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The knowledge economy and the potentials of the global public sphere

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Introduction

This paper responds to the overarching theme of the Beijing Forum 2008. It focuses on what is commonly called the global knowledge economy, constituted by the worldwide processes of research, knowledge formation and communication. The global knowledge economy is grounded in the networked communicative structure of the Internet. Technically, it is the electronically based production and dissemination of knowledge and information. In terms of human society, it is based on the principles of free association, cultural exchange, openness and access to information, and the broadest possible dissemination of knowledge, opening the possibility of one universal human conversation. Like all economy the global knowledge economy is a site of production. At the same time it is also cultural in character and takes the form of worldwide community. No one country or culture controls this universal conversation. It is accessible to all. It is the practical realization of the Beijing Forum theme, 'The Universal Value and the Development Trend of Civilization'.

The creation of a worldwide communicative structure is a key turning point in history, comparable in its transformative impact with the industrial revolution, perhaps the Neolithic (agricultural) revolution. The world is becoming one zone of association in which all human activities interface, with a common store of knowledge. At the same time the world continues to be diverse in political, linguistic and cultural terms. The common zone of association is a site in which differences are brought into a relation with each other, on a voluntary basis, achieving harmony in diversity without the need for abstract uniformity. The paper discusses the global knowledge economy and its implications for emerging world society, in four domains: (1) policy strategies on research and innovation; (2) the international 'arms race' in innovation, where nations invest in education and research to insure the future and secure global competitive advantage; (3) the regulation of global knowledge flows including the new systems for assigning value to knowledge and its producers; and (4) the potentials of the communicative global public sphere.

The global knowledge economy

Globalization can be understood as the process of partial convergence and integration across national borders. In the neo-liberal interpretation of globalization it is defined as the formation of world markets, the displacement of nation-states and a universal Anglo-American culture.

The global knowledge economy is understood primarily in terms of legally regulated intellectual property and trade in knowledge-intensive goods. It is true that world markets, a more open trading environment, the accelerated mobility of capital, labour and production, and the universal trend to economic modernization, all contribute to globalization. But the neo-liberal interpretation is simplistic and misleading. First, it underestimates the dynamism of the information revolution and fails to grasp that most information and knowledge takes the form not of tradeable commodities but freely accessed and transferred data. Second, the nation-state and distinctive human cultures remain robust, and political economy continues to be regulated nationally rather than globally though cooperation between different national and regional zones is increasing. Third, the global knowledge economy is primarily integrated and harmonized by 'knowledge' and communications rather than 'economy'. At the same time cultures have become transparent to each other. Creativity in all its forms, from scientific discoveries to works of art, is now universal in reach. Successful human traditions are projected and reproduced not just on the national scale but the global scale.

The global knowledge economy can be understood as distinct from the industrial economy, the financial and trading economy, and the sphere of government, although all overlap with each other. The knowledge economy consists of a mix of commercial production and knowledge goods that are freely created, disseminated and exchanged. In their form as ideas and know-how and as first creations of works of art; that is, as original goods; knowledge goods have little mass and their production is sustainable, requiring little or no industrial energy. It rests on donated human energy and time. Subsequently these knowledge goods can be copied, mostly with minimal resources, energy and time. Commercial digital goods are subject to the norms of scarcity but freely reproduced knowledge goods are not. There is no scarcity of knowledge goods as such. Their dynamic is hyper-abundance not scarcity. It is very different to conventional industrial production.

In economic theory, the closest approximation to the nature of knowledge is the concept of 'public goods' coined by Paul Samuelson.[1] Joseph Stiglitz[2] won the Nobel Prize for his analysis of knowledge as a global public good. Public goods are non-rivalrous and non-excludable, except at the point of creation. First mover advantage provides the only viable

[1] Samuelson (1954)
[2] Stiglitz (1999)

basis for a commercial IP regime. The advantage diminishes and disappears once commercial knowledge goods are in circulation and become non-excludable. Once knowledge is disseminated in open source fashion it is readily reproduced; and while it retains its use value and is capable of many applications in other sites, its natural price is zero. Any property regime that tries to hold down commodity forms at this point is entirely artificial. Copyright is not just difficult to police, it is violated at every turn and impossible to enforce. The intellectual property traditions of China and India, in which knowledge confers status rather than revenues on producers and is freely copied and disseminated, are closer to the nature of knowledge than is American copyright law.

As they are disseminated knowledge goods become more abundant. In the k-economy the production and dissemination of knowledge goods, the creation of communicative networks and the emergence of markets are all convergent processes. There are two heterogenous sources of growth: economic commerce, and free cultural creation expressed through the open source ecology of the Internet. Manuel Castells[3] explains the growth economics of networked association. The benefits of being in the network grow exponentially, because of the ever-expanding number of connections. The cost of each new unit addition to the network is constant. Total cost grows in linear pattern and the benefit/cost ratio continually increases. The rate of expansion of the network increases over time until all potential nodes are included. Hence the dynamism of open source knowledge. Eventually the dissemination of knowledge will reach as far as monetary exchange; and the capacity to produce knowledge goods, which is in the hands of growing numbers of school children throughout the world, is already much more widely distributed than the capacity to produce industrial goods. Because of Castells' logic the rate of growth of commercial knowledge goods lags behind the expansion of freely circulating knowledge goods. The relative role of non-market information exchange is growing, in comparison to capitalist markets; and there are immense new potentials for cross-border community, cultural exchange and the formation of individual identity.

These effects blend into wholesale transformation and foreshadow some aspects of what Marx[4] imagined as the future human society. The term 'post-capitalist' seems appropriate to describe these developments, both because of the hyper-abundance of knowledge goods (beyond scarcity),

[3] Castells (2000), p. 71
[4] Marx (1973)

and because of their growth relative to capitalist goods (new social relations emerge and become more important while old market-based social relations continue to grow).

Implications

The rapid emergence of the knowledge economy has triggered transformative changes in the policies of national governments and global agencies, and in regulation both informal and formal.

1. In relation to research policy in universities, the OECD has swung its primary emphasis from commercial intellectual property to open source dissemination. *Tertiary Education for the Knowledge Society* notes that what earlier policy saw as a 'failure to commercialize public science' was in fact typical of innovation and emblematic of knowledge. The focus on commercialization takes 'a restricted view of the nature of innovation, and of the role of universities in innovation processes'.[5] The more important role of universities is dissemination of 'open science'. If breakthrough discoveries become tied up by IP rather than placed in open science the spread of useful knowledge is retarded and innovation is inhibited.[6]

2. The global arms race in innovation is rapidly gaining momentum. Under the EU Lisbon strategy the European nations committed themselves to an R&D target of 3 per cent of GDP. Not all will achieve this but through the 1.8 billion euro *Exzellenzinitiative* initiative, Germany is creating a layer of top research universities. Large-scale university mergers are under discussion in France. The EC is creating a European Institute of Technology. Larger changes are taking place in East Asia. Between 1996 and 2005 China's investment in R&D as a proportion of GDP rose from 0.57 to 1.35 per cent.[7] In 2006 China became the world's number two R&D spender. Singapore has fostered two strong research universities and the National University of Singapore is having a major impact. Between 1995 and 2005 China's annual output of scientific papers rose by 16.5 per cent per annum. The annual rate of growth in South Korea was 15.7 per cent, in Singapore 12.2 per cent and Taiwan China 8.6 per cent.[8] China has also multiplied tertiary student numbers by more than four times since 1998.[9] The transformation of China from a

[5] OECD (2008a), p. 164 and 180.
[6] *ibid*, p. 174.
[7] World Bank, 2008
[8] NSB, 2008.
[9] Li, et al. (2008).

low wage manufacturing exporter to a world leading serives economy, and knowledge and innovation economy, will almost certainly generate a surge of US investment in education and research in response.

3. In the knowledge economy the patterns of knowledge production and the flows of knowledge are conditioned by and reproduce global relations of power in other domains such as the economic, technological and political. All relations of power are 'open structures' with space for contingency and change. Perhaps this is truer of the knowledge economy than the other domains. But how do the chaotic open source flows of knowledge, with no evident tendency towards predictability let alone to equilibrium, become reconciled with national hierarchies, economic markets and institutions that routinely require stability and control in order to function? How is knowledge translated from acts of individual and collective creation open source settings into formal processes and institutions – elite universities, conferences, journals - so that the formal processes secure coherence and often control of those flows of knowledge, while connecting the knowledge economy to the financial and industrial economies? In the k-economy knowledge flows are articulated by a system of status production that assigns *value* to knowledge and arranges it in ordered patterns.[10]). Recent years have seen the rapid emergence of systematic procedures for assigning values to knowledge: league tables and other rankings, include university rankings in research, publication metrics, citation metrics, journal hierarchies. Other outputs metrics will emerge, for example the OECD is exploring internationally comparative data on outcomes of student learning.[11] These mechanisms are discussed in the written paper.

4. Global information flows and the open source knowledge 'system' are providing conditions for the evolution of a larger and more active global public sphere. In his book *The Structural Transformation of the Public Sphere* Jurgen Habermas discusses the rise of networked discourse in civil society in eighteenth century London.[12] The eighteenth century public sphere was the shaping of 'public opinion' in the press, the coffee houses of London and the day-to-day interplays between trading businesses, banking, the professions, government officials and London society. This public sphere was characterized by on the one hand an unregulated openness, on the other hand sufficient internal coherence,

[10] Marginson (2009).
[11] OECD (2008b).
[12] Habermas (1989); Calhoun (1992).

homogeneity and support for the British national agenda to ensure a broad commonality of values. The public sphere functioned as a medium in which talent was mobilized, and a source of new ideas and collective insights into practical affairs, in the national interest. It was both informed critic of the British nation-state and intelligent supporter of core state projects. Today national states and economies sit alongside national civil society. At the same time, research, knowledge and information, communicated through the Internet, feed into the evolving global public sphere or global civil society. This is distinct from any one national public sphere while overlapping them all. The global public sphere is sustained also by other mechanisms and activities, including the cultures of international organizations (the United Nations family of organizations, the OECD circles and the World Bank); the inter-governmental world; NGOs; cross-country business cultures; media and communications; and creative communities like writers, artists and film. The global public sphere does not displace either national public spheres or national governments, but supplements them and adds something new and important to the mix. Effectively utilized, the global public sphere is a useful reflexive adjunct to nation-states and global agencies, as in eighteenth century England. It brings many more agents into each national conversation. Lying beyond the exhaustive control of the authorities anywhere, it introduces new ideas into all conversations. It is an often influential source of informal international judgements and benchmarks. It incubates reflexivity. It is also a site for harmonization.

The global public sphere will be a richer, more diverse and interactive public sphere when languages other than English also become global languages. Among the possibilities are Chinese national language, Spanish, and Arabic, long an international scholarly language.

It may be that the evolution and growth or ‘thickening’ of the global public sphere in this manner via globalization is accelerating the long slow tendency to the emergence of a single world society, a tendency that underpins the whole of human history. It is here above all that ‘The Universal Value and the Development Trend of Civilization’ is manifest.

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