# TABLE OF CONTENTS

Acknowledgements xi
Preface by Ilya Prigogine xv
Foreword by Alexander King ix
List of figures xxi

## Chapter 1. Introduction

1.1. In Search of Progress: From "The Limits to Growth"  
To "The Limits to Certainty" 1
1.2. Three Major Issues in Reconstructing an Image of the Future 3
1.3. Uncertainty: the Condition for Reconstructing the Future 7

Notes Chapter 1 9

## Chapter 2. The New Battleground for Risk-Taking:
The Service Economy 11

2.1. The Legacy of the Industrial Revolution 11
Leaving Heaven for a World of Scarcity 11
Producing Tools and Goods to Increase the Wealth of Nations 12
The Monetarization of the Economy: Developing Capitalism 15
The Utopia of Certainty 19

2.2. The Limits of the Industrial Revolution 23
Production is not Isolated from the Non-Monetarized World 23
Production’s Increasing Dependence on "Non-Productive" Service Activities 26
The Pace of Discovery and Innovation versus the Diminishing Returns of Production Factors: the Long Cycles 29
The End of the Megacycle of the Industrial Revolution 34
The New Dimension of Risk and Uncertainty 37
2.3. The "Service" Economy
   The Growth of Services in the Production of Wealth 40
   The Growth of Industrialization within the Service or Tertiary Sector 44
   The Horizontal Integration of All Productive Activities: the End of the Theory of the Three Sectors of Economic Activity and the Limits to Engel’s Law 45
   System Functioning: Complexity and Vulnerability 50
   The Notion of Risk in the Industrial Revolution and in the Service Economy - Moral Hazards and Incentives 54
   Tradability and Homogeneity of Services 60
   Material and Immaterial Values in the Service Economy - the Value of Education 64

2.4. Value and Time in the Service Economy: the Notion of Utilization 65
   The Product Cycle: from Raw Materials to Recycled Materials 65
   The Utilization Period 69
   Utilization-oriented Innovation - Some Examples 76
   Waste, Obsolescence and Fashion 86
   Coping with Time Duration and Uncertainty 91

2.5. Social Strategy in the Service Economy 97
   Employment and Productive Occupation 97
   The New Risk-Taker in Work: Women, the Younger and the Elder 104
   Negative Income Tax and Social Benefits 113
   The "Four Pillar" Strategy for the Elderly 118
   Selling Security or the Means for Facing Risks and Uncertainties 120

Notes Chapter 2 125
Chapter 3. Facing Social Uncertainty: Towards a New Social Policy in the Service Economy

3.1. Basic Issues

The Blessing of an 'Ageing' Population
Flexible Employment
The Ability and Capacity to Work at any Age
Social Security, Savings and the 'Intergenerational' Social Contract
What is the Fourth Pillar?
Implications of the Fourth Pillar for Enterprise and for the Community
Towards a New Conception of 'Full' Employment

3.2. Towards the Fourth Pillar: Trends

Demography: the Ageing Population of Industrialised Countries
Social Security: How to Finance Tomorrow's Pensions?
Employment: What Jobs for Tomorrow?
Defining a Life Cycle for the Future

3.3. The Fourth Pillar in some OECD Countries:

From Evidence to Potential
Sweden and the Nordic countries
Denmark and Finland
Japan
The USA
France
UK
Germany

Notes Chapter 3
Chapter 4. Producing the Wealth of Nations; the Risk Takers and the Supply-side of the Economy.
The Dynamics of Disequilibrium

4.1. Producing
   Life as a Production System 185
   The Conditions of Supply: Uncertainty and Risk 187
   Risk and Responsibility 191
   Supply in Classical Economics 194
   The Prosumer, Services Supply (Externalizing Process, Self Services, Spin-Offs) 195

4.2. Production Cycles
   Crises and Deflation in the Industrial Revolution 197
   The Great Expansion of the Industrial Revolution and the Role of Demand 200
   The New Supply Bottlenecks of the 70's and Inflation: Quantitative and Qualitative Rigidities 204

4.3. The Role of Demand
   Supply and Demand in a Static "Perfect" Equilibrium 207
   Demand as a Selection Mechanism 210

4.4. Equilibrium vs Non-Equilibrium
   Economics between Certainty and Uncertainty, between Static and Real Time: Reference to the Paradigms of Natural Science 212
   From Newton to Prigogine: Equilibrium as a Goal or "Attractor" in a Far-From-Equilibrium System 217

4.5. Accounting for Value in the Service Economy
   Measuring Value in the Industrial Revolution: the Monetarized Flow 220
   Old and New Shortcomings: Wealth and Riches, the Paradox of Relative Prices, Deduced Value, and Non-Accounted Value 224
   "The Bath-tub" system: Measuring Results through Indicators 228
4.6. The Problem of Demarcation in Economics

Opening-up the Boundaries of Economics:
  beyond Production (Services), beyond Time
  (Uncertainty, Risk), beyond Monetarization
  (The Environment); Complexity and Uncertainty
Redefining New Boundaries for Action
The Role of the Market System

Notes Chapter 4

Chapter 5. At the Roots of Uncertainty

5.1. Risk, Uncertainty and the Individual
  Perception of Risk
  The Certainty of Misery - the Misery of Certainty
  (Nihilism)

5.2. A Dialogue: Founding the Secretariat for Uncertainty
  Centre for Reflection on Uncertainty - Draft
  Declaration

Notes Chapter 5

Bibliography