

Introduction - Research, Technology, Innovation: Analysis and Cases

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1. Foreword

We begin this book, which contains some essays of the international conferences described in the preface, with a brief reflection on the two institutions that promoted them: Fondazione Edison, which organized the conferences, and Accademia Nazionale dei Lincei, which gave the scientific sponsorship to them.

Both these institutions are important for their different traditions in the fields of scientific and technological research.

Fondazione Edison is closely associated with the historical roots of Edison, founded in 1884 and of Montecatini, founded in 1888. The two firms later on merged in a new firm named Montedison.

The two companies were able to build on their 'local' civil and economic base and then expand nationally and internationally by constantly focusing on technological innovation. It is a well-known fact that the discovery of polypropylene, for which Giulio Natta received the Nobel Prize in 1963, was made possible by the support of Montecatini in an outstanding example of collaboration between industry and research. Many other remarkable personalities throughout Montecatini's and Edison's histories deserved mention for their ability to combine entrepreneurial spirit and scientific and technological innovation, most notably Guido Donegani, Giacomo Fauser and Giuseppe Colombo¹.

Accademia Nazionale dei Lincei, which honoured the mentioned conferences with its trust and scientific sponsorship, was founded in 1603, making it the oldest Academy in the world. It is worth mentioning that its founding members included

¹ Quadrio Curzio A, Fortis M, Pavese C (2003), *Il Gruppo Edison: 1883-2003. Profili economici e societari*, Vol I-II, Il Mulino, Bologna.

Galileo Galilei, who in 1613 published his *Historia e Dimostrazioni Intorno alle Macchie Solari* as part of the Academy's proceedings. This is not the place for a lengthy and detailed presentation of the extraordinary scientific merits of the Accademia dei Lincei and of its contributions to Italian and international scientific history. Interestingly, Giulio Natta, Nobel Prize, was a member of the Academy in 1947, as were Giuseppe Colombo, member since 1888 and Giacomo Fauser, member since 1948².

It seems to us, then, that the holding of these international conferences and the publication of this book provide an historical perspective linking these two institutions, which share a complementary vision, even though their objectives are different. And this vision is that science and technology must cooperate and this means for us that industry can not prosper without research.

The same vision is also shared in this volume whose purpose is to explain the importance of scientific research and technological innovation to improve or to maintain economic leadership.

The volume is organized into 11 chapters many of which are rich of data, tables and figures. It is divided into two sections: the first one providing a historical and theoretical perspective on scientific-technological innovation and its importance for industrial growth.

The second section presents some national success stories to confirm the theoretical perspective and provide examples of how public policies and private incentives can combine fostering research and innovation and consequently attracting investments and generating growth.

Let us consider briefly some of the main points of the essays and of the book. The selection will be highly personal and therefore we apologise with the authors if they do not agree with our choices, even if we quote them extensively

2. Historical and Theoretical-Applied Perspectives

From the previous foreword, it should be clear that for us history matters very much. This is also the reason why we asked **Joel Mokyr** to provide an historical perspective to the whole conference and he done that in a very satisfactory way around the concept of 'useful knowledge' in its essay "The intellectual origins of modern economic growth: knowledge and technological change in the industrial revolution".

According to Mokyr the Industrial Revolution was the result of two phenomena: on one hand the increase in the relative contribution to economic growth of technological progress compared to other elements; and on the other one the transformation of the institutional basis supporting this progress.

Mokyr asks how it is possible to explain such change and suggests that "the change in the rate and nature of economic growth in the West must be explained

² Among the many publications on Lincei see D Freedberg (2002) *The eye of the Lynx*, The University of Chicago Press, London, Chicago.