



The New Knowledge Economy in Europe

A STRATEGY FOR INTERNATIONAL COMPETITIVENESS
AND SOCIAL COHESION

Bengt-Åke Lundvall
Gøsta Esping-Andersen
Luc Soete
Manuel Castells
Mario Telò
Mark Tomlinson
Robert Boyer
Robert M. Lindley

Edited by

Maria João Rodrigues

The New Knowledge Economy in Europe

A Strategy for International Competitiveness and Social Cohesion

Bengt-Åke Lundvall, Gøsta Esping-Andersen, Luc Soete, Manuel Castells, Mario Telò, Mark Tomlinson, Robert Boyer, Robert M. Lindley

Edited by

Maria João Rodrigues

Professor, University of Lisbon – ISCTE and Special Advisor to the Prime Minister, Portugal, Chair of the Advisory Group of Social Sciences in the European Framework Programme, EU.

Edward Elgar

Cheltenham, UK • Northampton, MA, USA

© Maria João Rodrigues 2002

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical or photocopying, recording, or otherwise without the prior permission of the publisher.

Published by
Edward Elgar Publishing Limited
Glensanda House
Montpellier Parade
Cheltenham
Glos GL50 1UA
UK

Edward Elgar Publishing, Inc.
136 West Street
Suite 202
Northampton
Massachusetts 01060
USA

A catalogue record for this book
is available from the *British Library*

Library of Congress Cataloguing in Publication Data

The new knowledge economy in Europe: a strategy for international competitiveness and social cohesion / edited by Maria João Rodrigues.

p. cm.

Includes bibliographical references and index.

1. Technology—Economic aspects—European Union countries.
2. Technology and state—European Union countries. 3. Education and state—European Union countries. 4. Knowledge, Sociology of—European Union countries. 5. Competition, International. I. Rodrigues, Maria João.
HC240.9.T4 N49 2002
303.48'3'094—dc21 2001031531

ISBN 1 84064 719 1

Printed and bound in Great Britain by MPG Books Ltd, Bodmin, Cornwall

Contributors

Maria João Rodrigues

Professor of Economics at the University of Lisbon – ISCTE
Chair of the Advisory Group of Social Sciences in the European
Framework Programme for Research (EU)
Special Advisor to the Prime Minister

Luc Soete

Professor of International Economics at the Faculty of Economics,
University of Maastricht
Director of the Maastricht Economic Research Institute on Innovation
and Technology (MERIT)

Gøsta Esping-Andersen

Professor at the Università di Trento
Professor at the Universitat Pompeu Fabra, Barcelona
Member of Scientific Council, Juan March Foundation

Robert M. Lindley

Professor, Faculty of Social Studies, University of Warwick
Director, Institute for Employment Research, University of Warwick
Associate Director of the Business Processes Resource Centre of the
Economic and Social Research Council, based at the International
Manufacturing Centre, University of Warwick.

Robert Boyer

Professor at the Ecole des Hautes Etudes en Sciences Sociales, Paris
Economist at CEPREMAP
Senior Researcher at CNRS
Head of URA CNRS 922 'Regulation, Human Resources and Economic Policy'

Bengt-Åke Lundvall

Professor in Economics at the Department for Business Studies at the
Aalborg University
Research Manager for the nation-wide Danish network DRUID (Danish
Research Unit for Industrial Dynamics)

Mark Tomlinson

Research Fellow at the Centre for Innovation and Competition,
University of Manchester

Manuel Castells

Professor of Sociology and Professor of City & Regional Planning,
University of California at Berkeley
Research Professor, Consejo Superior de Investigaciones Científicas,
Barcelona (on leave)

Mario Telò

Professor, Université Libre de Bruxelles
J. Monnet Chair for Political Problems of the European Union
Research Director, Institute for European Studies (IEE, ULB)

Acknowledgements

This book presents the main outcomes of a prolonged and complex interaction between the scientific and the political agenda at the European level. Two kinds of outcome have emerged: new theoretical issues and a long-term strategy for the European Union. This interaction was made possible by a new kind of alliance between the intellectual community and the political community which respected their autonomy and was fostered by some mediators belonging to both, as in my case as coordinator of this process.

Therefore my first acknowledgements go to Prime Minister António Guterres who, from the outset, had the vision and the ambition to launch an extensive process for long-term thinking and decision, involving his colleagues, heads of state and prime ministers; enthusiastic contributions were received from all of them which, subsequently, gave the impetus to the hundreds of contributions which followed from political bodies and civil society in Europe. A very important contribution also came from the various members of the Portuguese government who 'spread the word' on behalf of the Presidency of the European Union. In our various tours of capitals we have nearly always received very positive feedback.

My second acknowledgements go to my colleagues, and now friends, authors of this book who understood the magnitude of the opportunity and of the challenge from the beginning and committed themselves to preparing their own contribution and to exposing their own ideas to a large and diversified public. I want to stress the privilege of having their collaboration, the outstanding memories of our talks, our e-mails and our meetings. The European research community is made of these stories.

I am specially grateful to Jacques Delors, a master of this interaction between politics and science, who gave me the privilege of some appointments at crucial moments. Otherwise experienced mediators played an important role throughout the process and among them I would particularly like to mention and thank Prime Minister Jean-Claude Juncker and Director General Allan Larsson. I also always kept my former scientific director in Sorbonne University, Henri Bartoli, as a main reference.

In the meantime, many other authors from different countries gave a very relevant contribution to this public debate, namely Jos Berghman, Giuseppe Bertola, Olivier Blanchard, Albert Bressand, Bernard Brunhes, Yves Chassard, Vítor Constâncio, Maurizio Ferrera, Jacques Freyssinet,

Stephen Fuller, Carlos Laranjo Medeiros, Lucio Pench, Maria de Lourdes Pintasilgo, Marino Regini, Michael Shuman, Spiros Simitis, Göran Therborn, Jürgen Von Hagen.

The same applies to many actors from the political community. At the European level, President Romano Prodi, the Commissioners Pedro Solbes, Erkki Liikanen, Anna Diamantopoulou, Philippe Busquin and Viviane Reding should have a very special mention along with other representatives of the European Commission, namely David O'Sullivan, Carlo Trojan and Michel Petite, Directors-General such as Allan Larsson, Robert Verrue, Fabio Colasanti, Domenico Lenarduzzi, Odile Quintin and, of course, the President of the European Parliament, Nicole Fontaine, and the chairmen of the EP Committees Christa Randzio-Plath and Michel Rocard. Very active and important contributions also came from social partners' leaders, namely Emilio Gabaglio and Dirk Hudig. At the national level, I am particularly grateful to my colleagues in the Prime Ministers' Cabinets of all Member States, Kaare Barslev, Markus Beyrer, Hugo Brawers, Thomas de Bruijn, Stefan Collignon, Anna Ekström, Román Escolano, Gilles Gateau, Klaus Gretschmann, Gikas Hardouvelis, Jeremy Heywood, Philip Kelly, Roger Liddle, Jari Luoto, Florence Mangin, Jeppe Tranholm-Mikkelsen, Pierre-Alain Muet, Anders Nordström, Pier Carlo Padoan, Pentti Puoskari, Platon Tinios, Baudilio Tomé, Luc Wies.

Last but not least, I would like to express my sincere thanks to my operational team Patricia Cadeiras, Rui Moura and Isabel Cernich, as well as to Rachel Evans, whose competence and stamina made this whole undertaking possible. Edward Elgar's prompt and positive reaction gave us the final and decisive impetus to prepare this book.

While all these references are due, in no way do they erase my responsibility as the editor and coordinator of this action line of the Presidency of the European Union.

I hope this publication will be useful for all who want to discuss and to build Europe both in political and scientific terms.

Contents

<i>List of Figures</i>	page vi
<i>List of Tables</i>	vii
<i>List of Contributors</i>	ix
<i>Acknowledgements</i>	xi
1. Introduction: for a European strategy at the turn of the century <i>Maria João Rodrigues</i>	1
2. The challenges and the potential of the knowledge-based economy in a globalised world <i>Luc Soete</i>	28
3. A new European social model for the twenty-first century? <i>Gøsta Esping-Andersen</i>	54
4. Knowledge-based economies: the European employment debate in a new context <i>Robert M. Lindley</i>	95
5. Institutional reforms for growth, employment and social cohesion: elements for a European and national agenda <i>Robert Boyer</i>	146
6. International benchmarking as a policy learning tool <i>Bengt-Åke Lundvall and Mark Tomlinson</i>	203
7. The construction of European identity <i>Manuel Castells</i>	232
8. Governance and government in the European Union: The open method of coordination <i>Mario Telò</i>	242
<i>Annexes</i>	273
<i>Bibliography</i>	322
<i>Index</i>	329

Figures

2.1	GDP, 1991–2000	31
2.2	Employment 1981–98	32
2.3	Real GDP per Capita 1991–2000	32
2.4	Convergence and divergence relative to the United States	33
2.5	Knowledge and physical investment in 1995	41
2.6	ICT expenditures in 1997	42
2.7a	BERD, 1981–2000	42
2.7b	BERD US-EU-12 1981–2000	43
2.8a	GOVERD 1981–2000	43
2.8b	GOVERD US-EU-12 1981–2000	44
4.1	Unemployment by highest educational/training attainment: EU Member States	122
4.2	Relative income according to educational attainment, EU Member States	124
5.1	The post-World War Two capital–labour accord shaped most other socioeconomic institutions	149
5.2	The euro implies a new hierarchy and architecture of each national socioeconomic regime	150
5.3	European Union: a potential economic giant . . . but a lot of coordination problems	153
5.4	What strategy against European unemployment?	170
5.5	European Union: the same macroeconomic environment but contrasted unemployment rate evolutions	178
5.6	Good news: the new hierarchy among institutional forms is taken into account by the structure of European treaties and subsequent decisions	187
5.7	Strategy one: use the dividend of faster growth to lower the tax and remove welfare-related barriers to job creation and launch the macroeconomic dialogue	188
5.8	Strategy two: convert the information and communication technologies (ICT) into the basis for a knowledge-based economy (KBE)	191
5.9	Strategy three: gender equality and responses to ageing as the source of a new service-led growth	194
5.10	Strategy four: riding the financial globalisation	196
6.1	A schematic model of the NSI benchmarking process	220

Tables

3.1	Per cent unemployed individuals with zero market or welfare state revenue, and dependence on familial support	60
3.2	Per cent non-standard working-age families and their economic situation (mid 1990s)	60
3.3	Poverty rates in child families after taxes and transfers (mid 1990s)	61
3.4	Trends in relative disposable income by household type (Percentage point change, late 1970s–mid 1990s)	62
3.5	Trends in after-tax/transfer child poverty rates and in the ratio of child-aged poverty incidence, 1980ca.–early 1990s	62
3.6	The servicing and age bias of welfare states, 1992	63
3.7	Level of relative disposable income of persons aged 65+, 1990s (per cent of median)	64
3.8	Total public pension expenditures (per cent GDP) in 2050 according to two scenarios: a baseline scenario of no change, and a scenario assuming average retirement at age 70	69
3.9	Early retirement incentives and employment among older males: gains from postponing retirement from age fifty-five to sixty-four, and simulated employment effect with actuarial neutrality (1995 data)	70
4.1	Employment and total job openings 1996–2006 by education and training category, United States	103
4.2	Potential bottleneck occupations in Sweden up to 2010	105
4.3	Selected occupational projections for the EU, 1996–2005	106
4.4	Qualitative aspects of occupational change	108
4.5	Characteristics of high-performance organisations	113
4.6	A compact for change	114
4.7	Expected years of unemployment over a working lifetime by level of educational attainment for men aged 25–64 (1995)	123
4.8	National studies on the extent of over-education	125
4.9	Education and training in relation to current job, EU 1995	126
5.1	A comparison of the degree of coordination among the triad	154
5.2	What growth regime for the early twenty-first century?	156
5.3	Net job creations take place in quite diverse sectors, not only in those that are high tech, OECD, 1980–95	158

5.4	Alternative emerging growth regimes and the redesign of institutional forms	164
5.5	Three social systems of innovation are coexisting within the EU	166
5.6	Toward a knowledge-based economy: the need for new policies in order to cope with the related externalities	168
5.7	At what level should each economic institution and economic policy component operate?	173
5.8	The new style for economic policy: a condition for optimising the European policy mix	176
5.9	What reform of industrial relations in order to cope with European monetary policy?	180
5.10	The institutional setting for strategy one	190
5.11	The institutional setting for strategy two	192
5.12	The institutional setting for strategy three	195
5.13	The institutional setting for strategy four	197
6.1	Different definitions of benchmarking cited in Cox, Mann and Samson, 1997: 287	206
6.2	The rankings of national systems by private organisations and their political impact	215

1. Introduction: for a European strategy at the turn of the century

Maria João Rodrigues

At the turn of the century, we must think in the long term. With this endeavour, the Presidency of the European Union organised a special interaction between the scientific and the political agenda. The purpose of this introduction is to reveal how this cross fertilisation was developed, leading to a new European strategy which aims to build a knowledge-based economy with more competitiveness and social cohesion. The main political dilemmas, the main theoretical issues, the new proposals and, finally, the political outcomes will be presented, providing a preliminary framework to highlight the following chapters.

1. EUROPEAN DILEMMAS

1.1. What scenarios for Europe?

Europe is facing a crucial period in its history. All the main issues of European civilisation are at stake and very contrasting scenarios are possible as shown in a wide range of literature (Delors, 1992; Wallace, 1990; Jacquemin and Wright, 1993; McRae, 1994; Bressard, 1997; Telò, 1998 and Fitoussi, 1999).

There is a bifurcation in each of the main factors shaping the European scenarios:

- In the international order, will we have a lasting American leadership or a more multipolar structure?
- In enlargement, will we have a slower or a faster pace?
- In the institutional reform, will we have a more confederal or a more federal evolution?
- In the creation of a single currency, will we have more or less credibility in the financial markets?

- In the specialisation pattern, will we have more or less polarisation between high-skilled and low-skilled European regions?
- In macroeconomic policy, will the emphasis of the fine tuning be on inflation or on unemployment?
- In structural policies, will we have less or more effectiveness in economic redeployment?
- In combating the different risks of social exclusion, will we have less or more effective policies?

The most likely combinations of these alternatives can lead us to some very different scenarios:

- In the scenario 'Slow integration', Europe retards both enlargement and deepening, faces difficulties in affirming euro, cannot avoid the rise of unemployment and social exclusion and loses influence in the international game.
- In the scenario 'Enlargement as the priority', Europe speeds up enlargement and reaches more credibility with euro, but faces some difficulties in regional development, employment and social exclusion.
- In the scenario 'Enlargement and deepening', Europe also has success in enlargement and in the single currency, achieving it with more economic and social cohesion associated with some kind of political deepening and increasing international influence.

Other combinations and other scenarios are of course possible and this makes the European path a complex and an uncertain one.

The focus of this book will be on the economic and social development of the European Union, whilst bearing in mind this more general framework.

1.2. A new paradigm creating a new context

Europe is at the crossroads in a changing landscape. A completely new environment is being created by globalisation, technological change and an ageing population with its impact on the welfare state. With globalisation, nations are competing to attract investment, which, on the one hand, depends increasingly on the general conditions supporting business competitiveness. On the other hand, business competitiveness depends increasingly on the capacity to answer just in time to the specific needs of the customer. This involves managing a greater amount of knowledge with the intensive use of information technologies.

Knowledge is becoming the main source of wealth of nations, businesses

and people, but it can also become the main source of inequalities among them. A new paradigm is emerging creating knowledge-based economies and societies. This is the broader significance we should give to the recent terminology about the 'new economy'.

Knowledge has always been an ingredient of human societies, but what is radically new is the speed of its accumulation and diffusion, due to information and telecommunication technologies. Working conditions and living conditions are being redefined. Markets and institutions are being redesigned by new rules based on the new possibilities of exchanging information. Internet is becoming the main infrastructure of this new paradigm.

Europe is somehow lagging behind in this transition and can learn a lot from the United States. But the point is not to imitate the United States, but rather to define the European way to the knowledge economy.

The challenges embodied in the European scenarios must be re-examined in the light of this emerging paradigm.

1.3. Dilemmas and possibilities

Some of these challenges concern competitiveness on the one hand and social cohesion on the other. Here we have a crucial dilemma. A realistic assessment might conclude that it is not possible to keep up with the so-called European social model, as this is now, in the new conditions created by globalisation and technological change, aggravated by ageing populations. Hence, a defensive answer to this prospect might consist of downgrading this European social model in order to increase competitiveness. A more affirmative answer, and also a more complex one is threefold: to build new competitive factors, to renew the European social model and to regulate globalisation.

Regulating globalisation depends on the ongoing reform of the United Nations and Bretton Woods institutions, namely the role of the International Monetary Fund (IMF) in financial markets, and on the next round of the World Trade Organisation (WTO) in order to foster multilateral trade. Better coordination of the foreign policies of European countries can also play a relevant role in this framework.

When building new competitive factors, a range of possibilities opened up by the knowledge-based economy should be explored in order to modernise companies, public services, schools, transports, cities and all the surrounding environment.

Renewing the European social model should create the conditions to help people move from jobs with no future to jobs with a future. This involves active employment policies, education and training, collective bargaining with a greater focus on change and more active social policies

ensuring a safety network. This also involves making a special effort to prevent the digital divide, the new forms of social exclusion arising from the information society.

1.4. Two central questions for Europe

Two central questions seem to emerge for Europe: How is it possible to speed up the transition towards a knowledge-based economy with more jobs and more social cohesion? How is it possible to make Europe a more competitive and dynamic economy, able to create more and better jobs and greater social cohesion?

These were exactly the central questions posed to European leaders at the beginning of the century, the right moment to think in the long term.

As a background to their decision making, they were given a broad picture on the emerging knowledge-based economy.

2. THE EMERGENCE OF THE KNOWLEDGE-BASED ECONOMY AS A GREAT TRANSFORMATION

2.1 The nature of the knowledge-based economy

The knowledge-based economy is more than the so-called new economy. The fashionable term 'new economy' is sometimes limited to software and multimedia business, supported by active financial markets. But this is the tip of the iceberg. A much wider change is going on which encompasses all sectors of activity, from services, to manufacturing and even agriculture under the pervasive effect of information technologies and telecommunications (Cairncross, 1997; Thurow, 1999). A deluge of technological innovations is invading all these sectors and transforming our lives, from computers to computer-aided manufacturing, and from mobiles phones to digital TV, but even the other usual concept of 'information society' is limited to capturing the in-depth nature of the ongoing change.

As a matter of fact, the ongoing change is not only technological but also institutional, and it concerns something more than information, namely knowledge. We are living through a great transformation (with the meaning given by Polanyi [1944], 1983) which concerns the very social processes of knowledge production, diffusion and utilisation. Knowledge accumulation was speeded up in the past by major inventions, such as writing and printing. Communication between different communities was made more independent of their co-existence at the same time and in the same space.

The current technological revolution is making human communication even more independent of time and space constraints, speeding up knowledge accumulation. The available knowledge at the cultural or scientific level is transformed in new contents and widely spread by increasingly powerful combinations of software and hardware. The knowledge intensity of products and services is also increasing, as can be seen in transport, health, education or entertainment. Knowledge is becoming the main raw material in many manufacturing companies. All social institutions work in a different way and even markets become more knowledge intensive, as displayed by financial markets or e-commerce.

A virtual reality is being built, the so-called cyberspace, whose main rules and architecture are still being defined, but which is already having powerful interactions with the existing world (e.g., Lévy, 1997). The organisation of the cyberspace is re-organising the existing world, shaping its economic, financial, political and cultural exchanges. Cognitive capacities, connectivity and cultural identity become the key instruments for survival in the new world. Internet and its social use is the most striking outcome of all this great transformation.

2.2. Economic and social implications of the knowledge-based economy

Knowledge is becoming the main source of wealth and power, but also of difference, between nations, regions, companies and people (Castells, 1996). Innovation based on a specific knowledge is the main competitive advantage. Competitiveness means to answer just in time to the personal needs of the customer, which requires a very sophisticated knowledge management. Mass customisation is succeeding to fordist standardised mass production (Tapscott, 1995). The foremost companies focus on the most value-added productions, build trade marks and launch wider operations of outsourcing and delocalisation. Network companies are spreading in all sectors and nations, reorganising the international division of labour. With e-commerce, businesses trade directly with businesses and the company dimension can become more irrelevant when taking advantage of globalisation. But soon the old intermediators are replaced by new intermediators capable of reorganising the market places in the cyberspace.

Knowledge management becomes a key component of corporate strategic management, activating the relationship between marketing, research and production. Corporate organisation is reshaped to build a learning organisation. New types of workers emerge, knowledge workers who have been categorised in different ways (Reich, 1991). Castells (1996) identifies new profiles, such as captains, innovators and connectors. Human resources

management focus with increasing sophistication on the production of new competences as a source of competitiveness (e.g., Le Boterf, 1998). In the meantime, new risks of social exclusion, of a digital divide, emerge involving all the workers who cannot keep up with this pace of change.

Labour markets tend to new forms of segmentation between workers with voluntary mobility based on up-dated skills and workers who run the risk of involuntary mobility due to out-dated skills. The institutional framework of labour markets is being shaped in order to recombine employability and adaptability with basic conditions of security and citizenship (e.g., Esping-Andersen, 1999; Fitoussi and Rosanvallon, 1996). Labour market services are more focused on active employment policies; social protection systems on activating social policies; industrial relations on negotiating new trade-offs between flexibility and security. Finally, education and training systems are facing the challenge of building a learning society as a pre-condition to having a knowledge-based society and not only a knowledge-based economy (e.g., Lindley (with Nadel), 1998). To sum up, institutional innovations are emerging and new social rules are being invented.

How can we highlight our possible paths in this great transformation? In order to foresee and to discuss the possible scenarios, we must come back to some foundations underpinning this analysis of the emerging knowledge-based economy.

3. THE INTELLECTUAL HORIZON AT THE TURN OF THE CENTURY

Thinking in the long term at the turn of the century requires a prospective effort, building on our intellectual legacy. Hence, some major breakthroughs of the past century should be underlined, namely in the philosophy of knowledge, the philosophy of science and the philosophy of politics, because they are shaping our intellectual horizon.

3.1. Philosophy of knowledge: theory shaping empirical evidence

The approach about the relationship between theory and empirical evidence is a key issue for the development of science. The central controversy in the philosophy of science between rationalism and empiricism yielded important outcomes throughout the twentieth century. Overcoming the established tradition of the experimental method giving birth to hypotheses, the Vienna school stressed the preliminary role of theory by defining the hypothetico-deductive method. Moreover, the role of empirical evi-