Innovation Ecosystems

Martin Fransman presents a new approach to understanding how innovation happens, who makes it happen, and the factors that help and hinder it. Looking at innovation in real time under uncertainty, he develops the idea of an ‘innovation ecosystem’, i.e. a system of interrelated players and processes that jointly make innovation happen. Examples include: how companies like Amazon, Google, Facebook, Apple, AT&T, and Huawei interact in the ICT ecosystem; four innovations that changed the world – the transistor, the microprocessor, the optical fibre, and the laser; the causes of the telecoms boom and bust 1996–2003 that influenced the Great Recession from 2007; and the usefulness of the idea of innovation ecosystems for Chinese policymakers. By delving into the complex determinants of innovation, this book provides a deeper, more rigorous understanding of how it happens. It will appeal to economists, social scientists, business people, policymakers, and anyone interested in innovation and entrepreneurship.

Innovation Ecosystems
Increasing Competitiveness

MARTIN FRANSMAN
University of Edinburgh
This book is dedicated, with admiration and gratitude, to Richard Nelson
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Preface

This book is addressed to all those who want to understand innovation better, who want to know how innovation happens, who makes innovation happen, and how innovation is best conceptualised.

Innovation is about creating novelty and injecting it into the socio-economic system. Over time, innovation is the most important driver of socio-economic change.

But the process of innovation is complicated and uncertain. How it happens, who makes it happen, and how it is best conceptualised is by no means obvious. These are the issues into which this book delves. The first introductory chapter gives the reader a fairly lengthy overview of the topics addressed. The overall conclusions drawn are presented in the final chapter.

From the outset it must be emphasised that this book is not intended to be a survey of the literature relating to innovation and systems. To provide such a survey would require another book with another set of objectives. The aim of this book is on the one hand more limited but on the other more focused. More specifically, the aim of this book is to explore the idea of what is referred to in the book’s title as innovation ecosystems.

Innovation ecosystems are socio-economic systems that make innovation happen. The exploration of this concept is undertaken in this book through the close examination of what may appropriately be thought of as two relatively unrelated schools of thought. The first school is the ‘systems of innovation’ school and the second the ‘business ecosystems’ school.

The method that has been adopted is to examine the ideas and main publications of several selected pioneers of each of these schools. These pioneers have set out the terrain, as it were, which has provided the fertile soil within which other writers have developed
their own contributions. In so doing, these pioneers have shaped their field whilst leaving it to later-comers to make their own additions. This book does not attempt to follow the many threads that weave their way through these two schools of thought. Rather, it explores a number of important issues that are raised by the conceptualisations of innovation and systems contained in the work of the pioneers of the two schools. The most important of these are the questions of how does innovation happen and who makes innovation happen?

Since intellectual output always stands on the shoulders of many others, acknowledgements and debts are due. My first debt is to my mother and father, Dee and Elie, who were always encouraging and supportive. Intellectual acknowledgements must also be made since without the people named, this book would not have been possible.

Chronologically, my first intellectual debt is to my first teacher of economics, Ludwig Lachmann at the University of the Witwatersrand in Johannesburg. It was Lachmann who taught me that ultimately economics is about people, not super-competent calculators, but fallible people like you and me, trying to do what seems best for ourselves but largely muddling through in a world where certainty is the exception rather than the rule.

An important influence on this book, as will readily be evident to the reader, is a contemporary of Lachmann’s, Joseph Schumpeter. Although they focused on different issues, there is a significant degree of compatibility in their thinking.¹ Both Lachmann and Schumpeter were convinced that mainstream economics does not provide sufficient room for a rigorous analysis of the issues that they felt were fundamental for a proper understanding of the capitalist economy. For Schumpeter, the main issue was how novelty is created and diffused within the forever restless capitalist system. It was this concern that led him to an analysis of the role of innovation.

Two contemporary Schumpeterians have also been important influences. The first is Richard Nelson, founder with Sidney Winter of modern Schumpeterian-evolutionary economics. It is to Dick that this book is, with gratitude, dedicated. Dick’s many rich contributions provided a beacon for the young and gradually older scholar who has written the present book.\textsuperscript{2} The second is Stanley Metcalfe, whose insightful common sense about the workings of the capitalist economy has always provided inspiration.

I also want to acknowledge with gratitude the understanding and support of Simon Clark, head of the School of Economics at the University of Edinburgh.

Crucially, however, the intellectual contributions of scholars, important though they have been, have not been sufficient. Equally important have been the many contributions made by key decision-makers in the great number of companies – both large and smaller in many countries around the world – with whom I had the great fortune to discuss. In a crucial sense, it is they who were my teachers.

Although it is extremely difficult to select names, it would be remiss of me if I did not mention the following. The first is Arno Penzias, former Vice President of AT&T, President of Bell Laboratories, and Nobel Laureate. I met and briefly worked with Arno at a key point in the history of Bell Labs, arguably the most important corporate research laboratory of all time. Arno was in the midst of rethinking and reorganising Bell Labs when for the first time in its history AT&T was forced by regulatory changes to confront competition from designated new entrants. The issues that Arno had to deal with and the solutions that he created deeply influenced my subsequent thinking about innovation.

Japan and leading Japanese companies have also been a crucial formative influence. As the main post-war catch-up country, the

\textsuperscript{2} The conclusions that Nelson arrived at regarding the importance and approach of Schumpeterian-evolutionary economics and why it has not been more widely accepted by mainstream economics are very similar to my own as is evident in the present book. See his seminal article, Nelson, R.R., 2012. ‘Why Schumpeter has had so little influence on today’s main line economics, and why this may be changing’. Journal of Evolutionary Economics, 22, 5: 901–16.
experiences of innovation in this country are of particular interest. Here I must mention, with deep gratitude for the enormous amount of time coupled with intense, stimulating discussion over many years, the contributions of Botaro Hirosaki, Executive Vice President and head technology officer at NEC, and his successor, Katsumi Emura, Executive Vice President and current CTO, as well as Norio Wada, CEO and then Chairman of Japan’s largest telecoms company, NTT, and Sadahiko Kano, Vice President of NTT. Another important influence was Didier Lombard, CEO of France Telecom.

Closer to home I must also thank Ian McCoull and his innovation colleagues at Scottish Enterprise. Their commitment and practical activities aimed at helping companies based in Scotland to improve their performance through innovation has also been a source of both stimulation and inspiration.

The role of these and other key company decision-makers was crucial in injecting aspects of the real world into my thinking, which, in the academic environment which was mine, could all too easily have lost touch with reality.

Mention must also be made of the generations of students whom I had the good fortune to teach over my many years as a university teacher. Their youth and enthusiasm were always a joy. Being students in a conventional economics department, their questioning and fresh insights were often stimulating.

I must also acknowledge, with profound thanks, the generous Leverhulme Fellowship which allowed me to take off one year to write this book. Without this help the present book simply would not have been written.

Finally, gratitude is due to my family and particularly my wife, Tammy, who has graciously put up with the prospect of ‘yet another book’ and the grumpiness that inevitably accompanies a bad day’s writing.

To all these, and the others not mentioned here, I express my deepest gratitude.