Preface

At the turn of the millennium, the European Commission released the communication, “Towards a European Research Area”\(^1\). This statement of goals has come to underline European strategic thinking regarding the role of the Commission, as well as that of national and regional governments of member states, in science and technology policy. The prospect of a European Research Area has provided the basic foundation for the sixth Framework Programme for Research and Technological Development and is expected to continue doing so for the seventh Framework Programme.

Networks linking scientists, research institutes, universities and firms are a pillar of the envisioned European Research Area. The communication from the Commission emphasizes the need for better coordination between national and European research centres. It also calls for more consistency in foresight exercises, science and technology watch, socio-economic intelligence, science and technology options at the national and European levels, and benchmarking exercises. It makes a plea for improved statistics and indicators at a European level, particularly the kind of indicators that address important features of the knowledge-based society.

This book traces its origins to a research project, “Network Indicators: Science, Technology and Innovation”\(^2\) (STI-NET) funded by the European Commission to start tackling the issue of network indicators. The main objective of STI-NET was to identify, construct and analyse network indicators for European science, technology and innovation. The consortium partners studied network formation and structure and derived relevant indicators from three large longitudinal databases of European patent citations, scientific co-publications and inter-firm cooperative agreements. By creating “connectivity indicators” (i.e. combinations of indicators showing relationships among agents in various knowledge-creating functions) the study made a significant contribution in terms of constructing datasets and deriving the network tools that can be used to study both the achievements of past European RTD policy and the prospective foci of the next Framework Programme. In addition, various research papers also explored the feasibility of using such indicators to address analytical questions with clear policy implications.

This book, however, contains much more than work originating in...
STI-NET. In the course of the years, researchers at KITeS-Cespri, Bocconi University, as well as at other centres in Europe and the United States, have been involved in other research regarding networks, such as: “Evaluation of Progress Towards a European Research Area for Information Society Technologies”; Networks of Innovation in Information Society: Development and Deployment in Europe concerning ICT; and KEINS – Knowledge-Based Entrepreneurship: Innovation, Networks and Systems – concerning knowledge intensive entrepreneurship. This book reflects these efforts. In particular, Chapters 3 and 7–10 are contributions from researchers and studies beyond STI-NET.

We have had two main objectives in putting this material together. One has been to open up to the reader the tremendous opportunities for significant work on policy and strategy using network concepts and indicators as well as to highlight the complexities and challenges involved. The other objective has been to tackle the network issue from a perspective that has been relatively disregarded in the extant literature but which, we feel, deserves a lot of attention: namely, the perspective of industry and of sectoral systems. This contrasts with the typical perspective of the individual organization on which the literature has tended to focus. We believe that some of the most important policy questions of our times lie at the sectoral system level (including the delineation of industry boundaries that are getting increasingly blurry). Correct as this argument about systems and boundary ambiguity might be, it also reflects the frustration of analysts in fitting a radically new global environment into the confines of old definitions and concepts. Could industries be defined more accurately in terms of sectoral systems, and therefore of both the nature of the output as well as the inter-organizational relationships rather than just the former?

A lot of people in addition to the authors have worked to make this book happen. While we cannot thank all of them here, we certainly extend our warmest thanks to Fabienne Corvers, Frank Cunningham, Vincent Duchene, Peter Johnston, Pia Laurila and Ugur Muldur, who – as officials of the European Commission – have provided guidance, feedback and support in various stages and through several research projects that built the underlying material for this book. We are also obliged to Jeff Williams at the George Washington University who worked diligently with us in editing and preparing the manuscript.

NOTES

1. Commission of the European Communities, “Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the


6. In the final preparation of their chapters, Franco Malerba, Stefano Breschi, Nicoletta Corrocher and Lorenzo Cassi acknowledge the financial support of the Italian Ministry for Education, Universities and Research (FIRB, Project RISC – RBNE039XKA: “Research and entrepreneurship in the knowledge-based economy: the effects on the competitiveness of Italy in the European Union”).