

# CONTENTS

<i>List of Tables and Figures</i>	xi
<i>List of Acronyms</i>	xiii
<i>Acknowledgements</i>	xvii
<i>Foreword by Carlota Perez</i>	xxi
<b>Introduction: Do Something Different</b>	1
A Discursive Battle	1
Beyond Fixing Failures	3
From ‘Crowding In’ to ‘Dynamizing In’	5
Images Matter	6
Structure of the Book	9
<b>Chapter 1: From Crisis Ideology to the Division of Innovative Labour</b>	15
And in the Eurozone	17
State Picking Winners vs. Losers Picking the State	18
Beyond Market Failures and System Failures	21
The Bumpy Risk Landscape	22
Symbiotic vs. Parasitic Innovation ‘Ecosystems’	23
Financialization	25
<b>Chapter 2: Technology, Innovation and Growth</b>	29
Technology and Growth	33
From Market Failures to System Failures	34

Myths about Drivers of Innovation and Ineffective Innovation Policy	41
Myth 1: Innovation is about R&D	44
Myth 2: Small is Beautiful	45
Myth 3: Venture Capital is Risk Loving	47
Myth 4: We Live in a Knowledge Economy – Just Look at all the Patents!	50
Myth 5: Europe’s Problem is all about Commercialization	52
Myth 6: Business Investment Requires ‘Less Tax and Red Tape’	53
<b>Chapter 3: Risk-Taking State: From ‘De-risking’ to ‘Bring It On!’</b>	57
What Type of Risk?	58
State Leading in Radical (Risky) Innovation	62
Pharmaceuticals: Radical vs. ‘Me Too’ Drugs	64
Biotechnology: Public Leader, Private Laggard	67
The National Institutes of Health: Creating the Wave vs. Surfing It	68
<b>Chapter 4: The US Entrepreneurial State</b>	73
The Defense Advanced Research Projects Agency (DARPA)	74
The Small Business Innovation Research (SBIR) Programme	79
Orphan Drugs	81
The National Nanotechnology Initiative	83
<b>Chapter 5: The State behind the iPhone</b>	87
The ‘State’ of Apple Innovation	88
Surfing through the Waves of Technological Advancements	93
<i>From Apple I to the iPad: The State’s very visible hand</i>	94
<i>How State-funded research made possible Apple’s ‘invention’ of the iPod</i>	95
<i>Giant magnetoresistance (GMR), SPINTRONICS programme and hard disk drives</i>	96

<i>Solid-state chemistry and silicon-based semiconductor devices</i>	97
<i>From capacitive sensing to click-wheels</i>	99
The Birth of the iPod's Siblings: The iPhone and iPad	101
<i>From click-wheels to multi-touch screens</i>	102
<i>Internet and HTTP/HTML</i>	103
<i>GPS and SIRI</i>	105
<i>Battery, display and other technologies</i>	106
Did the US Government 'Pick' the iPod?	109
Fostering an Indigenous Sector	110
<b>Chapter 6: Pushing vs. Nudging the Green Industrial Revolution</b>	113
Funding a Green Industrial Revolution	116
National Approaches to Green Economic Development	119
<i>China's 'green' 5-year plan</i>	122
<i>UK's start-stop approach to green initiatives</i>	124
<i>United States: An ambiguous approach to green technologies</i>	126
<i>Pros and cons of the US model</i>	127
Pushing – Not Stalling – Green Development	136
The Importance of Patient Capital: Public Finance and State Development Banks	138
<b>Chapter 7: Wind and Solar Power: Government Success Stories and Technology in Crisis</b>	141
Wind and Solar Power: Growth Powered by Crisis	142
From the First 'Wind Rush' to the Rise of China's Wind Power Sector	144
Solar Power Companies and the Origin of Their Technologies	150
Solar Bankruptcies: Where There's a Will There's a Way	153
Competition, Innovation and Market Size (Who's Complaining?)	156

Conclusion: Clean Technology in Crisis	158
<i>Myth 1: It's all about R&amp;D</i>	159
<i>Myth 2: Small is beautiful</i>	160
<i>Myth 3: Venture capital is risk loving</i>	161
<i>Building a green innovation ecosystem (symbiotic not parasitic)</i>	162
<b>Chapter 8: Risks and Rewards: From Rotten Apples to Symbiotic Ecosystems</b>	165
Back to Apple: What Did the US Government Get Back for Its Investments?	167
<i>Apple's job-creation myth: Not all jobs are created equally</i>	168
<i>Apple's love-hate relationship with US tax policies</i>	171
<i>The paradox of miracles in the digital economy: Why does corporate success result in regional economic misery?</i>	176
Where Are Today's Bell Labs?	178
<b>Chapter 9: Socialization of Risk and Privatization of Rewards: Can the Entrepreneurial State Eat Its Cake Too?</b>	181
The Skewed Reality of Risk and Reward	181
A New Framework	185
Direct or Indirect Returns	187
<b>Chapter 10: Conclusion</b>	193
<i>Appendix</i>	199
<i>Bibliography</i>	201
<i>Index</i>	223