

BOOK REVIEW

Invention to Innovation: How Scientists Can Drive Our Economy

By Larry Marshall with Jenna Daroczy

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In a country that has nurtured numerous inventions and great scientific minds that have shaped our modern world, *Invention to Innovation* makes the case that Australian science can deliver economic success requisite with its extraordinary potential. Drawing on his decades of experience in the world of Silicon Valley venture capital (VC) and most recently as Chief Executive Officer of CSIRO, lead author Dr Larry Marshall provides readers with a positive market vision for Australian science while identifying barriers to the immense commercial success seen in Silicon Valley and Europe. *Invention to Innovation* is an enjoyable read for venture capitalists, industry, government and aspiring scientist-entrepreneurs. It highlights how Australia's innovative spirit and enormous intellectual capital may foster world-class commercial success if these entities resolve to nurture the Australian innovation ecosystem with a new perspective.

The book presents numerous barriers that may prevent widespread commercial success stories in Australian science. The chief barriers seem to be cultural in nature, elements of a disposition pervasive throughout the Australian innovation environment that stifles the market for deep-tech opportunities. These barriers include the fear of failure among all stakeholders within the system (generally cautious corporate decision makers), discouraging scientist entrepreneurship, and a finite view of domestic market size. The reader cannot distil tangible remedies from the wealth of content because of the amorphous nature of the problems presented. However, the book convincingly illustrates these cultural barriers and their chilling effects on Australian innovation through a plethora

of anecdotes from Silicon Valley and quotes from leaders in technology commercialisation.

A broad theme that looms large throughout the book is a call for a richer VC environment in Australia. Whether that be encouraging greater risk tolerance for deep-tech investment or overcoming the cultural disposition to fear failure in professional investing, these insights are undoubtedly derived from the lead author's extensive experience in the world of VC. The advantages of Australia's emerging VC environment are described in some detail and compared to international counterparts. Upon reading Chapter 2 of this book, venture capitalists around the globe would find these advantages an appealing reason to consider Australian innovations over those in other markets. One concrete example provided is the low barrier to entry to a company listing on the Australian Securities Exchange for companies seeking an Initial Public Offering. This is reinforced by Australia's abundance and diversity of scientists from its world-class universities poised to deliver innovations that VC resources can promote.

In addition to broad themes, the book provides encouraging remarks and compelling advice for scientists aspiring to entrepreneurial outcomes for their research. The reader may leave later chapters confident that Australia indeed needs more scientist-CEOs. Throughout the book, the organisational benefits of this unique class of innovators are described, as well as mindset and market changes that could increase their prevalence among corporate executives. Readers will not find concrete proposals for these changes. Rather, Chapter 4 provides general proposals such as giving STEM students or recent graduates more exposure to business education, moving the mindset among the

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scientific community away from research perfection and more towards market readiness, and allowing government or private industry to reward scientists who can clearly promote singular commercial applications of impressive research. Chapter 5 can be read as a handbook of informed advice for scientists and individuals looking to improve the market vision for their research. The general proposals and advice presented in these chapters are laudable and may be helpful to readers in government, science, VC, and industry seeking to tap the entrepreneurial potential of Australia's world-class scientific corps.

As it relates to industry, the book calls readers in the corporate world to move away from a culture that stifles innovation. The authors attribute this corporate disposition to what they describe as a false understanding of potential domestic market size. Readers are encouraged to cultivate the innovation in their respective sectors to expand the size of their market rather than stamp out startups or technologies seeking commercialisation that are currently perceived as competitors. This appeal against the highly competitive instincts of Australian industry is another instance in which the authors seek a cultural shift, informed by a lived experience in the innovation environment of Silicon Valley that they consider to be more ideal.

No doubt as a result of Dr Marshall's time as CEO of CSIRO, the authors illustrate that institution as the protagonist that can propel Australian innovation forward. In the absence of distinct

recommendations, it is a compelling message for the reader that CSIRO-led endeavours, like the accelerator and venture funds, can be the foundation upon which a more meaningful government campaign to promote innovation can be built. In Chapter 8, the book calls for bold, high-minded innovation missions to be the driving mechanisms by which government can lift technologies and scientists that seek to make the largest impacts on the issues of our time. This may be seen as a vague yet flexibly ambitious model for government promotion of Australian innovation derived from international examples of success.

Invention to Innovation delivers a new vision of Australian innovation in the 21st century. It is a vision of Australian scientific excellence and leadership brought to the global marketplace for lasting domestic economic benefits and progress in the evolution of international technology. The book is structured in a manner that readers of all backgrounds would find approachable, and indeed the Australian VC, industry, government and science communities would benefit greatly from its words. Marshall's anecdotes from an extensive career and thoughtful quotes from other leaders add a richness to the narrative that compels conversation. After completing *Invention to Innovation*, the reader is likely to leave convinced of Australia's unique innovative spirit and intellectual abundance that may position Australian technologies to take a greater role on the global stage if the aspirations of this book come to fruition.

Book Authors Profiles

Dr Larry Marshall was Chief Executive Officer of Australia's national science agency, CSIRO, from 2015 to 2023.

Jenna Daroczy is the Leadership and Strategy Communications Manager at Australia's national science agency, CSIRO.

Book Reviewer Profile

Justin Maroccia is an American environmental and agricultural policy expert with a background in public policy advocacy and government administration. Prior to coming to Queensland to serve as a Senior Policy Officer in the Department of Environment and Science, Justin served in Washington D.C. as the chief sustainability policy representative for two leading American agribusiness and innovative bioproduct trade associations, the Corn Refiners Association and the Plant Based Products Council. Justin holds a B.S. in agronomy from Virginia Tech and an M.E.S. in Environmental Studies from the University of Pennsylvania.

Justin Maroccia (jf.maroccia@gmail.com)

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