

# Preface

The work that resulted in this book was prompted by the authors' many years of cooperation under various international fora as members of relevant international working groups and committees. The main drive was their interest to understand better and disseminate the issues that influence the conduct and governance of transport research in the various global regions and the prospects for increased international cooperation between these regions and the rest of the world in addressing major transportation challenges and problems of international importance.

The regions of the US and the EU have already been examined to a considerable extent over the past 10 years or so.<sup>1</sup> It was therefore within reason to focus this present effort on another region of the world namely that of East Asia. Our preference for this region resulted from the fact that there are a number of countries there, which are rigorously developing their transport research capabilities and are becoming world leaders in several areas of the transport field. These are Japan, the People's Republic of China and Korea.<sup>2</sup> They display the strongest transport research communities, a strong industrial sector that cooperates with these communities to create world leading innovation, and also a well-organized public sector interested in supporting research and technological development in the transport field. They also display the capacity and potential to develop strong international cooperation and the presence in this field.

The subject matter of the book as well as its focus are especially important and pertinent at this time period as fundamental change is taking place in the transport sector worldwide. Within the transportation industry, a revolution is emerging through the integration of autonomous vehicle technologies and electricity-based

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<sup>1</sup>One major such study, in which two of the current authors were major contributors, was the "*European—United States Transport Research collaboration: Challenges and opportunities*", Report of the Working Group on EU-US transport research collaboration that was set up within the MoU for collaboration between the US/TRB and ECTRI (the European Conference of Transport Research Institutes), February 2009.

<sup>2</sup>South Korea.

power and storage systems, as well as new forms of car ownership and usage. Indeed, this revolution is producing unique patterns of collaboration between multinational corporations and between corporations and the public sector. It also promises to affect aspects of transportation well beyond automobiles. In fact, it could transform current demographics, commercial transport systems, manufacturing, and the future of mass transit. It may also affect the rate of climate change and overall livability.

Future collaboration in the face of this revolution will depend on scientific and technological capabilities of the countries and multi-nationals involved. Collaborations are built on self-interest: technological, political, and economic. If there is no tangible benefit to collaborations, collaborations will not occur. The research governance systems of leading transport innovators have much to say about the future, given their fundamental impact on the nature and direction of innovation. Countries that are unable to go beyond the emulation of innovations developed in other countries or overcome cultural, demographic, and institutional legacies cannot be expected to be major players in international collaborations.

The focus of the book is on publicly funded transport research and the characteristics of the overall governance of the research and innovation production system. This is because without the government's role in funding transport research, substantive RTD&I is essentially impossible, but also because it affects the international research cooperation prospects and policies the most and can influence the private sector to invest in such research cooperative efforts too. Thus, although there is some mention of privately funded transport research—especially for the countries where a strong auto manufacturing industry exists—this book focuses mainly on publicly funded research. Besides the previously mentioned reason, we can also mention the fact that historically privately funded research was concentrated within the major auto manufacturers and this, is by the very nature of this industry already “international”.

In considering the particular characteristics and elements of the Research Technological Development and Innovation (RTD&I) landscape in each of the three countries examined, the book makes frequent references to the socioeconomic conditions and the historical events and decisions that preceded the current situation, as these have an impact on the current situation and may also influence the future. This is because the socioeconomic environment that exists in each country and the historical background to its development strongly influences the organizational and research governance structures that exist for research and innovation and the relevant policies that are followed. International transport research cooperation greatly depends on the respective country's policies to sustain economic growth and make its economy more competitive in the global scale.

By analyzing the research governance systems of Japan, China, and Korea as well as their enablers and constraints, we aim to highlight the future of international collaboration attitudes that are likely to prevail within both the legacy and the transformative sectors of transportation in these countries. However, our work and main interests extend much further and include, for example, the transport research performed by the various research performing entities and—as already noted—the

wider socioeconomic problems and challenges that are related to the transport system's eventual transformation. This, is also another reason why we focus on publicly funded transport research and the relevant governmental policies, and we try to identify key enablers and constraints as well as other issues (through our SWOT analyses) in each of the three countries that we evaluate in this book.

This book consists of five chapters written by different authors:

- Chapter “[The Case for Transport Research Cooperation with China, Japan, Korea—Rationale for this Book and Summary of Its Findings](#)”, contains the rationale for writing this book, explains the focus and scope of the work, and includes a summary of the main overall findings and conclusions for all three countries.
- Chapter “[The Changing Context of Transport Research](#)”, gives an overall background to the changing context of transport research in the face of the ongoing transformative changes in the field of transport and contains useful introductory and background material that helps the reader to understand the issues, the concepts, and the definitions involved.
- Chapter “[Publicly Funded Research and Innovation in the P. R. China and the Outlook for International Cooperation](#)”, contains the detailed analysis, data, and views on the situation regarding research and innovation production in general and in transport in particular in the People's Republic of China (PRC). It presents the relevant data and their analysis as well as some facts concerning the prospects and conditions under which the PRC would be expected to open up more its transport research and innovation system to the outside world in the future. This chapter also contains—in Appendix—a number of recent examples of international research and innovation initiatives involving the PRC and some key players in transport research of the outside world—mainly the US and the EU.
- Chapter “[Publicly Funded Research and Innovation in Japan and the Outlook for International Cooperation](#)”, presents the relevant findings and the analyses concerning Japan. As the Japanese economy boasts one of the most advanced and developed transport systems worldwide and a strong auto and rail manufacturing industry, it is of particular interest to this book. However, it displays many unique and interesting features which are discussed and analyzed, in this chapter.
- Chapter “[Publicly Funded Research and Innovation in Korea and the Outlook for International Cooperation](#)”, presents the findings and analysis of the data and facts concerning transport research in Korea, another major transport research performer in the East Asia region. It concentrates on the particular characteristics and interesting features of the Korean Transport research governance and (publicly) funded research in this country and presents the specific arrangements and provisions (plans) for future transport research programs with references to the most pronounced past and current transport research projects.

We hope that the readers of this book will get a detailed and clear picture of the transport research eco-system in the East Asia region and its contents will stimulate further efforts for cooperation among transport researchers, research bodies and relevant governmental organizations both between the countries of the region as well as between them and the rest of the world.

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Publicly Funded Transport Research in the P. R. China,  
Japan, and Korea

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