Industry and Innovation Taxonomy .....	117
6.2.3	Complex Technologies .....	120
6.3	Imports, Science and Scale.....	123
6.3.1	Import Inte nsiveness.....	123
6.3.2	Implications for Theory, Research and Policy.....	124
<b>7</b>	<b>Cluster Complexes: Auto Production.....</b>	<b>125</b>
7.1	The Significance of Automotive Production Systems.....	125
7.2	Background: A Traditional Perspective of Exports.....	126
7.3	The Evolution of the Inter-cluster Networking .....	129
7.3.1	Auto Activities 1970.....	129
7.3.2	Auto Activities 1990.....	130
7.3.3	EU 15 1995.....	132
7.3.4	Auto Activities 2000.....	135
7.4	Techno-Organisational Context of Auto Production.....	139
7.4.1	Clusters, Complexes and System Hierarchies .....	139
7.4.2	Geography and Organisation .....	141
7.4.3	Reconfiguration .....	142
7.5	Implications and Conclusions .....	145
<b>8</b>	<b>Cluster Complexes: Civil Aerospace .....</b>	<b>147</b>
8.1	Aerospace: The Techno-Organisational Context.....	147
8.2	Cluster Networking .....	149
8.2.1	Aerospace 1970 .....	149
8.2.2	Aerospace 1990 .....	151
8.2.3	Aerospace 1995–2000 .....	151
8.2.4	Aerospace Import Changes.....	155
8.3	The Beginnings of the Future of Aerospace Geography .....	156
8.4	Implications and Conclusions .....	161
8.4.1	Innovation Theory and Analysis.....	162
8.4.2	PolicyM atters.....	162
<b>9</b>	<b>Cluster Complexes: Electronics and ICT .....</b>	<b>165</b>
9.1	Introduction: Structures of Interdependencies .....	165
9.2	The Third Technological Revolution: ICT .....	166
9.2.1	Economic Growth and ICT.....	166
9.2.2	ICT Clustering .....	167
9.2.3	ICT Exports After 1990.....	169
9.3	ICT Cluster Networks .....	171
9.3.1	ICT1970 .....	171
9.3.2	ICT1990 .....	173
9.3.3	ICT1990–2000 .....	173

9.4	Contemporary and Emerging Nodes of Global ICT .....	181
9.4.1	The Techno-Organisational Context in ICT .....	182
9.4.2	Contemporary East Asian Nodes.....	183
9.4.3	Emergent Nodes in the Global Architecture of Production .....	187
9.5	Conclusions and Implications .....	189
<b>10</b>	<b>Conclusions on the Architecture of Economies .....</b>	<b>191</b>
10.1	Atolls of Innovation or Something Else? .....	191
10.1.1	Local Agglomeration and Specialisation.....	193
10.1.2	Bridging Local and Global: The Role of Interdependencies.....	194
10.1.3	The Scale of Connectedness – Do These Links Matter?.....	195
10.1.4	Innovation Atolls? .....	196
10.2	Systems of Systems: Sectoral Footprints .....	197
10.2.1	The Spatial Structure of Clustering and Networking .....	197
10.2.2	Clustering, Fragmentation and Integration – Economic Fractals .....	197
10.2.3	Cluster Complexes: Nodes, Flows and Hierarchies .....	198
10.2.4	Spatial Organisation: Assembly, Integration and Technologies .....	199
10.3	Conclusions and Implications .....	200
10.3.1	Clusters Don't Innovate in Isolation.....	201
10.3.2	Implications for Theory .....	202
10.3.3	Implications for Policy .....	202
10.3.4	Future Research .....	204
<b>References</b> .....	<b>205</b>	
<b>Index</b> .....	<b>225</b>	