trusted DRM system is essential, its actions and influence on the ordering of that system are assumed rather than explored. Gillespie argues only that users sometimes matter (pp. 242–43). However, the empirical evidence shows that the technology blocks are invariably circumvented and in a socially constructed trusted system, users probably matter all of the time.

Few readers would disagree that the issues considered in this book are important and need to be articulated, particularly in the context of prevailing public apathy about copyright matters and amid the frenetic attempts in boardrooms, courts and parliaments to sort out the digital economy. This book is a thought-provoking read for the generalist and for policy makers seeking a broader perspective on copyright. It will be more relevant to US readers than those in other jurisdictions. The book was republished in 2009 in paperback with an updated preface. Interestingly, the paperback version is priced on Amazon at US$10.85, which is unaccountably US$1.14 cheaper than the digital version available through the Kindle e-book reader.

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Nick Ingelbrecht
Darlington, Western Australia
nick.ingelbrecht@gartner.com

Wired for innovation: how information technology is reshaping the economy, by Erik Brynjolfsson and Adam Saunders, Cambridge, MA, MIT Press, 2010, xvii+154 pp., US$18.95, ISBN 978-0-262-01366-6

This slim volume, written by one of the foremost researchers on IT and productivity with one of his current PhD students, aims to 'provide a guide for policy makers and economists who want to understand how IT is transforming the economy and where it will create value in the coming decade' (pp. 11–13). IT is defined more narrowly than Information and Communication Technology (ICT), but in most of the book the two terms can be used interchangeably. The book contains an introduction and eight chapters of varying length. Each chapter ends with a list of between three and five further readings with a one- or two-sentence comment on each. There are no equations.

The core argument of the book is that IT has been responsible for the resurgence of productivity growth in the US since 1995, and that gains from IT can only be realized with time lags and substantial additional investments in 'organizational capital', a form of intangible capital neglected in national income accounts. Organizational

capital is defined in general terms as the unique combination of a firm's productivity-enhancing business practices (p. xiii). Its importance is indicated by the example of Google, a company worth about US$100 billion at the start of 2009, but having only US$5 billion in physical assets and US$18 billion in cash, investments and receivables. This leaves US$77 billion of intangible assets.

The introduction opens with the remark that innovation in technology will continue through the booms and busts of the financial markets and of business investment. Disappointingly, this veiled reference to the Great Recession is about the only comment on the current crisis. This is a major weakness in a book that tries to help explain where IT will create value in the coming decade.

Chapter 1 focuses on the importance of productivity growth and the difficulty of measuring this in the Information Age. It covers a lot of basic material which a cynic might argue is appropriate for politicians, but not trained economists. The chapter also highlights another major problem with the book. When addressing the question of how countries can achieve higher productivity growth, the authors acknowledge that the answer includes strong institutions, the rule of law, and investments in education. However, they explicitly focus on two other major factors, technology and innovation. The latter cannot be discussed separately from the former.

Chapter 2 deals with the measurement of the information economy and its limitations. It also covers basic material about the definition of industries, price indices and their quality adjustment, and the Dow Jones index. The authors provide data according to the narrow North American classification of the information sector (Table 2.6), and point out some of the major areas of production of information goods neglected in the accounts, e.g. the value of free software and of home-production of information services (such as online searches for holidays). However, readers of this journal familiar with the history of the measurement of the information economy will be disappointed. The authors seem to have amnesia about earlier efforts; for example, the sectoral approaches associated with Machlup, Porat, the OECD and others. Readers unfamiliar with the information and knowledge economy literature might think that the current North American definition of the information sector is all there is. It is also interesting to note that Table 2.2 shows the Finance, Insurance, and Real Estate (FIRE) industries, which are not part of the narrowly-defined information sector, to be the largest sector of the US economy in 2008. This is mentioned without reference to the current crisis. The size of the FIRE industries arguably indicates a pathology of the information economy associated with the bubble preceding the Great Recession (see Engelbrecht, 2009).

A review of the literature on IT, productivity and economic growth is provided in Chapter 3. It discusses the well-known IT productivity paradox of the 1980s and 1990s, the surge in US productivity growth during 1995–2000 due to IT *producing* sectors, and the spread of IT associated productivity growth to IT *using* sectors since then. The authors use the term 'sources-of-growth model' to refer to growth accounting. This is a well-established technique in economics and its advantages and shortcomings are discussed in many textbooks. Some general references to this literature would have been useful. In particular, the fact that it can only account for the proximate, not the ultimate, sources of growth should have been mentioned. Furthermore, the terminology used in Table 3.1 is potentially confusing. In the table, the authors refer to IT and non-IT industries. The latter include all 'non-IT producing industries'. It would have been more interesting to divide them into two groups, i.e. *more intensively* versus *less intensively* IT using industries. This distinction has proved useful in

highlighting the correlation between more intensively IT using industries and productivity growth in economies that experienced weak or no overall productivity growth (see Engelbrecht and Xayavong, 2006). However, the authors do not refer to findings that might contradict their view that the US is exceptional in its ability to realize gains from IT. Furthermore, a myriad of measurement issues are involved in computing productivity figures and making them comparable across countries, with revised estimates appearing regularly in the literature. To mention but one, Gordon (2010) has recently updated one of his papers cited in the book. His interpretation of the US evidence is quite different from that of Brynjolfsson and Saunders. For Gordon, the IT revolution is basically over. He also comments on the 2008–09 recession and argues that at present statistical trends cannot be extended past 2007. Such more critical views are neglected in the book.

Chapter 4 reviews some of the literature on business processes that enhance productivity and explain productivity differences at the firm level. This goes beyond differences in the extent of deregulation of product and labour markets, which are often used as an explanation of productivity differences at the more aggregate, cross-country level. The chapter first reports findings of a study by Brynjolfsson and another of his co-authors on seven practices correlated with, and found complementary to, IT intensity in US companies. These 'seven pillars of the digital organization' are: the move from analogue to digital processes; open information access; empowerment of employees; the use of performance-based incentives; investment in corporate culture; recruiting of the right people; and investing in human capital. A check of Brynjolfsson's MIT website reveals that, apart from a case study of Cisco, details of the other 1100 plus companies investigated are not available because of confidentiality agreements, i.e. it is not clear to what extent the study covers the FIRE industries. (It would be interesting to establish to what extent firms in these industries followed the seven practices.) Next, the literature on complementary business practices is reviewed. I count 14 major firm-level case studies and empirical papers cited in this section. They all indicate the importance of firm-specific changes in many of the complimentary practices ('systems of complementary activities') that are necessary to realize productivity benefits from IT investments. The review does a good job pointing out how difficult it is to reap these benefits, indicating that successful IT investment is more of an art than a science. It is again argued that, on average, US (owned and managed) companies are in some sense exceptional in this respect.

The next chapter explores how to measure the business processes highlighted in Chapter 4. The authors conceptualize these processes as an asset (i.e. organizational capital) but also point out that as yet there is no consensus definition of it. There is discussion of how accounting rules misclassify investment in organizational capital, and of the various ways this might be measured. Three possible approaches are mentioned to construct a value for intangibles: estimate spending directly; use of financial market data (e.g. comparison of a firm's total market value with the value of its tangible assets); and use of analysts' estimates of a firm's earnings. Readers are again left wondering about the impact of the Great Recession and what it might reveal about the different methods of measuring organizational capital.

Chapter 6 contains a short review of issues about incentives for innovation in the information economy. It begins with a discussion of the difficulty of measuring inputs and outputs in knowledge industries and the peculiar properties of information as an economic good. Next, the literatures on knowledge spillovers and general purpose technologies are briefly introduced. This is followed by a discussion of a number of

information industries that have thrived despite declining distribution costs. The chapter finishes with comments on the need for innovative business models and the persistence of price dispersion online. There is no discussion of the wider context of innovation. For example, there is no reference to the literature on national innovation systems.

The shortest chapter in the book (Chapter 7) introduces consumer surplus as a way of measuring the economic value of digital technologies and innovation in information goods and services. It starts with an exposition of the well-known basic concept of consumer surplus, before reviewing a number of studies that apply the concept to specific issues of the digital economy. The authors conclude that, measured by consumer surplus, the effects of technological innovation over the decades would probably amount to 'hundreds of billions, perhaps trillions of dollars of unmeasured benefits in the economy' (p. 114).

The final chapter reviews a number of promising areas for future research. The first one is the analysis of extremely detailed task-level data, including social network data. There is no mention of information overload and associated problems. The second promising area of research is the measurement of consumer surplus associated with new products, quality improvements, product variety, etc. There is not even a hint of possible negative effects such as stress induced by innovation and affluenza (i.e. excessive consumption) (see Engelbrecht, 2007). Another promising research area is improved measurement and understanding of organizational capital and other intangibles. However, the discussion again seems overly narrow. There is no mention of entrepreneurship (entrepreneurial capital) or social capital, despite the importance of these concepts in the literature. If technology investment is expanded to include the cost of reorganization and training, should they be included in a mega-organizational capital measure, or should organizational capital be subdivided into the already familiar concepts of human capital, social capital and entrepreneurial capital? The book repeatedly mentions organizational capital without exploring its composition or links to other relevant capital concepts. Lastly, the design of incentive mechanisms for innovation in information goods and open source economics is mentioned as a promising research area. The authors confine their comments about open source to very general statements without providing references to the relevant literature.

To sum up, this book is very much a readable summary of the 'Brynjolfsson view' of the (mostly US) literature on IT, innovation and productivity. Brynjolfsson is author or co-author of 22 of the references cited in the book. On the positive side, the book is a useful starting point for readers unfamiliar with the topic, and should find a place on reading lists for undergraduate and postgraduate courses in a number of disciplines. However, as these comments have indicated, the book seems deficient in terms of the wider literature relevant to the topic, and in its silence about the actual and potential impacts of the Great Recession. Given this, it could even prove dangerous as a guide to policy-makers and economists who want to understand why IT is special and how it can be used to create value in the economy. Also, the lack of history about the information economy literature is disappointing and might mislead novices about the 'newness' of some of the topics covered.

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Hans-Jürgen Engelbrecht
Massey University, Palmerston North, New Zealand
H.Engelbrecht@massey.ac.nz

The venturesome economy: how innovation sustains prosperity in a more connected world, by Amar Bhidé, Princeton, NJ and Oxford, Princeton University Press, 2008, xii+508 pp., US$35.00, ISBN 978-0-691-13517-5

The world is flat, Thomas Friedman (2007) famously argued. Amar Bhidé disagrees. He thinks there are still contours all over, deep differences between what happens and what is possible in different places. It is this texture that interests him, especially what it means for one place, his adopted home, the United States of America. Where many are pessimistic about what a flat world means for America, Bhidé is optimistic about the advantage offered by one special contour. America's consumers, he says, are uniquely 'venturesome'. He thinks this is the key to developing innovative products and prospering in a modern economy dominated by services.

In the third edition of *The World is Flat*, Friedman acknowledges that '[w]henever you opt for a big metaphor … you trade a certain degree of academic precision for a much larger degree of explanatory power. Of course the world is not flat. But it isn't round anymore either'. With every passing year, it becomes flatter, 'because the flattening forces are empowering more and more individuals … to reach farther, faster, deeper and cheaper than ever before'. The flattening of the playing field is 'the most important thing happening in the world today' (p. x).

Flatness, in Friedman's view, means economic tasks that once needed to be done by certain people in particular places can now be done anywhere. As tasks shift, the people in the places where they used to happen worry that they are being left behind. The anxiety is acute where the off-shoring is not just in clichés about manufacturing to China and call centres to India, but 'cutting-edge science and technology' tasks like research and development. Traditional R&D strongholds, such as the United States, fear they are losing the engine of their prosperity. Bhidé calls this 'techno-nationalism', a contemporary form of the obsession that followed Sputnik's launch in the 1950s. He thinks this is bunk.

The Venturesome Economy is really two books. The first, 'Cautious Voyagers', reports the results of a research project about US-based companies backed by venture capitalists. Despite the rhetoric of globalization, Bhidé finds they overwhelmingly concentrate on their domestic market. But he does not deny that international economic engagement has grown. Book 2, 'Embrace or Resist?', asks whether this increasing globalization, especially of technical innovation, will threaten the United States' prosperity in the future. He concludes not only that it will not, but that it is