



Michael A. Peters, Simon Marginson, and Peter Murphy

Creativity

and the Global
Knowledge Economy

ADVANCE PRAISE FOR

Creativity and the Global Knowledge Economy

"Creativity and the Global Knowledge Economy is an important work of intellectual synthesis as well as a significantly original contribution to the global conversation about the contemporary economic and social significance of knowledge. The authors address key practical questions of the changing role of knowledge in the so-called post-industrial society. They also critically interrogate the rhetoric of the knowledge economy. This book is a comprehensive overview of the origins of the key debates, and at the same time sets an exciting agenda for future lines of discussion and action."

Bill Cope, Research Professor, Department of Educational Policy Studies, College of Education, University of Illinois at Urbana-Champaign

"This insightful and engaging book addresses questions of pressing significance for educationists in the twenty-first century. Peters, Marginson and Murphy provide a perceptive, well-argued account of economic, political and intellectual changes under global knowledge capitalism. They highlight the importance of creativity, imagination and education in the growth and ongoing development of knowledge societies. In these uncertain times, thoughtful, rigorous analysis of the kind demonstrated in this volume is much needed. *Creativity and the Global Knowledge Economy* looks to the future while acknowledging the past. This book makes a valuable contribution to this growing field of research and deserves wide reading."

Peter Roberts, Professor of Education, University of Canterbury, New Zealand

"This is first-rate social science. Often there is a huge chasm between the prophets of the 'new' and the critics who want to puncture holes in their inflated claims, between social theorists spinning new concepts for understanding changes in economy, society and culture and social scientists who want to demonstrate that these zeitgeist-definers lack empirical depth or that their claims apply to only the few. This book cuts through those kinds of limiting debates by showing that the notion of a 'global knowledge economy' points to something real but that the term nonetheless requires unpacking and contextualization. Peters, Marginson and Murphy feel equally at home in the analytical world of Austrian economics or the sociology of post-industrialism, the discipline of management or the study of higher education, a discussion of creativity or the Web 2.0 system. They provide a material and institutional context for the ideas surrounding the 'global knowledge economy' and identify key carriers of this new social force—the 'global knowledge worker', the 'academic entrepreneur', the 'sojourning student', and other types of 'creative cosmopolitans' who inhabit the new economy."

Eduardo de la Fuente, Communications and Media Studies, Monash University

“Not without irony, *Creativity and the Global Knowledge Economy* is a creative, insightful survey and evaluation of the exploding theoretical and applied thinking about the emergence of a knowledge-based global economy and society. The editors and authors plumb the exciting prospects of a knowledge capitalism for ceaseless scientific discovery and technological innovation and for affording millions seemingly limitless opportunities for self-determination. The volume’s chapters also brilliantly problematize both the increasingly outdated balkanization of academic agendas and outmoded top-down corporate models that impede rather than foster innovation and creative entrepreneurship. A world where ideas rule and where knowledge is openly and collectively arrived at and universally accessible to everyone at negligible cost challenges the assumption of scarce resources as insurmountable constraints on economic development and widening human development. This volume merits wide circulation and serious reflection as an important guide for understanding and designing a post-industrial world.”

*Edward A. Kolodziej, Director, Center for Global Studies,
University of Illinois at Urbana-Champaign*

“This book, the first of a proposed trilogy, represents a fascinating interdisciplinary collaboration across education, political economy, the arts and technology studies. It identifies a new phase of the ‘knowledge economy,’ which the authors call the ‘creative economy.’ This refers to a context in which the capacity for invention and innovation becomes itself a strategic priority for business and for society generally. What is creativity? Where does it come from? How can it be fostered, for individuals and for productive organizations? These questions, the authors suggest, have become paramount in a globally competitive environment.

But, cases of individual genius aside, the endeavors of consciously teaching, planning, and managing creativity give rise to a number of paradoxes, which the authors trace out in a variety of educational and workplace settings, because creativity is multidimensional and unruly. How individuals and learning organizations manage these paradoxes will determine their competitive advantage for the future.”

Nicholas C. Burbules, University of Illinois

“Michael A. Peters, Simon Marginson and Peter Murphy deconstruct neo-liberal accounts of the knowledge economy. In so doing, they traverse a vast array of the scholarly literature on knowledge’s relationship to economic development and broader social arrangements and suggest possible ways forward for more creative modes of knowledge production and dissemination, for the university and enlightenment commitments to social progress.”

Bob Lingard, School of Education, The University of Queensland

Creativity

and the Global
Knowledge Economy



PETER LANG

New York • Washington, D.C./Baltimore • Bern
Frankfurt am Main • Berlin • Brussels • Vienna • Oxford

Michael A. Peters, Simon Marginson,
and Peter Murphy

Creativity and the Global Knowledge Economy



PETER LANG

New York • Washington, D.C./Baltimore • Bern
Frankfurt am Main • Berlin • Brussels • Vienna • Oxford

Library of Congress Cataloging-in-Publication Data

Peters, Michael A.

Creativity and the global knowledge economy /
Michael A. Peters, Simon Marginson, Peter Murphy.

p. cm.

Includes bibliographical references and index.

1. Intellectual capital. 2. Creative ability—Economic aspects.

I. Marginson, Simon. II. Murphy, Peter. III. Title.

HD53.P48 303.48'33—dc22 2008033858

ISBN 978-1-4331-0425-1 (hardcover)

ISBN 978-1-4331-0426-8 (paperback)

Bibliographic information published by **Die Deutsche Bibliothek**.
Die Deutsche Bibliothek lists this publication in the "Deutsche
Nationalbibliografie"; detailed bibliographic data is available
on the Internet at <http://dnb.ddb.de/>.

Cover design by Sophie Boorsch Appel
Cover photo, Otways National Park, Australia (January 2008)
by Simon Marginson

The paper in this book meets the guidelines for permanence and durability
of the Committee on Production Guidelines for Book Longevity
of the Council of Library Resources.



© 2009 Peter Lang Publishing, Inc., New York
29 Broadway, 18th floor, New York, NY 10006
www.peterlang.com

All rights reserved.

Reprint or reproduction, even partially, in all forms such as microfilm,
xerography, microfiche, microcard, and offset strictly prohibited.

Printed in the United States of America



Contents

Preface	vii
Acknowledgements	ix
Introduction: Knowledge Goods, the Primacy of Ideas and the Economics of Abundance Michael A. Peters	1
1. Defining Knowledge Capitalism Peter Murphy	23
2. Education and the Knowledge Economy Michael A. Peters	51
3. Academic Entrepreneurship and the Creative Economy Michael A. Peters and Tina (A. C.) Besley	71
4. Intellectual Freedoms and Creativity Simon Marginson	91
5. Education, Creativity and the Economy of Passions Michael A. Peters	125
6. Creativity and Knowledge Economies Peter Murphy	149

7. University Rankings and the Knowledge Economy Simon Marginson	185
8. Sojourning Students and Creative Cosmopolitans Simon Marginson	217
9. Managing Paradox in a World of Knowledge Peter Murphy and David Pauleen	257
About the Authors	277
Index	281



Preface

This is the first book of a trilogy on creativity, the imagination and the knowledge economy that was conceived among the three of us—Peters, Murphy and Marginson—all Antipodeans, but working in different disciplines, countries and institutions. *Creativity and the Global Knowledge Economy* is soon to be followed by *Global Creation: Space, Mobility and Synchrony in the Age of the Knowledge Economy*, with Simon Marginson as lead author, and *Imagination: Three Models of Imagination in the Age of the Knowledge Economy*, with Peter Murphy as the lead author. Each work is the result of genuinely collaborative endeavour and records different emphases that are systematically related to set themes and inquiries.

The trilogy will provide a comprehensive view not only of the role and significance of creativity and imagination in the global knowledge economy but also of the importance of education—and, in particular, higher education—to the process of endless innovation in what has been called the ‘creative economy’.

Creativity and innovation is all we have, in the face of the accumulating crises of our time, in which financial instability, credit crisis, staggering production, and sudden fluctuations in oil prices and in all measures of value compound the larger and longer term global problems of environment, energy and poverty. Only new, creative approaches to knowledge, to the organization of knowledge, and the free exchange of ideas can solve those problems. Certainly, the notions of creativity and imagination in the global digital knowledge economy indicate a greater respect

for 'openness' as an attitude and ontology for individuals, epistemologies and institutions that might provide the technological infrastructure and springboard for innovative approaches and fresh thinking about the nature of distributed knowledge systems and the effective exchange of scholarly information, especially in relation to the generalized energy and food crises that bedevil the poorest more than the rich nations.

We hope that the three related volumes of this trilogy will provide the software for a reprogramming of our knowledge institutions and policies that might embody the best of an Enlightenment spirit projected into uncharted futures.

Michael A. Peters
San Bernardino, California
August 2008

Acknowledgements

Chapters 3 and 5 by Michael A. Peters and Tina (A.C.) Besley and by Michael A. Peters originally appeared in *Thesis Eleven*, Issue 94, 2008 & Issue 96, 2009. Chapter 2 by Michael A. Peters 'Education and the Knowledge Economy', appeared in Hearn, G., & Rooney, D. (Eds.) (2008). *Knowledge Policy: Challenges for the Twenty First Century*, Cheltenham: Edward Elgar.

Chapters by Peter Murphy originally appeared in *Thesis Eleven* (Sage Publications), *Management Decision* (Emerald), and *Cross-Cultural Perspectives on Knowledge Management* (Greenwood). Peter Murphy and David Pauleen, 'Managing Paradox in a World of Knowledge', *Management Decision* 45: 6 (Bingley, UK: Emerald Group Publishing, 2007), pp. 1008-1022. Peter Murphy, 'The Art of Systems: The Cognitive-Aesthetic Culture of Portal Cities and the Development of Meta-Cultural Advanced Knowledge Economies' in David J. Pauleen (ed.) *Cross-Cultural Perspectives on Knowledge Management* (Westport, CT: Greenwood, 2007), pp. 35-63. Peter Murphy, 'Knowledge Capitalism', *Thesis Eleven: Critical Theory and Historical Sociology* 81 (London: Sage, 2005), pp. 36-62.

Chapter 7 by Simon Marginson 'University rankings and the knowledge economy' originally appeared in *Thesis Eleven*, Issue 96, 2009.

Michael A. Peters would like to thank his two Australian co-authors. The collaboration was comfortable, genuinely collaborative and straightforward. He would also like to thank Chris Myers and Bernadette Shade at Peter Lang to being supportive of the project as a whole and in particular of the trilogy. Simon Marginson would like to thank Nick Burbules, Peter Murphy and Erlenawati Sawir who each read versions of one or more of his chapters.



Introduction: Knowledge Goods, THE Primacy OF Ideas AND THE Economics OF Abundance

MICHAEL A. PETERS

What information consumes is rather obvious. It consumes the attention of its recipients. Hence, a wealth of information creates a poverty of attention.

—HERBERT SIMON

Higher education has been transformed in the past decade and will continue to change apace in the next decade. The development of the knowledge and learning economies emphasizes the changing significance of intellectual capital and tacit knowledge in the forms of human, social and intellectual capital for economic growth and development. The ‘symbolic’ or ‘weightless’ economy has highlighted the general importance of symbolic, immaterial and digital goods and services for economic and cultural development and resulted in new labour markets with a demand for higher analytic skills and new markets in tradable knowledges. Developments in communication and information technologies have contributed to various forms of globalization, changing the format, density and nature of the exchange and flows of knowledge. The digitization, speed and compression of communication have reshaped delivery modes in higher education, reinforced the notion of culture as a symbolic system and led to the spread of global cultures as knowledge and research networks.

These developments have been noted for some time, and over the past fifty years many terms have been used to describe the development of the ‘knowledge

economy' or to note aspects of its developing tendencies. The term itself first emerged and its use stabilized with the 1996 OECD report *The Knowledge-Based Economy*. It is possible to distinguish a number of different strands and readings of the knowledge economy and important to do so because it provides a history of a policy idea and charts its ideological interpretations. We can distinguish a number of different strands in economics and sociology that followed early attempts by Friedrich von Hayek (1936; 1945) to define the relations between economics and knowledge:

1. economic value of knowledge studies by Fritz Machlup (1962) of the production and distribution of knowledge in the U.S.;
2. Gary Becker's (1964; 1993) analysis of human capital with reference to education;
3. an emphasis on 'knowledge workers' by the management theorist Peter Drucker (1969) who coined the term in 1959 and founded 'knowledge management';
4. Daniel Bell's (1973) sociology of postindustrialism that emphasized the centrality of theoretical knowledge and the new science-based industries, a shift from manufacturing to services and the rise of a new technical elite;
5. Alain Touraine's (1971) *The Post-industrial Society* hypothesized a 'programmed society' run by a 'technocracy' who control information and communication;
6. Mark Granovetter's (1973; 1983) theorizing of the role of information in the market based on weak ties and social networks;
7. Marc Porat (1977) defined 'the information society' for the U.S. Department of Commerce;
8. Alvin Toffler (1980) talked of knowledge-based production in the 'Third Wave economy';
9. Jean-François Lyotard (1984) defined *The Postmodern Condition* as an age marked by the 'incredulity towards metanarratives' and David Harvey (1989) talked of the large-scale shifts from Fordist to flexible accumulation;
10. James Coleman's (1988) analysis of how social capital creates human capital and the development and applications of related notions by Pierre Bourdieu (1986) and Robert Putnam (2000);
11. the standard or received business model associated with knowledge management prevalent in the 1980s became an established discipline in 1995 (Stankosky, 2004);
12. Paul Romer (1990) argued that growth is driven by technological change arising from intentional investment decisions where technology as an input is a nonrival, partially excludable good;

13. the ‘new economy’ readings of the decades of the 1990s (DeLong et al., 2000; Stiglitz, 2003; Hübner, 2005);
14. the OECD’s (1994) influential model based on endogenous growth theory uses the term ‘knowledge-based economy’;
15. Joseph Stiglitz (1998; 1999) developed the World Bank’s *Knowledge for Development and Education for the Knowledge Economy* based on knowledge as a global public good;
16. ‘the learning economy’ developed by Lundvall (1994; 2001, with Johnson; 2006, with Lorenz);
17. the digital or ‘weightless’ economy proposed by Danny Quah (2003) and others;
18. the ‘global information society’ based on the World Summit on the Information Society (WSIS)¹;
19. postmodern global systems theory based on network theory, after Manuel Castells (1996; 2006);
20. public policy applications and developments of the ‘knowledge economy’ concept (Rooney et al., 2003; Hearn & Rooney, 2008).

It is an important intellectual task not only to provide a chronological order for these readings but also to recognize the force of different political values and assumptions in their public policy applications. Clearly, not all conceptions of the knowledge economy are based on neoliberal fundamentals; some predate neoliberalism, and others provide a critique of neoliberal conceptions of globalization. In large measure, the two discourses of the economics and sociology of knowledge are parallel and separate (see Peters & Besley, 2006), with the former focusing on the mode of production and the latter its distribution and stratification effects.

The work of Daniel Bell and Alain Touraine and other sociologists cannot be described in neoliberal terms, nor can that of the economists Stiglitz, Romer, Lundvall, and Quah, yet they address similar objects of study even if they understand them differently and describe the reality from different disciplinary perspectives using different methodological tools. While Machlup’s conception bears the mark of the Austrian school—he completed his thesis under the guidance of Ludwig von Mises—Stiglitz is better considered ‘new Keynesian’ and Romer has been described as ‘a post-scarcity prophet.’² The important point to note here is that the ‘knowledge economy’ is not simply or solely an ideological policy construction; it points at some real phenomena that have to be described, analyzed and explained. Although it is important to acknowledge the ideological dimensions of the ‘knowledge economy’ as a policy construction that is used to mobilize public funds and to help develop an underlying economic metanarrative about the

future of advanced liberal states, at the same time it is also necessary to be able to appreciate what is new and different about the knowledge economy as a mode of economic organization. One characteristic that runs through the literature in both economics and sociology from the early studies of Machlup and Bell to the revolutionary economic thinking of Romer is the centrality of theoretical knowledge (or 'the primacy of ideas') as a source of innovation and the importance of basic science and science-based industries. In the empirical literature this has a number of strands, including the discussion of the knowledge-intensiveness of different industry sectors (Kochan & Barley, 1999) and the role of learning and continuous innovation inside firms (Drucker, 1993; Nonaka & Takeuchi, 1995; Prusak, 1997).

Walter W. Powell and Kaisa Snellman (2004) document the transition underway in advanced industrial nations from an economy based on natural resources and physical inputs to one based on intellectual assets 'with patent data that show marked growth in the stocks of knowledge, and show that this expansion is tied to the development of new industries, such as information and computer technology and biotechnology', but they warn that 'one cannot assume that there is a natural link between knowledge production and flexible work, as new information technologies open up novel possibilities for both discretion and control' (p. 215).

Although there are different readings and accounts of the knowledge economy, it was only when the OECD (1996) used the label in the mid-1990s and it was adopted as a major policy description/prescription and strategy by the United Kingdom in 1999 that the term passed into the policy literature and became acceptable and increasingly widely used. The 'creative economy' is an adjunct policy term based on many of the same economic arguments—and especially the centrality of theoretical knowledge and the significance of innovation. Most definitions highlight the growing relative significance of knowledge compared with traditional factors of production—natural resources, physical capital and low-skill labour—in wealth creation and the importance of knowledge creation as a source of competitive advantage to all sectors of the economy, with a special emphasis on R&D, higher education and knowledge-intensive industries such as the media and entertainment. At least two sets of principles distinguish knowledge goods, in terms of their behaviour, from other goods or commodities or services; the first set concern knowledge as a global public good; the second concern the digitalization of knowledge goods.

These features have led a number of economists to hypothesize the 'knowledge economy' and to picture it as different from the traditional industrial economy, leading to a structural transformation.

KNOWLEDGE AS A GLOBAL PUBLIC GOOD

The first set of principles concerning knowledge as an economic good indicate that knowledge defies traditional understandings of property and principles of exchange and closely conforms to the criteria for a public good:

1. knowledge is *non-rivalrous*: the stock of knowledge is not depleted by use, and in this sense knowledge is not consumable; sharing with others, use, reuse and modification may indeed add rather than deplete value;
2. knowledge is barely *excludable*: it is difficult to exclude users and to force them to become buyers; it is difficult, if not impossible, to restrict distribution of goods that can be reproduced with no or little cost;
3. knowledge is not *transparent*: knowledge requires some experience of it before one discovers whether it is worthwhile, relevant or suited to a particular purpose.

Thus, knowledge at the *ideation* or *immaterial* stage considered as pure ideas operates expansively to defy the law of scarcity. It does not conform to the traditional criteria for an economic good, and the economics of knowledge is therefore not based on an understanding of those features that characterize property or exchange and cannot be based on economics as the science of the allocation of scarce public goods. Of course, as soon as knowledge becomes codified or written down or physically embedded in a system or process, it can be made subject to copyright or patent and then may be treated and behave like other commodities (Stiglitz, 1999).

DIGITAL INFORMATION GOODS APPROXIMATE PURE THOUGHT

The second set of principles apply to digital information goods insofar as they approximate pure thought or the ideational stage of knowledge, insofar as data and information through experimentation and hypothesis testing (the traditional methods of sciences) can be turned into justified true belief. In other words, digital information goods also undermine traditional economic assumptions of rivalry, excludability and transparency, as the knowledge economy is about creating intellectual capital rather than accumulating physical capital. Digital information goods differ from traditional goods in a number of ways:

1. Information goods, especially in digital forms, can be copied cheaply, so there is little or no cost in adding new users. Although production costs for information have been high, developments in desktop and just-in-time

- publishing, together with new forms of copying, archiving and content creation, have substantially lowered fixed costs.
2. Information and knowledge goods typically have an experiential and participatory element that increasingly requires the active co-production of the reader/writer, listener and viewer.
 3. Digital information goods can be transported, broadcast or shared at low cost, which may approach free transmission across bulk communication networks.
 4. Since digital information can be copied exactly and easily shared, it is never consumed (see Morris-Suzuki, 1997; Davis & Stack, 1997; Kelly, 1998; Varian, 1998).

The implication of this brief analysis is that the laws of supply and demand that depend on the scarcity of products do not apply to digital information goods.

Danny Quah (2001) of the London School of Economics indicates that the economic importance of knowledge can be found in examples where deployment of machines has boosted economic performance, such as in the Industrial Revolution. By contrast, he talks of the 'weightless economy' 'where the economic significance of knowledge achieves its greatest contemporary resonance' and suggests it comprises four main elements:

1. information and communications technology (ICT), the Internet;
2. intellectual assets—not only patents and copyrights but also, more broadly, brand names, trademarks, advertising, financial and consulting services, and education;
3. electronic libraries and databases, including new media, video entertainment and broadcasting;
4. biotechnology—carbon-based libraries and databases, pharmaceuticals.³

Elsewhere, he argues: 'Digital goods are bitstrings, sequences of 0s and 1s, that have economic value. They are distinguished from other goods by five characteristics: digital goods are nonrivalrous, infinitely expandable, discrete, aspatial, and recombinant' (Quah, 2003, p. 289).

Quah (2001) also has been influential in suggesting that knowledge concentrations spontaneously emerge in space, even when physical distance and transportation costs are irrelevant. The dynamics of spatial distributions manifest themselves in convergent clusters. This is an important feature, especially given the development of the e-conomy first in Silicon Valley and thereafter in a number of new geographic clusters in other parts of the world.

J. Bradford DeLong (2000; 2002), former Deputy Assistant Secretary for Economic Policy in the U.S. Department of the Treasury, provides an analytic

overview of the digital economy that conveys how different it is from the market economy of orthodox economics. He likens the digital economy to the enclosure of the common lands in early modern Britain, which paved the way for the Agricultural and Industrial revolutions. Digital commodities, he maintains, do not behave like the standard goods and services of economic theory. The store of music tracks is not diminished when one downloads a track from the Internet, and a consumer does not know how good software is before purchase or indeed how its successor versions will perform in the future.

These features have led a number of prominent economists to hypothesize the emergent ‘knowledge economy’ as an economy that represents a structural transformation from the industrial economy.

KNOWLEDGE ECONOMY AS STRUCTURAL TRANSFORMATION

In *The Economics of Knowledge* (2004) Dominique Foray argues:

Some, who had thought that the concepts of a new economy and a knowledge-based economy related to more or less the same phenomenon, logically concluded that the bursting of the speculative high-tech bubble sealed the fate of a short-lived knowledge-based economy. My conception is different. I think that the term ‘knowledge-based economy’ is still valid insofar as it characterizes *a possible scenario of structural transformations of our economies*. This is, moreover, the conception of major international organizations such as the World Bank and the Organisation for Economic Cooperation and Development (OECD). (p. ix, my emphasis)

In this scenario ‘the rapid creation of new knowledge and the improvement of access to the knowledge bases thus constituted, in every possible way (education, training, transfer of technological knowledge, diffusion of innovations), are factors increasing economic efficiency, innovation, the quality of goods and services, and equity between individuals, social categories, and generations’. He goes on to argue that there is a collision between two phenomena—‘a long-standing trend, reflected in the expansion of “knowledge-related” investments’ and ‘a unique technological revolution’

The collision between these two phenomena has spawned a unique economy, characterized essentially by (1) the accelerating (and unprecedented) speed at which knowledge is created and accumulated and, in all likelihood, at which it depreciates in terms of economic relevance and value as well as (2) a substantial decrease in the costs of codification, transmission, and acquisition of knowledge. This creates the potential for a massive growth of knowledge flows and externalities. Indeed, the strength of such externalities (and hence the importance of the problems they pose) is historically dependent on technological and organization. (p. x)

Although it remains contentious and open to question, there is enough agreement among leading economists and world agencies to adopt Foray's structural transformation scenario as a working hypothesis. It is a productive hypothesis through which to highlight differences between readings of the knowledge economy and to profile the importance of education at all levels—basic education that constitutes the Millennium Goals of the United Nation's 'Education for All' programme and the role of higher education in such a structural transformation. It also raises the political question of whether the discourse of the knowledge economy is distinct from versions of neoliberalism, the neoliberal project of globalization, and the extent to which it is compatible with a more benign social democratic version of the knowledge economy—or alternatively whether any of these political labels are salient in the latest phase of capitalism.

In *The Future of Economic Growth: As New Becomes Old*, Robert Boyer (2004) traces the collapse of the 'new economy' to propose a novel interpretation of the dynamism of the U.S. economy during the 1990s, prophetically arguing that the diffusion of information and communication technologies is part of an economic success story that also requires an understanding of the transformation of the financial system, the reorganization of the management of firms and the emergence of a new policy mix. He outlines the significance of an emergent *anthropogenetic model* built upon investments in health, education, training and leisure that despite being tied to arguments about the formation of social and human capital, growth theory and the importance of technological innovation, permits the possibility of combining economic efficiency with social justice, as is demonstrated to some extent by the Nordic countries.

WIKINOMICS AND THE LONG TAIL

Don Tapscott and Anthony Williams begin their bestselling book *Wikinomics* (2007) with the following assertion:

While hierarchies are not vanishing, profound changes in the nature of technology, demographics, and the global economy are giving rise to powerful new models of production based on community, collaboration, and self-organization rather than on hierarchy and control. (p. 1)

The 'blogosphere' rules, and in the 'wiki workplace' employees engage in peer-to-peer collaboration, driving the process of innovation; customers become 'prosumers' co-creating goods and services; new supply chains are emerging where risk is distributed; and smart new web companies harnessing the new architectures for collaboration focus on the new ethos of participation and openness with the

aim of realizing real value for participants. *Wikinomics* is a book about ‘the art and science of peer production’, as they authors explain in the opening chapter:

Due to deep changes in technology, demographics, business, the economy, and the world, we are entering a new age where people participate in the economy like never before. This new participation has reached a tipping point where new forms of mass collaboration are changing how goods and services are invented, produced, marketed, and distributed on a global basis. (p. 10)

This is certainly true of Google, MySpace, Facebook, YouTube, Linux, Wikipedia, Amazon.com and eBay, which utilize the principles of mass collaboration. The claim of Tapscott and Williams is that these organizations are the leading edge of a revolution and that a ‘new economic democracy is emerging in which we all have a lead role’ (p. 15). The new promise of collaboration will harness peer production to provide the most efficient use of intellectual resources in a system of collective intelligence that will eventually displace—or at least modify—traditional hierarchical forms of corporate organization as the main engine of wealth creation. As the author argue: ‘The new art and science of wikinomics is based on four powerful new ideas: openness, peering, sharing, and acting globally. These new principles are replacing some of the old tenets of business’ (p. 20).

This is the world of wikinomics. The rest of Tapscott and Williams’ book is a series of case studies designed to demonstrate these new principles and a series of business models that include peer pioneers, ideagoras, prosumers, New Alexandrians, platforms for participation, global plant floor and wiki workplace.

Not everyone agrees. In a perceptive review of the book, Christian Fuchs (2008) argues that wikinomics

is not only a subtle form of exploitation of unpaid labour, but also an ideology. The main idea is to outsource labour to globally distributed customers and collaborators that act as prosumers so that labour and other costs are reduced. . . . With the rise of Wikinomics, exploitation expands to the realm of spare time, economic colonization and instrumental reason become universal, and the rate of exploitation increases because prosumers, as a tendency, deliver unpaid surplus value. (p. 4)

Fuchs goes on to argue:

Most of the authors’ Web 2.0 accumulation strategies are based on the notion of the cost-cutting effects of the global outsourcing of labour, supported by the Internet. In reality, this strategy has the form of a new self-employment, which already in the past produced precarious forms of flexibility with more risks, less social security, and less secure employment. The most probable result of an economy based on Wikinomics will be an increase in precarious and unpaid labour that benefits certain companies that exploit unpaid labour. (p. 5)

He concludes that Tapscott and Williams have an idealistic and unrealistic view of capitalism, and he notes that mass collaboration has traditionally been associated with socialist self-management and the emergence of the cooperative economy. As Fuchs (2008) rightly points out, ‘Web 2.0 is characterized by the antagonism between the digitally networked productive forces and the generalized capitalist relations of production’ (p. 6). This is an antagonism he suggests that leads to exploitation and alienation (see Fuchs, 2008b). At the same time he admits that there are actual examples of social media and peer-based commons production that transcend ‘the instrumental logic of competition and instrumental reason and anticipate a society that is based on cooperation, sharing, and participation (p. 8). He also refers to accounts by Atton (2004), Barbrook (1998; 1999; 2007), Benkler (2006), Lessig (2006) and Söderberg (2002) that argue for anti-capitalist potential or for the social democratic potential of public goods inherent in the Internet.

Chris Anderson (2006)—author of *The Long Tail: Why the Future of Business Is Selling Less of More* and editor of *Wired* magazine—deals with many of the same themes as Tapscott and Williams. He summarizes the argument in the following way:⁴

The theory of the Long Tail is that our culture and economy is increasingly shifting away from a focus on a relatively small number of ‘hits’ (mainstream products and markets) at the head of the demand curve and toward a huge number of niches in the tail. As the costs of production and distribution fall, especially online, there is now less need to lump products and consumers into one-size-fits-all containers. In an era without the constraints of physical shelf space and other bottlenecks of distribution, narrowly-targeted goods and services can be as economically attractive as mainstream fare.

The long tail is based on the ‘economics of abundance’, a phrase Anderson uses seemingly without being aware of its previous usages. He quotes a variety of sources, including venture capitalists and media commentators, to indicate that the basic shift has been from media companies as distributors (based on scarcity) to self-publishing (based on the economics of abundance). In one of his blogs,⁵ he defines economics as the ‘the science of choice under scarcity’ and argues that economists do not know how to approach or conceptualize ‘abundance’. He blogs:

Abundance thinking—understanding the implications of ‘practically free’—is a core competence of our age. It brought us everything from the iPod (‘what if storage were so cheap you could put your entire music collection in your pocket?’) to Gmail (‘why should you ever have to delete an email?’). Most truly disruptive technologies disrupt because they take a scarcity assumption and, thanks to some technology that generates abundances, simply turn it on its head.

Yet Anderson seems blissfully unaware that the ‘economics of abundance’ has a history. He does mention the extropians, named after efforts by Max More and Tom Bell in the later 1980s metaphorically to describe a system’s self-organizational intelligence or vitality. Mostly, the championing of the concept recently has come from Chris Anderson and technorati embellishing Anderson’s ‘long-tail economics’. Much of this can be described as a beat-up on abundance without evidence or testing or indeed much serious thought.

Post-scarcity as a concept has existed for a while, not only in science fiction to describe economic and political systems where goods are freely distributed according to egalitarian principles but also by sociologists such as Anthony Giddens to point to trends in advanced industrial societies, by scientists who emphasize the benefits of nanotechnology with an abundance of raw material and self-replicating technologies and by digital technologists who point to zero cost in reproducing and sharing mass copies or to the examples of open source, open access, open archiving and open publishing movements.

Post-scarcity economics of abundance has its historical antecedents in mutualism and the economics of robots (Albus, 1976, orig. 1927); the automated control of production (Douglas, 1922; MacBride, 1967); economic democracy and social credit (Douglas, 1992, orig. 1921; 1967); Robert Theobald’s (1971) *The Challenge of Abundance*; Stuart Chase’s (1934) *The Economy of Abundance*; various accounts of anarchism (Berkman, 1929; Bookchin, 1971); democratic industrial management theory, including employee ownership (Kelso, 1986; Kelso & Hetter, 1968); anthropological studies of the economics of other cultures and so-called primitive affluence (Benedict, 1959; Firth, 1965; Sahlins, 1972; Lee, 1979); anti-work manifestos or abolition of work (Black, 1986a, b) or *The Right to be Lazy* (Lafargue, 1989) or *In Praise of Idleness* (Russell, 1932) or *The End of Work* (Rifkin, 1995); *Technology for the Common Good* (Shuman & Sweig, 1989), technological optimism and cybercultural revolution (Hilton, 1966; Esfandiary, 1970); peace studies and the end of the ‘nuclear nightmare’ (Melman, 1961; Speiser, 1984); and discussions of poverty, unemployment and the concept of property (Theobald, 1966; Miller, 1994; Pierson, 1996; Wilson, 1996).⁶

All these works that comprise the tangled post-scarcity literature are unabashedly utopian and left-wing rather than pro-capitalist, right-wing or committed to market distribution. Yet there are anarcho-capitalist or libertarian utopias as well (Rothbard, 1962; Nozick, 1974; Von Mises, 2005). Many prominent Silicon Valley figures (Mark Pincus, Scott McNealy, Craig Newmark, John Gilmore, T. J. Rodgers, Peter Thiel) have been techno-libertarians. Both left-wing and right-wing styles of utopia have their roots in Romanticism. Although all market utopias steadfastly insist on the idea of scarcity, without which the idea of pricing would be redundant, anarcho-capitalism supposes its own notion of

abundance—the abundance of time. Libertarian capitalist utopias assume unlimited time to make individual decisions. Correspondingly, free information aids better decision making and thus more perfect markets. Google is an ideal instrument to achieve perfect information and ensure ideally functioning markets filled with rational choosers. In contrast, anarcho-anti-capitalist utopias typically think of abundance in terms of unlimited time for the free play of the imagination. They are inspired by Johan Schiller rather than William Godwin. But both left-wing and right-wing conceptions of post-scarcity may be wrong. It is not clear that human beings, under any conceivable conditions, have unlimited time to make decisions. Indeed, as economies move faster and faster, and produce more and more information that is cheaper and freer, that is less and less true. Time for decision making shrinks rather increases. It is also not clear that time for the free play of the imagination has increased, could markedly increase or at least could ever be unlimited. Time is scarce, and it grows scarcer by the day as the tempo of life increases. As some things become freer (information notably), other things seem in fact to be less free and more governed by necessity.

To draw an analogy: Google's servers provide a public good—that is, the good of free information. But all public goods come with a price, in this case the cost of Google's servers and all the servers linked to them. The unit cost of server storage may decline every year, but it is still a cost, and it is not zero-price. The cost may be disguised—it may be subsidized or paid for by Google advertising—but it is still a cost that has to be borne. My iPod may store several years' worth of non-stop listening, and this storage may be relatively inexpensive compared with vinyl-era turntable media and technologies, but what often goes unnoticed is the large amount of individual management time needed to burn, classify and order the audio files on a digital music player. The same applies to the economy of free time: it is not free in the sense of cost-free or time-free. Many of the most vaunted examples of peer production thrive on the voluntary labour of amateurs or on the labour of professionals who are willing to gift their time to a public enterprise. A gift, though, is never without cost, whether the cost is measured in terms of time or of matter. To put it another way: the free time of the imagination is scarce, and utopia notwithstanding, will remain scarce. In more brutal terms, it has an opportunity cost: if I spend voluntary time contributing to an online encyclopaedia, that is also time forgone that I could have spent with my spouse, on helping the committee for my sports club solve its problems or else on painting my unveiled masterpiece.

In short, time of all kinds, including creative time, is limited. Time is on nobody's side. Digitization does make a difference to economic and social behaviours, but it does not eliminate the limit of time. Digitization has transformed, and it continues to reshape, the mode of production and distribution.

It puts science and technology, knowledge creation and transmission, information acquisition and university education, in a leading social position. This is not presumptively either a good or a bad thing—and neither does it change everything about the world. It creates new inequalities as it creates new equalities. It forges new problems as it solves old ones, and it underscores old realities, such as the limits of time, in the same instant that it produces the new realities of making and consuming that we all have to live with, whether for better or for worse.

THE ORGANIZATION OF THIS BOOK

This book investigates the emerging complex relationships between creativity, design, research, higher education and knowledge capitalism. Today, there is a strong renewal of interest among politicians and policymakers worldwide in the related notions of creativity and innovation, especially in relation to terms such as ‘the creative economy’, ‘knowledge economy’, ‘enterprise society’, ‘entrepreneurship’ and ‘national systems of innovation’. In its rawest form, the notion of the creative economy emerges from a set of claims that suggest that the industrial economy is giving way to the creative economy based on the growing power of ideas and virtual value—the turn from steel and hamburgers to software and intellectual property (IP). In this context, policy increasingly latches onto the issues of copyright as an aspect of IP, piracy, distribution systems, network literacy, public service content, the creative industries, new interoperability standards, the World Intellectual Property Organization (WIPO) and the development agenda, the World Trade Organization (WTO) and trade, and the means to bring creativity and commerce together. At the same time, this focus on creativity has exercised strong appeal to policymakers who want to link education more firmly to new forms of capitalism, emphasizing how creativity must be taught, how educational theory and research can be used to improve student learning in mathematics, reading and science, and how different models of intelligence and creativity can inform educational practice. Under the spell of the creative economy discourse there has been a flourishing of new accelerated learning methodologies, together with a focus on giftedness—the design of learning programmes for exceptional children. One strand of the emerging literature highlights the role of the creative and expressive arts, performance, aesthetics in general and the significant role of design as an underlying infrastructure for the creative economy.

In the past twenty years we have moved from the post-industrial economy to the information economy to the digital economy to the knowledge economy to the ‘creative economy’. This book tracks the most recent mutation of these serial endeavours to find a political economic label for the times, the notion of ‘creative

economy’—which was pioneered by John Howkins and Richard Florida early this decade and has become associated with post-market notions of open source public space. The book summarizes the underlying—and essential—trends in knowledge capitalism and examines the normative mission behind these conceptions. We suggest that the creative economy is an enlargement of its predecessors. It democratizes creativity and relativizes intellectual property law. It also emphasizes the social conditions of creative work. The notion of entrepreneurship, as interpreted originally by Schumpeter, breaks out of its business origins to become a rubric for larger transformation, a set of infrastructural conditions enabling creative acts. Likewise, the endogenous growth theory developed simultaneously by Paul Romer and others in economics has opened a space for the primacy of ideas and has installed continuous innovation as mainstream OECD economic policy—and CEO practice. It is early days, but it seems that these moves have brought to the forefront forms of knowledge production based on the commons and driven by ideas not of profitability per se—or a new relationship between knowledge and economy. What is taking place raises questions not just of ‘knowledge management’ but of the design of ‘creative institutions’ embodying new patterns of work.

Our book builds on the latest research understandings and draws material from a range of fields to provide a synoptic reading of the field that will be of interest to practicing policy analysts, managers and corporate business as well as to graduate students and academics across a range of disciplines. The work focuses on a set of powerful and recent changes to the nature of the knowledge economy. It is a general one that nevertheless pays strong attention to context, to existing literatures in a variety of fields and to recent developments in the nature of knowledge capitalism.

Chapter 1 examines contemporary forms of capitalism that have the arts and the sciences as their basis. It highlights the role of civics in forging modes of intellectual capitalism and the specific nature of their rationality and spatiality. The chapter discusses the role of creativity and designing intelligence in intellectual capital modes of production and the socioeconomic implications of the latest form of capitalism. In the late twentieth century, especially in the United States, there was a visible shift away from the vertically integrated network organization to horizontal peer-based models. This coincided with the spread of networked computing and computer-mediated communications. The shift was due to the need of knowledge-based organizations to re-engineer their command-and-control style of management. Intellectual value and good technology were best created by collaborative, open and peer systems of working. This chapter discusses the ‘Detroit model’ characteristic of the earlier era of Fordism and the shift to more participatory models based on collective action, developed through the commons and based on civic-aesthetic rather than market or command relations.

Chapter 2 is an essay in the new political economy of knowledge and information. It adopts ‘knowledge capitalism’ and ‘knowledge economy’ as overarching concepts that denote a sea change in the nature of capitalism. It seeks to understand this change through reference to economic theories of knowledge and information. The term ‘knowledge capitalism’ emerged only recently to describe the transition to the ‘knowledge economy’, characterized sometimes in terms of the ‘economics of abundance’, the ‘annihilation of distance’, the ‘de-territorialization of the state’ and investment in human capital. This chapter reviews the field of the economics of knowledge beginning with Friedrich Hayek before focusing on three different accounts of knowledge capitalism: the OECD’s New Growth Theory, the World Bank’s ‘Knowledge for Development’ and Burton-Jones’ account of knowledge capitalism as a new generic form. The chapter ends with a note on the concept of ‘knowledge cultures’.

Chapter 3 explores the relationships among several notions: the ‘creative economy’, New Growth Theory and the primacy of ideas, academic entrepreneurship and the new paradigm of cultural production. Broadly conceptualized, the creative economy links the primacy of ideas in both arts and sciences in a more embedded and social framework of entrepreneurship. This positions education as central because its institutions are the primary knowledge institutions that provide the conditions for the transmission and development of *new* ideas. Entrepreneurship develops within networks that use new information and communication technologies. The role of the arts, humanities and social sciences becomes re-profiled as crucial in the generation of new ideas within the creative economy, moving discussion and analysis away from a single focus on the ‘hard sciences’ towards the ‘artsciences’ (Edwards, 2008). Nanotechnology is a good example of this emergent field.

Chapter 4 reviews the constituents of intellectual creativity—particularly the imaginative radical-critical leaps or ‘breaks’ in knowledge. It discusses three intersecting levels or domains in which creative work takes place, with the main emphasis falling on the first two of these elements: (1) the head-space of the self-determining creative individual or group, in the light of forms of freedom, particularly as discussed by Amartya Sen and F. A. Hayek; (2) the organizational and institutional setting of creative work, and notably the techniques of accounting and audit that constitute the New Public Management in the contemporary university; and (3) the impact of city, regional and national location on creativity. There is no doubt that the more complete is the element of self-determination, the capacity for exercising the will, the larger is the scope for creative intellectual work and independent imagining. The striking aspect of the contemporary university is the manner in which the potentials of academic creativity on one hand are constantly opened and enlarged according to the logic of post-scarcity on the other,

criss-crossed by organizational requirements and behavioural controls that draw from and reproduce continuing scarcity of time and money.

Chapter 5 discusses education, creativity and the ‘economy of passions’ and contrasts two accounts of creativity: ‘personal anarcho-aesthetics’ and the ‘design principle’. The former is the dominant model—and has a close fit to business, often as a form of ‘brainstorming’, ‘mind-mapping’ or ‘strategic planning’. This highly individualistic model emerged in the psychological literature at the turn of the twentieth century from sources in German idealism and Romanticism. It emphasizes the way in which creativity emerges from deep subconscious processes, involves the imagination, is anchored in the passions, cannot be directed and is beyond the rational control of the individual. The ‘design principle’—in contrast to the first, individualistic model—is both relational and social. This second account is more recent and tends to emerge in literatures that intersect sociology, economics, technology and education. It surfaces in related ideas of ‘social capital’, ‘situated learning’ and ‘peer-to-peer’ accounts of commons-based production. It is seen to be a product of social and networked environments—that is, rich semiotic environments in which ‘everything speaks’. It is also a product of systems design that allows a high degree of interaction, and it rests on principles of distributed knowledge and collective intelligence. This chapter traces the genealogies of these two contrasting accounts of creativity and their significance for educational practice before showing how both notions are strongly connected in accounts of new forms of capitalism that require creativity in the curriculum.

Chapter 6 indicates that knowledge economies are the most powerful in the world and asks what makes them possible. This chapter discusses the origin of knowledge in pattern thinking and aesthetic forms. In addition, the chapter notes the concentration of knowledge economies in specific geographic zones—principally in portal city regions. These various phenomena are confluent: the art cultures of portal cities, and their intense concentrations of designing intelligence, contribute to the long-term accumulation of knowledge in these places. There is a strong parallel between aesthetic culture and the demands of long-distant portal economies. Aesthetic form lends itself to the management of social and economic uncertainty; it facilitates the discovery of pattern in the midst of chaos. Powerful economies arise out of the ability to manage high levels of contingency and risk—and avoid potential chaos. Portal cities, characterized by high levels of import and export, are among the most proficient users of pattern forms to manage contingency successfully. These cities, and their firms and organizations, use pattern thinking and designing intelligence to make sense of massive information flows and to obviate the risks inherent in operating in environments characterized by high levels of change and rapid shifts in direction.

Chapter 7 tracks the explosive growth of the knowledge economy and open source production through the circuits of the research universities. The universities are now being transformed into a worldwide competition of networked institutions, operating according to converging goals and similar methods, under the auspices of cross-border researcher mobility, publication/citation metrics and, above all, university rankings. Just as the *US News and World Report* ranking has shaped the development of U.S. higher education as a quasi-economic status market, so in a short time global ranking has proven to be a potent technology for arranging status, assigning value to it and shaping behaviours. The fecund growth of knowledge goods underlies their public good character and the inability of neoliberal policies of commodification and trade in intellectual property to capture those goods, as is increasingly recognized in OECD policies on research and innovation, which now place priority on the free and open dissemination of university-created knowledge. Yet public goods are also readily annexed to the longer-standing projects of producing university status and sustaining an imperial global geopolitics of knowledge. Here the relationship between status production and free cultural production is not so much a contradiction as an antinomy. Where the antinomy turns feral is when status production begins to over-reach itself by taking universal forms. These issues are discussed in the light of the social, economic and cultural dynamics of the flourishing and fall of the lowland city-states of the Maya in Mesoamerica, a notable example of a status economy and the interplay between status reproduction and cultural goods. The chapter reviews the specific rankings technologies, led by the Shanghai Jiao Tong University research metrics, including their effects in shaping the research imagination, the global strategies of university executives and national policies on universities and research, and the aggregation of these effects in the emerging 'arms race' in investment in innovation.

Chapter 8 reviews the field of intercultural and international education in the light of accelerated global student mobility, the greater scope for agent-directed trajectories in the open source setting and the resulting politics of interculturality. The chapter works through the different strands of research/scholarship in international education, focusing particularly on the emergent constructions of mobility and international student agency, and the ongoing debates about identity and culture. It also provides the beginnings of a theorization of globally inflected international education as a process of *self-formation*, focusing on tools of multiplicity, hybridity and self-centring in the identity-forming strategies of student agents. In the past fifty years the main body of research on international education, and especially on intercultural relations as expressed in pedagogy and counselling in higher educational institutions in the English-speaking world, has been informed by psychology. The strengths of psychology as a bounded

and quantitative discipline potent in the normalization of behaviour within monocultural administrative systems have increasingly emerged as limitations in the light of global evolution, which valorizes openness, contingency and multiple and fluid identity. In the past two decades a second strand of work has emerged, informed by social, cultural and political theory and focused on global convergence and the implications for self-determining human agents. This more eclectic body of research and scholarship is focused on a range of readings of cosmopolitanism, from portfolios of the desired ‘intercultural competences’, to theories of meta-national detachment (‘globalism’), to notions of agency both locally/nationally competent and imagining freely across global space. The chapter closes with surmise about the future evolution of knowledge about international education.

Chapter 9 discusses the successful management of creative employees in organizations that rely extensively on the development of intellectual capital. These organizations must incorporate new thinking—and to do so must be able to manage the ambiguous cognitive and practical situations that arise in such contexts. The chapter explores and highlights several areas of current interest in management and global business, including social capital and intellectual capital, creativity and innovation, and arts firms and aesthetic management. Specifically, it links the development and maintenance of intellectual capital in large knowledge-forming organizations to the successful management of paradox. The chapter highlights numerous areas where the management of creative employees often clashes with traditional management practices. These areas include crossing organizational boundaries, rules around the use of personal and organizational time and space, locus of authority and freedom to think. The chapter suggests that managing paradox requires special knowledge and skills, key among which are ironic knowledge, trust of those who are out of sight, acceptance of ambiguity in thought and action, and pattern thinking.

NOTES

I would like to thank Peter Murphy and Simon Marginson for constructive comments on this chapter and for contributing chapter summaries. Peter Murphy also added two substantial paragraphs on anarcho-capitalist or libertarian utopias.

1. See the website at <http://www.itu.int/wsis/index.html> (accessed 6th September, 2008). The WSIS initiated its first phase in 2003 producing a Declaration of Principles and Plan of Action.
2. See Reason online at <http://www.reason.com/news/show/28243.html> (accessed 30 August, 2008).
3. I have taken this characterization from his webpage on the weightless economy at <http://econ.lse.ac.uk/staff/dquah/tweirl0.html> (accessed 30 August, 2008).

4. See his website at www.thelongtail.com/about.html (accessed 30 August, 2008).
5. See www.thelongtail.com/the_long_tail/2006/11/more_on_the_eco.html (accessed 30 August, 2008).
6. These references come from the reading list 'The post-scarcity economics/culture of abundance' at <http://web.archive.org/web/20060512163521/http://www.pa.msu.edu/people/mulhall/mist/PSE-COA.html> (accessed 30 August, 2008).

REFERENCES

- Albus, J. S. (1976). *Peoples' Capitalism: The Economics of the Robot Revolution*. College Park, MD: New World.
- Anderson, C. (2006). *The Long Tail: Why the Future of Business Is Selling Less of More*. New York: Hyperion.
- Atton, C. (2004). *An Alternative Internet*. Edinburgh: Edinburgh University Press.
- Barbrook, R. (1998). 'The hi-tech gift economy'. *First Monday*, 3(12) at http://firstmonday.org/issues/issue3_12/barbrook/ (accessed 30 August 2008).
- Barbrook, R. (1999). *The::Cyber.com/munist::Manifesto*. Retrieved on 7 December 2007 from www.nettime.org/Lists-Archives/nettime-1-9912/msg00146.html.
- Barbrook, R. (2007). *Imaginary Futures*. London: Pluto Press.
- Becker, G. (1964, 1993, 3rd ed.). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education*. Chicago: University of Chicago Press.
- Bell, D. (1973). *The Coming of Post-Industrial Society a Venture in Social Forecasting*. New York: Basic Books.
- Benedict, R. (1959). *Patterns of Culture*. Boston: Houghton Mifflin.
- Benkler, Y. (2006). *The Wealth of Networks*. New Haven, CT: Yale University Press.
- Berkman, A. (1929). *Now and After: The ABC of Communist Anarchism*. New York: Vanguard.
- Black, B. (1986a). *The Abolition of Work and Other Essays*. Port Townsend, WA: LoomPanic Unlimited.
- Black, B. (1986b). *Zerowork: The Anti-Work Anthology*. Brooklyn, NY: Autonomedia.
- Bookchin, M. (1971). *Post-scarcity Anarchism*. Berkeley, CA: Ramparts.
- Bourdieu, P. (1986). 'The Forms of Capital,' Richard Nice (trans). In: J. F. Richardson (Ed.) *Handbook of Theory of Research for Sociology of Education*, Westport, Connecticut: Greenwood Press, pp. 241–58.
- Boyer, R. (2004). *The Future of Economic Growth: As New Becomes Old*. London: Edward Elgar.
- Cardoso, G. & Castells, M. (Eds). (2006). *The Network Society: From Knowledge to Policy*. Center for Transatlantic Relations: Brookings Institute Press.
- Castells, M. (1996, 2000, 2nd ed.,). *The Rise of the Network Society: The Information Age: Economy, Society and Culture Vol. I*. Cambridge, MA; Oxford, UK: Blackwell.
- Chase, S. (1934). *The Economy of Abundance*. New York: Macmillan.
- Coleman, J. (1988). 'Social Capital in the Creation of Human Capital,' *American Journal of Sociology*, 94 (Supplement), pp. S95–S120.

- Davis, J., & Stack, M. (1997). 'The digital advantage'. In J. Davis, T. A. Hirschl, & M. Stack (Eds), *Cutting Edge: Technology, Information Capitalism and Social Revolution*. London: Verso, pp. 121–144.
- DeLong, J. B., & Froomkin, A. M. (2000). 'Speculative microeconomics for tomorrow's economy'. In B. Kahin & H. Varian (Eds), *Internet Publishing and Beyond: The Economics of Digital Information and Intellectual Property*, Cambridge, MA: MIT Press, pp. 6–44.
- DeLong, J. B., & Summers, L. H. (2002). 'The "new economy": background, historical perspective, questions, and speculations'. Retrieved from www.kansascityfed.org/PUBLICAT/SYMPOS/2001/papers/S02delo.pdf (accessed 30 August, 2008).
- Douglas, Major C. H. (1922). *The Control and Distribution of Production*. London: C. Palmer.
- Douglas, Major C. H. (1967). *Economic Democracy*. Hawthorne, CA: Omni.
- Drucker, P. (1969). *The Age of Discontinuity: Guidelines to Our Changing Society*. New York: Harper & Row.
- Drucker, P. F. (1993). *Post-capitalist Society*. New York: Harper Business.
- Edwards, D. (2008). *Artscience: Creativity in the Post-Google Generation*. Cambridge, MA: Harvard University Press.
- Esfandiary, F. M. (1970). *Optimism One: The Emerging Radicalism*. New York: Norton.
- Firth, R. (1965). *Primitive Polynesian Economy*. London: Routledge & Kegan Paul.
- Foray, D. (2004). *The Economics of Knowledge*. Cambridge, MA: MIT Press.
- Fuchs, C. (2008a). 'Review of *Wikinomics: How Mass Collaboration Changes Everything*'. *International Journal of Communication*, Vol. 2, pp. 1–11.
- Fuchs, C. (2008b). *Internet and Society: Social Theory in the Information Age*. New York: Routledge.
- Granovetter, M. (1973). 'The Strength of Weak Ties,' *American Journal of Sociology*, Vol. 78, No. 6, May, pp. 1360–1380.
- Granovetter, M. (1983). 'The Strength of Weak Ties: A Network Theory Revisited,' *Sociological Theory*, Vol. 1, pp. 201–233.
- Harvey, D. (1989). *The Condition of Postmodernity*. Oxford: Blackwell.
- Hayek, F. (1937). 'Economics and Knowledge.' Presidential address delivered before the London Economic Club, 10 November 1936; Reprinted in *Economica IV* (new ser., 1937), pp. 33–54.
- Hayek, F. (1945). 'The Use of Knowledge in Society', *The American Economic Review*, Vol. XXXV, No. 4, September, pp. 519–530.
- Hearn, G., & Rooney, D. (Eds). (2008). *Knowledge Policy: Challenges for the Twenty First Century*. Cheltenham: Edward Elgar.
- Hilton, M. A. (Ed.). (1966). *The Evolving Society*. Proceedings of the First Annual Conference on the Cybercultural Revolution. New York: Institute for Cybercultural Research.
- Hübner, K. (Ed.). (2005). *The New Economy in a Transatlantic Perspective: Spaces of Innovation*. Routledge Studies in Governance and Change in the Global Era, London: Routledge.
- Kelly K. (1998). *New Rules for the New Economy*. London: Fourth Estate.
- Kelso, L. (1986). *Democracy and Economic Power*. Cambridge, MA: Ballinger.
- Kelso, L., & Hetter, P. (1968). *How to Turn Eighty Million Workers into Capitalists on Borrowed Money*. New York: Random House.

- Kochan, T. A., & Barley, S. R. (Eds). (1999). *The Changing Nature of Work and Its Implications for Occupational Analysis*. Washington, DC: National Research Council.
- Lafargue, P. (1979). *The Right to Be Lazy*. Chicago: C.H. Kerr.
- Lee, R. (1979). *The !Kung San: Men, Women, and Work in a Foraging Society*. Cambridge, New York: Cambridge University Press.
- Lessig, L. (2006). *Code: Version 2.0*. New York: Basic Books.
- Lorenz, E., & Lundvall, B.-Å. (Eds). (2006). *How Europe's Economies Learn*, Oxford, Oxford University Press.
- Lundvall, B.-Å., & Archibugi, D. (2001). *The Globalizing Learning Economy*. New York: Oxford University Press.
- Lundvall, B.-Å., & Johnson, B. (1994). 'The Learning Economy,' (with Johnson, B.) in *Journal of Industry Studies*, Vol. 1, No. 2, December, pp. 23–42.
- Lyotard, J-F. (1984). *The Postmodern Condition: A Report on Knowledge*. Geoff Bennington and Brian Massumi (trans.) Manchester: Manchester University Press.
- MacBride, R. (1967). *The Automated State: Computer Systems As a New Force in Society*. Philadelphia, PA: Chilton.
- Machlup, F. (1962). *The Production and Distribution of Knowledge in the United States*. Princeton, NJ: Princeton University Press.
- Melman, S. (1961). *The Peace Race*. New York: Ballantine.
- Miller, J. H. (1994). *Curing World Poverty: The New Role of Property*. Saint Louis, MO: Social Justice Review.
- Morris-Suzuki, T. (1997). 'Capitalism in the computer age and afterward'. In J. Davis, T. A. Hirschl, & M. Stack (Eds), *Cutting Edge: Technology, Information Capitalism and Social Revolution*. London: Verso, pp. 57–72.
- Nonaka, I., & Takeuchi, H. (1995). *The Knowledge-Creating Company*. New York: Oxford University Press.
- Nozick, R. (1974). *Anarchy, State and Utopia*. New York: Basic Books.
- OECD (1996). *The Knowledge-Based Economy*. Paris: The Organization.
- Peters, M., & Besley, T. (2006). *Building Knowledge Cultures: Education and Development in the Age of Knowledge Capitalism*. Lanham & Oxford: Rowman & Littlefield.
- Pierson, J. H. G. (1996). *Full Employment*. Amherst, NY: Prometheus Books.
- Porat, M. (1977). *The Information Economy*. Washington, DC: US Department of Commerce
- Powell, W. W., & Snellman, K. (2004). 'The knowledge economy'. *Annual Review of Sociology*, Vol. 30, pp. 199–220.
- Prusak, L. (1997). *Knowledge in Organizations*. Boston, MA: Butterworth-Heinemann.
- Putnam, R. (2000). *Bowling Alone: The Collapse and Revival of American Community*. New York: Simon and Schuster.
- Quah, D. (2003a). 'Digital Goods and the New Economy.' In Derek Jones, (Ed.), *New Economy Handbook*. Amsterdam, the Netherlands: Academic Press Elsevier Science, pp. 289–321.
- Quah, D. (2003b). 'The Weightless Economy'. at <http://econ.lse.ac.uk/staff/dquah/tweirl0.html> (accessed 30 August 2008).
- Rifkin, J. (1995). *The End of Work: The Decline of the Global Labor Force and the Dawn of the Post-market Era*. New York: G.P. Putnam's Sons.

- Romer, P. M. (1990). 'Endogenous technological change'. *Journal of Political Economy*, Vol. 98, 71–102.
- Rooney, D., Hearn, G., Mandeville, T., & Joseph, R. (2003). *Public Policy in Knowledge-Based Economies: Foundations and Frameworks*. Cheltenham: Edward Elgar.
- Rothbard, M. (1962). *Man, Economy, and State: A Treatise on Economic Principles*. Princeton, NJ: Van Nostrand.
- Russell, B. (1932). *In Praise of Idleness*. London: Kindle Books.
- Sahlins, M. (1972). *Stone Age Economics*. Chicago: Aldine-Atherton.
- Shuman, M., & Sweig, J. (1993). *Technology for the Common Good*. Washington, DC: Institute for Policy Studies.
- Söderberg, J. (2002). 'Copyleft vs. copyright: a Marxist critique'. *First Monday*, 7(3) at http://www.firstmonday.org/issues/issue7_3/soderberg/ (accessed 30 August 2008).
- Speiser, S. M. (1984). *How to End the Nuclear Nightmare*. Croton-on-Hudson, NY: North River Press.
- Stankosky, M. (2004). (ed.) *Creating the Discipline of Knowledge Management: The Latest in University Research*, London: Butterworth-Heinemann.
- Stiglitz, J. (1998). 'Towards a New Paradigm for Development: Strategies, Policies and Processes.' 9th Raul Prebisch Lecture delivered at the Palais des Nations, Geneva, UNCTAD, October 19, 1998.
- Stiglitz, J. (1999a). 'Knowledge for Development: Economic Science, Economic Policy, and Economic Advice.' Proceedings from the Annual Bank Conference on Development Economics 1998. World Bank, Washington D.C. Keynote Address, pp. 9–58.
- Stiglitz, J. (1999b). 'Knowledge as a global public good'. Retrieved from <http://www.worldbank.org/knowledge/chiefecon/articles/undpk2/> (accessed 30 August 2008).
- Stiglitz, J. (2003). *The Roaring Nineties: A New History of the World's Most Prosperous Decade*. New York: W.W. Norton.
- Tapscott, D., & Williams, A. D. (2007). *Wikinomics: How Mass Collaboration Changes Everything*. New York: Penguin.
- Theobald, R. (1966). *The Guaranteed Income: Next Step in Economic Evolution?* Garden City, NY: Doubleday.
- Theobald, R. (1971). *The Challenge of Abundance*. New York: Pitman.
- Toffler, A. (1980). *The Third Wave*. New York: Bantam Books.
- Touraine, A. (1971) *The Post-Industrial Society: Tomorrow's Social History; Classes conflicts & Culture in the Programmed Society*. L. Mayhew (trans.). New York: Random House.
- Varian, H. R. (1998). 'Markets for information goods'. Retrieved from www.sims.berkeley.edu/~hal/people/hal/papers.html (accessed 30 August 2008).
- Von Mises, L. (2005). *Liberalism: The Classical Tradition*. Indianapolis, IN: Liberty Fund.
- Wilson, W. J. (1996). *When Work Disappears: The World of the New Urban Poor*. New York: Knopf.