

GLOBAL TRANSFORMATIONS IN KNOWLEDGE—SOCIAL AND CULTURAL ISSUES

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Summary

In this response the statistical contours of the so-called knowledge economy are first described. This description does not constitute a capitulation to the hyperbole of those who see the dawning of a utopia in the knowledge era. Rather it merely provides a context to introduce the contributors to this theme and their analyses of the social and cultural issues implicit in the globalization of knowledge. Whilst the contributors raise a diverse set of issues, they nevertheless share the view that knowledge must be understood in its social context—and that social analysis of knowledge must encompass many dimensions, from the political to the cultural. In light of this, the idea of knowledge is analyzed and many conventional accounts are found to treat the concept of knowledge in a social vacuum. Similarly, the term globalization is criticized and problematized. These two definitional critiques allow for the discussion proper to proceed, raising the key social issues implicit in confronting the globalization of knowledge, namely the issue of equity of distribution and access and the cultural implications of the unbridled commodification of knowledge. These issues lead, by way of conclusion, to consideration of the knowledge society as a complex system and a discussion of its possible trajectories.

1. Introduction

At the end of the twentieth century the word “knowledge” became fashionable and spawned many related terms, such as knowledge economy, knowledge management, knowledge workers, and even knowledge policy. Although this fashion can be challenged, it is important to acknowledge that the focus on knowledge did have a

prima facie rationale, namely to describe what is different about the last half of the twentieth century compared with other periods in history. The essential rationale is that this period's economy has much more to do with the intangible activities, and therefore *comparatively* much less to do with tangible resources, than earlier periods appeared to. Daniel Bell issued the manifesto that in this postindustrial society, "knowledge and its application replaced labour as the source of 'added value' in the national product." Some basic facts apparently support this position.

2. Why this Talk of a Knowledge Economy?

Since the early 1800s, in developed nations, the percentage of the population engaged in agriculture and manufacturing has declined considerably—from approximately 80% to less than 5%. On the other hand, the service sector of the economy has grown as an employer, with now around 70% of workforces in developed economies engaged in services. The contribution to the gross domestic product (GDP) of various sectors tells us a similar story though the contrast is not as dramatic because as well as reducing labor input, automation has improved productivity. (Of course, relative growth of services does not mean that the primary sectors are shrinking in absolute terms—they are in fact expanding in terms of their output.) The story of the knowledge economy is also often inferred by reference to the kinds of companies now dominating wealth tables. The richest company in the world—Microsoft—owns very few tangible resources, its wealth being vested in the knowledge it has to develop and market software. In crude competitive terms this means that the tangible resources one has monopoly over are now only one factor in dominating a market. Arguably more important is the knowledge that is in some way valuable and that one has monopoly over or least an advantage in.

However, it is difficult to measure knowledge because even everyday connotations of the word suggest it could encompass everything from detailed technical information to more esoteric rituals. One indicator often used to characterize knowledge activities is the information intensity of the activity. In general, work is becoming more information intensive. For example, agricultural production still involves the production of food from plants, but now also may often involve very detailed and complex information with regard to genetic structures of plants, computer-controlled watering, nutrition and synthetic climate control, as well as information with regard to timing of entry to markets. Thus the production, use, and communication of information assumes the central focus in the information era, in contrast to the focus on tangible production *per se*, characteristic of the industrial era.

Indeed the "value-added" component of a product, which makes it competitive or attractive, may not reside in the tangible product at all but rather in an intangible knowledge component. For example, the majority of the value of the Coca-Cola company lies with its brand name. Indeed many valuable companies do not process any tangible material products (for example, media and consulting firms). Thus the knowledge era involves the encapsulation of value in more and more intangible ways. This value is constituted in expert languages and the institutional/legal structures that define and protect them. And the penultimate abstraction of value which characterizes

the knowledge era is that most trade is not carried on in terms of tangible products or even intangible services but rather in money itself and associated financial “products.”

There are no simple conventions for measuring knowledge. However, economists have analyzed information activities together, as a single sector of the economy. Measuring the extent and growth of the information sector in the economy involves collecting from the traditional three sectors—primary, manufacturing, and services—those activities that involve the production, processing, distribution, storage, and consumption of information. This measurement has assessed both employment and productivity.

Research suggests that information activities have been growing rapidly across the Organization for Economic Cooperation and Development (OECD) countries since the 1950s. The information sector now accounts for about one-third to one-half of the workforce in OECD countries. In Australia, an average OECD country, approximately 40% of the labor force is employed in information occupations, such as information sector work per se, scientific and technical work, consulting, administration and management, clerical work, education, and media work. In addition, the component of information activities in many jobs has increased. For example, many trades not only involve the primary technical activity but also recording, summarizing and analyzing information about how and when the primary technical task is performed. More broadly, the knowledge sector could be said to include education, information technology and telecommunications (IT&T), media, finance, consulting, advertising and the arts, as well as in-house knowledge processing activities in non-knowledge industries such as transport, retailing, and mining.

Furthermore, it can be argued that the last decade of the twentieth century inaugurated a new phase of development within the postindustrial era caused, in part, by the convergence of telecommunications, IT and broadcasting industries. The OECD describes this as a “new techno-economic paradigm” resulting from widespread diffusion of innovative applications of information and communication technologies (ICTs). This phase is undergirded by a shift in technology—a shift from the disconnectedness of the early information machines to the connectedness of emerging communication machines—the Internet.

The factors contributing to this technological convergence of IT, telecommunications, and eventually, broadcasting are straightforward. Firstly, real costs for computer hardware have declined over the past four decades—something in the range of 2700 times. This declining cost of microprocessors combined with the declining cost for memory and storage have enabled computers to become more widespread. Secondly, the emergence of the desktop computer, communication networks, and protocols that enabled communication between these computers has enabled the computer industry to make use of telecommunications infrastructure to network computers. Thirdly, both computers and telecommunications have benefited from advances in electronics and opto-electronics, stored program control for telephony switches, and the development of digital representation of analogue telephony signals in the 1950s. Finally, there has been a transition from analogue to digital systems. Digitizing audio, image, and video signals allows them to be stored and manipulated by standard computer hardware. It also means

that the telecommunications network is using the same language as computers rather than the previous analogue representation.

In conjunction with this technological convergence has come a convergence of industries and alliances of corporations from different industries. The Internet has evolved as a very diverse knowledge space wherein anything from obscure technical information to mainstream entertainment can be found. The Internet is thus perhaps the supreme example of the twin engines of economic growth in twentieth century capitalism: namely, the deployment of rational process in pursuit of economic efficiencies and innovation, and the deployment of emotional/expressive process in activating and nourishing consumption. The Internet has once and for all broadened the definition of knowledge to include entertainment and cultural production as much as scientific and research information. Cultural production can be described as finding ways of making aspects of cultural expression available for sale (for example, explicitly via music CDs, movies, travel, performances, and more subtly via design of products, package aesthetics, and the personal and cultural identity that products may co-opt).

It can be argued that in parallel with this shift in technological and consumption infrastructure, which defines the knowledge era, comes a shift in social organization as well. Manuel Castells is perhaps the preeminent commentator on the society that accompanies the knowledge economy. Castells' analysis emphasizes the rise of the network as a social-organizational form and the parallel renegotiation of identity. The rise of network society mirrors the rise of network technologies and constitutes a "new social morphology." Networks are open dynamic structures with inherent characteristics such as the interconnectivity of all nodes, and thus the possibility of multiple pathways for communication and the potential for growth along all edges of the structure. The network form manifests itself everywhere from global financial flows, to drug cartels, to informal women's support systems. It is the basis of reorganization of polity, work and power relations, and perhaps even of culture itself. The main cultural shift accompanying the rise of the networked knowledge society is a shift in the way identities are constructed. The essential argument made by Castells is that the knowledge era has resulted in a disjunction between powerful global institutional and financial systems, which ultimately dictate the material basis of existence, and the local experiential systems in which people seek to create meaning. Identities are less likely to be built around the dominant institutions of societies (which are disintegrating) and more likely to be built as a local communal defense; hence, the rise of identity politics (for example, of gender and religious fundamentalism).

It is in the context of this globalized, networked, scientifically sophisticated, culturally commodified, and socially dynamic knowledge era that the contributors to this section write. They cover a range of topics, from the nature of modern science to the design of virtual communities. They also adopt a variety of positions on the continuum of optimism to pessimism. However, the feature they all share, and the point of departure for this response, is a problematization of the concept of knowledge. In contrast to a view that knowledge is objective, culturally inert, and inherently liberating, these authors assert, in various ways, a view of knowledge as culturally constructed in terms of its genesis and the interests it serves. Knowledge has cultural baggage.

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Biographical Sketch

Greg Hearn is associate professor in the School of Communication at Queensland University of Technology. Over the last 10 years, his consulting and research has focused on the future cultural impact of global communication networks on organizations and communities. He was a consultant to the Broadband Services Expert Group, the national policy group that formulated Australia's foundation framework for broadband services. As well, he has been involved in high level consultancy and applied research with organizations including British Airways and many Australian government agencies, focusing on adaptation to new media technologies. He has been a visiting fellow in both the United Kingdom (The Centre for Research in Innovation, Culture and Technology, Brunel University) and the United States (Cornell University).

His research is published widely in journals such as *Human Relations*, *Australian Journal of Communication*, *Futures*, *Foresight*, and *Prometheus*. His books include: Hearn G., Mandeville T., and Anthony D. (1998) *The Communication Superhighway: Social and Economic Change in the Digital Age*. Sydney: Allen and Unwin; and Rooney D., Hearn G., Mandeville T., and Joseph R. (forthcoming) *Public Policy and the Knowledge Economy*. London: Edward Elgar.