

UNIVERSITIES IN THE NATIONAL INNOVATION SYSTEMS

EXPERIENCES FROM THE ASIA-PACIFIC

Edited by
V. V. Krishna



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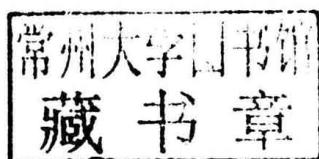


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Universities in the National Innovation Systems

This volume looks at the role of universities in the National Innovation Systems in economies of the Asia Pacific. It examines the tremendous growth of human and knowledge capital made possible by teaching and research excellence in major universities, along with how universities are being re-positioned as frontiers of innovation in the National Systems of Innovation. The chapters assess the impact of globalisation and innovation together with the emergence of 'new' knowledge sites extended to the Asia Pacific region.

With contributions by experts and academics and key case studies, this book will be useful to scholars and researchers in higher education, development studies, public policy, economics, business and resource management, Asian studies as well as policymakers.

V. V. Krishna is Professorial Fellow at the University of New South Wales, Sydney, Australia.

‘The relationship between universities and industry, be it biotech or IT, is a central issue for the 21st century. This volume focuses for the first time on Asia – it provides comprehensive analysis on how Asian countries are building university-industry relations and how academe is contributing to development.’

Philip G. Altbach, Center for International Higher Education, Boston College, Massachusetts, USA

‘This is an excellent and timely volume. The World, and Asia in particular, stand at a crucial point in bringing new knowledge to bear on our future. The book is authoritative and comprehensive, of importance to anyone concerned about the role and organization of knowledge in innovation and development.’

Stephen C. Hill, Emeritus Professor, University of Wollongong, Australia, and Former Ambassador, UNESCO

‘This unique volume brings together 13 country case studies in one place and demonstrates the status of research and innovation from Asia-Pacific economies both from academic and policy perspectives.’

JinHyo Joseph Yun, President of the Society of Open Innovation: Technology, Market, and Complexity, Korea, and Editor-in-Chief of *Journal of Open Innovation: Technology, Market, and Complexity*

‘Leading experts from 13 Asia-Pacific economies analyze the role of universities in innovation, making this a unique volume. A must-read for researchers of innovation and development practitioners.’

Nagesh Kumar, Director, Social Development Division, United Nations Economic and Social Commission for Asia and the Pacific

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Foreword

I make no secret of the fact that I have a strong passion for education, scientific and cultural collaboration between Australia and Asia and a deep affection for our bilateral engagement with India. Consequently, Professor Krishna's research is of great interest to me.

There have been many papers written over the past decade on the underpinning drivers of the new knowledge economy in a rapidly globalising and digitally driven world, and the rise of universities as significant contributors to economic prosperity and knowledge exchange. However, these essays showcase the important role both Asian universities and STEM disciplines play in the successful development of national innovation systems.

In this important book of essays on *Universities in the National Innovation Systems: Experiences from Asia-Pacific*, Professor V. V. Krishna provides comprehensive and compelling insights into the importance of universities and Higher Education Institutions (HEIs) as critical components of the ecosystem fostering innovation across large emerging economies and the technologically advanced economies in Asia, Australia and New Zealand. He also reminds us of the critical higher education foundations that have been laid through the Three Academic Revolutions – first when teaching in specialised HEIs was institutionalised; second, the transformation of universities from institutions of cultural preservation to a particular emphasis on science and technology disciplines, sometimes characterised as the Humboldtian Revolution; and third, the progression of universities from having just a teaching focus to actively promoting knowledge transfer and economic development. These revolutions have reinforced the foundations upon which new types of universities have developed with three clear missions, namely teaching, research and innovation. As Professor Krishna posits, these distinctive categories of university have shaped

quite distinct identities in the last couple of decades, motivated by new directions and supported by more responsive institutional arrangements to engage with industry partners and a cross section of economic and societal sectors.

Traditionally, teaching-focussed universities are dedicated to producing work-ready graduates, especially for the professions, while research-intensive universities do not only the same, but also provide the critical knowledge and research to enable considered policy formulation and informed strategic decisions across all sectors of the economy and for the benefit of society. The innovation-oriented universities actively engage with corporations, government and industry to develop enterprises that stimulate and expand the economy through proactive knowledge transfer and exchange, and are often integral partners in science, technology or innovation.

It has been a privilege to host Professor Krishna once again as a Visiting Professor at UNSW in 2016. Professor Krishna's visit coincided with an important time for innovation in our Australian context, as the Australian Government works to roll out its new National Innovation and Science Agenda. Launched in December 2015, the agenda sets out an ambitious plan for innovation in Australia including a powerful Innovation Statement. UNSW Sydney has also launched its own Innovation Statement, flowing from its ambitious and altruistic 2025 Strategy announced in October 2015.¹

At the time of publication of this important collection of essays, UNSW is joining forces with China's innovation system in developing a science and technology precinct in the heart of Sydney. This will be one of the biggest innovation initiatives by Chinese companies outside China and the first of its kind in the world. Announced in February this year, the UNSW Torch Innovation Precinct has the potential to put UNSW at the centre of a global innovation drive and deepen its relationship with China.

I found it incredibly stimulating reading about the important contribution that is being made for the benefit of economic prosperity, society and the wider global knowledge economy by leading universities across the Asian region and Australia. In my role as Pro-Vice-Chancellor International at UNSW Sydney from 2006 to 2012, I was fortunate to visit most of the universities cited by Professor Krishna including his university, JNU, New Delhi, and to see at first hand a number of science, technology and innovation parks and incubators that are spearheading regional and national economic growth and development. Interestingly, whether they were established as

teaching intensive or research intensive or a combination of both, these institutes/universities are now critical partners in the age of innovation and are strengthening their important contribution to the national and even global innovation ecosystems.

The insightful research undertaken by Professor Krishna and his academic peers who have contributed to this book, amplify the incredible contribution universities make across the Asian region and Australia. It also highlights the critical role both fundamental and applied research play in driving the 21st-century Asian economies, drawing heavily from careful strategic investment in STEM and STEAM (including Arts) research and development more widely.

In the age of innovation, we are witnessing the powerful triple helix of education, government and industry partnerships that are delivering enormous impact especially in East Asia and Southeast Asia, particularly Singapore. Singapore has emerged as a regional and global pace-setter through its strategic investment in research and development and knowledge transfer, as evidenced in the creation of the Biopolis in the OneNorth Technopole, which hosts a number of Singapore's biomedical research institutes together with industry partners from Singapore and beyond, and government instrumentalities including A*Star. These powerful hubs, which are supported by government, universities and industry, attract the best scholars from around the world to create IP and higher impact knowledge transfer for the benefit of major companies and industries, both nationally and globally.

As this region actively repositions higher education sectors and universities as knowledge enterprises,² enabled by the digital revolution and global education and communications platforms, we are on the cusp of a seismic shift in STEM and STEAM disciplines as critical pillars of both higher education and national innovation systems in the Asia Pacific region.

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Notes

1 UNSW 2025 Strategy, October 2015.

2 Richard C. Lewin, President, Yale University, 2010.

Acknowledgements

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