

# Contents

## Part I Knowledge-Based Economy and Regional Competitiveness

|                                                                                                                      |    |
|----------------------------------------------------------------------------------------------------------------------|----|
| <b>1 Knowledge Economy</b> . . . . .                                                                                 | 3  |
| Emergence of Knowledge Economy . . . . .                                                                             | 3  |
| Definition of Knowledge Economy . . . . .                                                                            | 4  |
| Knowledge Economy's Industrial Definition . . . . .                                                                  | 5  |
| Knowledge Economy's Occupational Definition . . . . .                                                                | 5  |
| Knowledge Economy's Innovation-Related Definition . . . . .                                                          | 6  |
| Significant Changes Through the Emergence of Knowledge Economy . . .                                                 | 7  |
| Economic Colonization in Knowledge Economy . . . . .                                                                 | 10 |
| References . . . . .                                                                                                 | 12 |
| <b>2 Regional Competitiveness: Key Players in Industrial Cluster in Knowledge-Based Industrial Cluster</b> . . . . . | 13 |
| Regional Competitiveness Defined . . . . .                                                                           | 13 |
| Clusters and Networks Towards Regional Competitiveness . . . . .                                                     | 13 |
| The Origin of a "Cluster" . . . . .                                                                                  | 15 |
| Clusters and Competitive Advantage . . . . .                                                                         | 15 |
| Government . . . . .                                                                                                 | 16 |
| Private Sector . . . . .                                                                                             | 17 |
| Academe . . . . .                                                                                                    | 18 |
| References . . . . .                                                                                                 | 18 |

## Part II Academe to Enhance Regional Competitiveness

|                                                                                  |    |
|----------------------------------------------------------------------------------|----|
| <b>3 Academe in Improving Knowledge-Based Regional Competitiveness</b> . . . . . | 23 |
| Academe and Their Roles in Knowledge Economy . . . . .                           | 23 |

|                                                                                                                   |           |
|-------------------------------------------------------------------------------------------------------------------|-----------|
| What Then Is the Strategic Role that Tertiary Education<br>Can Play in the Knowledge Era? . . . . .               | 23        |
| References . . . . .                                                                                              | 27        |
| <b>4 Academes' Functions Within Innovation System. . . . .</b>                                                    | <b>29</b> |
| Academes' Functions Within an Innovation System. . . . .                                                          | 29        |
| Linear Model . . . . .                                                                                            | 30        |
| Contrasting Norms . . . . .                                                                                       | 30        |
| Mode 2 . . . . .                                                                                                  | 31        |
| Triple Helix . . . . .                                                                                            | 32        |
| References . . . . .                                                                                              | 33        |
| <b>5 Academe to Enhance Regional Competitiveness Through<br/>Industrial Cluster in Different Regions. . . . .</b> | <b>35</b> |
| Academe and Regional Cluster Development. . . . .                                                                 | 35        |
| Research, Innovation and Knowledge Transfer . . . . .                                                             | 36        |
| Proximity Effect and Knowledge Transfer. . . . .                                                                  | 37        |
| High Skill: A Source of Competitiveness . . . . .                                                                 | 37        |
| University as Social Capital Provider in Collaborative Network. . . . .                                           | 38        |
| Academe and Emergences of Regional Clusters . . . . .                                                             | 39        |
| Cambridge Cluster, United Kingdom. . . . .                                                                        | 40        |
| Waterloo, Canada . . . . .                                                                                        | 40        |
| Heidelberg, Germany . . . . .                                                                                     | 41        |
| Strait of Taiwan: Zhangjiang, China, and Hsinchu, Taiwan. . . . .                                                 | 42        |
| References . . . . .                                                                                              | 43        |
| <br><b>Part III 'Coopetition' Towards Regional Competitiveness</b>                                                |           |
| <b>6 Academe-Industry-Government (A-I-G) Towards Regional<br/>Competitiveness. . . . .</b>                        | <b>47</b> |
| The Evolution of Triple Helix of Academe-Industry-Government<br>Framework in Knowledge Economy. . . . .           | 47        |
| The Triple Helix Model of Innovation . . . . .                                                                    | 49        |
| Experience of the Academe-Industry-Government Framework<br>in Various Regions and Countries . . . . .             | 51        |
| United States of America . . . . .                                                                                | 51        |
| United Kingdom. . . . .                                                                                           | 52        |
| Europe . . . . .                                                                                                  | 54        |
| Italy. . . . .                                                                                                    | 54        |
| Germany. . . . .                                                                                                  | 55        |
| Latin America. . . . .                                                                                            | 55        |
| Japan. . . . .                                                                                                    | 56        |
| Thailand . . . . .                                                                                                | 56        |
| References . . . . .                                                                                              | 58        |

|                                                                                                                                                                           |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>7 Development of Industrial Cluster in Emerging Economy:<br/>Case Study of Academe–Industry–Government Partnership<br/>in Automotive Cluster of Thailand</b> . . . . . | 61  |
| Research Design . . . . .                                                                                                                                                 | 62  |
| University–Industry Partnership in Thailand’s Automotive Cluster . . . . .                                                                                                | 63  |
| Thailand’s Automotive Industry . . . . .                                                                                                                                  | 63  |
| University–Industry–Government Dynamics to Upgrade Thai<br>Automotive Industry and Automotive Innovation System . . . . .                                                 | 64  |
| Technological Capacity . . . . .                                                                                                                                          | 64  |
| Universities in the Innovation System . . . . .                                                                                                                           | 65  |
| University–Industry Cooperation in Thai Automotive Industry . . . . .                                                                                                     | 66  |
| University–Industry–Government Cooperation to Further Improve<br>Competitiveness of Thailand’s Automotive Cluster . . . . .                                               | 72  |
| References . . . . .                                                                                                                                                      | 77  |
| <b>8 U-TECH Framework</b> . . . . .                                                                                                                                       | 79  |
| U-TECH Framework’s Development . . . . .                                                                                                                                  | 80  |
| Reference . . . . .                                                                                                                                                       | 84  |
| <b>9 “Coopetition” of Academe–Industry–Government: A Framework<br/>for Regional Competitiveness</b> . . . . .                                                             | 85  |
| “Coopetition” or “Coopetitive System of Value Creation” Defined . . . . .                                                                                                 | 85  |
| Network Coopetition Model 1 . . . . .                                                                                                                                     | 90  |
| Network Coopetition Model 2 . . . . .                                                                                                                                     | 90  |
| Network Coopetition Model 3 . . . . .                                                                                                                                     | 91  |
| Reference . . . . .                                                                                                                                                       | 92  |
| <b>10 Academe in Coopetitive System of Value Creation for Regional<br/>Competitiveness: Success Factors</b> . . . . .                                                     | 93  |
| Agglomeration Economies and External Effects . . . . .                                                                                                                    | 93  |
| Firm-Building Capabilities . . . . .                                                                                                                                      | 94  |
| Managerial Workforce . . . . .                                                                                                                                            | 95  |
| Supply of Highly Skilled Technical Workers . . . . .                                                                                                                      | 95  |
| Connection to Market . . . . .                                                                                                                                            | 96  |
| Conclusion . . . . .                                                                                                                                                      | 97  |
| Reference . . . . .                                                                                                                                                       | 98  |
| <b>Bibliography</b> . . . . .                                                                                                                                             | 99  |
| <b>Index</b> . . . . .                                                                                                                                                    | 103 |

Coopetition for Regional Competitiveness  
The Role of Academe in Knowledge-Based Industrial  
Clustering

Mongkhonvanit, J.

2014, XVII, 104 p. 17 illus., Softcover

ISBN: 978-981-287-148-0