FRANSMAN, M. (2010). THE NEW ICT ECOSYSTEM: IMPLICATIONS FOR POLICY AND REGULATION, CAMBRIDGE UNIVERSITY PRESS: CAMBRIDGE.

Reviewed by Lucky Madikiza,
Development Bank of Southern Africa (DBSA)

This new book by Martin Fransman, Professor of Economics at the University of Edinburgh, invokes the biological concept of an "ecosystem" as a metaphor for understanding and interpreting the development of the ICT sector. Fransman suggests that we should consider ICT as a living, breeding and evolving environment, much like the complex dynamics and interplay of biological organisms. But exactly what prompts him to adopt the idea of the ICT sector as an evolving ecosystem?

This approach is justified in an assertion in the preface of the book that "the idea of interacting organisms in a constant process of change is more appealing than that of a mechanical system settling into equilibrium, if the aim is to understand living force and movement" (Fransman, 2010: xiv). The "interacting organisms" in the ICT socio-economy are firms and consumer users of technology products and services. The nature of the interactions in these so-called organisms continually changes as learning and adapting takes place through a range of "symbiotic interactions". These symbiotic interactions should in turn be seen as embedded in another, broader bio-network – one which consists of institutions and other non-firm entities, such as universities and government research and policy-making institutions that also play a role in the ICT ecosystem. Then there are the technical aspects of this ecosystem, such as platforms, architectures and networks.

Though he utilises a biological concept of "ecosystem", the thrust of Fransman's focus is economic. The essence of his approach is that the ICT sector is vital as a driver of socio-economic growth, providing the enabling communication infrastructure upon which contemporary economies function. Fransman goes further to address questions such as: why does the ICT sector perform better in some countries than in others; and what should governments, regulators and firms be doing to enhance its contribution to development? These two questions are perhaps more pertinent to policymakers and regulators.

On the second question, Fransman observes how some countries fare better than others in ICT competitiveness. He documents how East Asian firms have enjoyed a globally dominant position in the "networked elements" layer of ICT (telecoms equipment, computers and consumer electronics). These companies come mainly from four countries (Japan, Korea, Taiwan and China), and have achieved global competitiveness in areas previously dominated by firms from the USA and Europe.

Fransman suggests that, in these four countries, the necessary conditions to stimulate a "sustainable learning-based growth trajectory" (Fransman, 2010: 217) were put in place very early. For instance, Korea started assembling consumer products such as black and white TVs in the 1950s, while Taiwanese firms began low-cost assembly for US firms around the same period. Chinese companies in computers and telecoms equipment emerged from government research institutes. It was the learning-based trajectory that ultimately led to these countries becoming major global players. More precisely, he observes, it is particularly when innovation is fervently propagated within the ICT ecosystem that some countries succeed better than others.

The fact that Europe has been beaten in the global competiveness stakes can be discerned from the regulatory framework adopted there. Europe's New Regulatory Framework places emphasis on a single market; establishment of competitive conditions in the EU market; and the need for remedial intervention should there be an operator with significant market power (SMP). However, for Fransman, these conditions, though necessary, are insufficient to drive Europe to be globally competitive. Rather, "it is the intensity of competition that is crucial – where firms fight and cooperate in order to improve their positions, often using innovation as their key weapon – rather than 'market power' as defined in the Framework" (Fransman, 2010: 157). He blames what he calls the "Dominant Regulatory Paradigm in Telecommunications (DPRT)" (Fransman, 2010: 74) in policy and regulation. This paradigm is concerned with dealing with a dominant incumbent that holds SMP until there is sufficient competition in the market. However, this DPRT stifles innovation and does not provide incentives to investment by an incumbent.

It is therefore important that regulators and policymakers begin to consider the ICT sector in terms of an ecosystem paradigm, so that a response to its strengths and weaknesses can be a much more coordinated one. The problem in many contemporary policy and regulatory environments is that ICT governance institutions are fragmented; these include regulatory authorities, competition authorities and standardisation bodies. This raises questions around coherence in policymaking for the ICT ecosystem. Further, regulatory and policy frameworks must factor in or enable the crucial process of innovation to drive ICT growth.

It is therefore a critical assertion that policymakers and regulators must be conscious of ICT as an evolving ecosystem. Fransman's work is ground-breakingly original in this regard. The fact that he won the 2008 – 2010 Joseph Schumpeter Prize for this work attests to the high regard in which his analysis is held.

This book is a refreshing work from an economist who has moved away from the mould of mathematical models often seen in economic-oriented ICT analysis. At times, such models come with simplistic assumptions on how markets or competition work. If we adopt, instead, the natural science assumption of an evolving ecosystem, the ICT environment must evolve in its entirety, including its firms, consumers, governing institutions and markets.

Fransman's insights have important implications at the level of ICT regulation and policymaking. How should ICT regulation and policymaking institutions be configured to respond to a highly

innovative, changing sector? How do we alleviate the problem of regulatory or policy lag, which tends to chase after the moving target of a rapidly evolving ICT sector, despite the limitations of institutions? A suggestion is that these macro spheres in the ICT ecosystem must themselves have competencies to be futuristic. They must contemplate and experiment with foresight methodologies on regulatory and ICT policy issues. One has noted some interesting work on foresight ICT policy analysis by Leo van Audenhove. In similar vein, futuristic research orientations must come to the fore and regulators should become more aware of ICT "regulatory futures" research efforts. In the same way that innovators are always contemplating ICT technology trends such as Web/Internet 3.0, fourth generation networks, Telecoms 3.0, decision-makers should be putting a comparable effort into thinking about next generation regulatory and policy frameworks. This means that regulatory and policymaking institutions must have vigorous innovation and future studies research functions in their own internal R&D structures. These next generation steps are also imperative if the institutional frameworks of ICT governance are to keep pace with an evolving ICT ecosystem.

Fransman's work is invaluable reading for policymakers and regulators, as well as ICT companies and organised consumer groups. It represents new thinking, a new paradigm of considering ICT as an ecosystem, which should hopefully gain some mindshare among various role players in the ICT sector.