



ELSEVIER

Contents lists available at ScienceDirect

Environmental Innovation and Societal Transitions

journal homepage: www.elsevier.com/locate/eist



Towards a political ecology of the digital economy: Socio-environmental implications of two competing value models

Vasilis Kostakis^{a,c,*}, Andreas Roos^{b,c}, Michel Bauwens^d

^a *Ragnar Nurkse School of Innovation and Governance, Tallinn University of Technology, Akadeemia Street 3, 12618 Tallinn, Estonia*

^b *Human Ecology Division, Lund University, Sölvegatan 12, 22362 Lund, Sweden*

^c *P2P Lab, Ioannina, Kougkiou 3A, 45221, Greece*

^d *P2P Foundation, Realengracht 196, 1013AV Amsterdam, Netherlands*

ARTICLE INFO

Article history:

Received 21 December 2014

Received in revised form 16 August 2015

Accepted 17 August 2015

Available online xxx

Keywords:

Techno-economic paradigm shifts

Environmental sustainability

Digital economy

Peer-to-peer

ICT

Political ecology

ABSTRACT

This article explores the socio-environmental implications of two different value models currently competing for dominance in the digital economy: the neo-feudal cognitive capitalism (NFCC) and the hypothetical case of mature peer production (HMPP). Using a systematisation that considers environmental effects of information and communication technologies as direct, indirect and structural, this article discerns the future socio-environmental scenarios indicative of each value model. We argue that the two value models share the same type of direct environmental effects associated with a similar technological infrastructure; however, their indirect effects differ in prospects of consumer behaviour, environmental awareness and product design. Likewise the difference in structural effects is significant as the NFCC is based on profit maximisation and an accumulation of capital, whereas the HMPP is agnostic to growth and oriented towards the commons. Hence, the latter is considered as the socio-environmentally auspicious choice, but comes not without transitional challenges of its own.

© 2015 Elsevier B.V. All rights reserved.

1. Introduction

With an escalating environmental crisis and an unprecedented increase in the use of information and communication technologies (ICTs), it is now more crucial than ever to understand the relation between the two and what socio-environmental scenarios we might expect from such a pattern (Edenhofer et al., 2014; McLellan et al., 2014; Internet World Stats, 2014). While no society can arguably be sustained indefinitely if highly dependent on ICTs and the non-renewable resources they necessitate, it is nonetheless important to understand the politically laden socio-environmental scenarios now emerging. This is so for at least two reasons. Firstly, because the digital economy has long since reached a point at which it is more detrimental to overlook it than to seek a creative management in which its true socio-environmental potential can come to the fore. Secondly, different value foundations can largely be said to determine the meaning of ICTs in society (see Rattle, 2010; Fuchs, 2008), implying that an ecologically coherent digital economy might prove to be beneficial for both local and global environments, given current trajectories.

* Corresponding author at: Tallinn University of Technology, Akadeemia Street 3, 12618, Tallinn, Estonia.
E-mail address: vasileios.kostakis@ttu.ee (V. Kostakis).

Kostakis and Bauwens (2014) have previously argued that the current ICT-driven techno-economic paradigm (abbreviated TEP, Perez, 2002, 2009a,b) has made possible three value models now competing for dominance in the digital economy: that is the traditional proprietary capitalism; the mixed model of neo-feudal cognitive capitalism; and the hypothetical case of mature peer production. As the traditional proprietary capitalist model is arguably in decline (Kostakis and Bauwens, 2014), this article will be more focused on the socio-environmental implications of the two latter models. Investigating the prospect for environmental sustainability of these emerging value models, it is important to consider that ICTs are not void of political struggle and that the competing value models offer separate organisational outlooks for society (Benkler, 2006; Kostakis, 2009, 2012). This includes alternative organisations of the economy, alternative forms of governance, and also, as this article will expand upon, alternative organisations of socio-environmental relations. To our knowledge the peer-to-peer (P2P) value models of the digital sphere have not been explicitly explored from the perspective of sustainability. Bridging this gap this article has two aims. First, it provides an overview of the digital sphere's emerging political economies from a socio-environmental perspective and, thus, contributes to further conceptual refinements for future scenarios enabled by the progressive dynamics of P2P infrastructures. This might be of interest for political economists, policy makers, environmentalists, practitioners and future studies scholars in their effort to bring in theoretical and empirical perspectives on the role of ICTs in transitional scenarios.

Section two presents a theoretical framework in which we can begin to understand the political economies of the current TEP. Then, sections three and four analyse the neo-feudal cognitive capitalism and the hypothetical case of mature peer production respectively, and how they form two separate sets of socio-environmental relations. There we follow a systematisation that has been used among scholars in investigating the environmental effects of ICTs (see Berkhout and Hertin, 2001, 2004; Hilty et al., 2006; Fichter, 2003). This systematisation understands environmental effects of ICTs as direct, indirect and structural (i.e. first, second, and third order effects) and is used to make comprehensible a subject that contains multiple layers of complexity. While we are aware that this method is imperfect, we believe that it makes up for its shortcomings by providing concision and comprehension. Last, section five concludes the analysis and reflects again on the future challenges of the digital economy and environmental sustainability.

2. Theoretical framework¹

2.1. Capitalism as a creative destruction system

Many would argue that no other economic system than capitalism has produced so much wealth. On the other hand, some might claim that no other system has produced so much destruction. Others consider capitalism a creative destruction system. This article uses the theory of techno-economic paradigm shifts—gradually developed by Schumpeter ([1939]1982, [1942]1975), Kondratieff ([1926]1979), Freeman (1974, 1996), and in particular Perez (1983, 1985, 1988, 2002, 2009a,b)—as its point of departure to develop its narrative. This choice arguably helps recognise the dynamic and changing nature of the capitalist system, in order to avoid any particular period extrapolation as “the end of history” in the fashion of Fukuyama (1992). Interestingly, Marxist and neo-Schumpeterian theoretical approaches consider capitalism prone to crises which are basic features of its normal functioning. However, the neo-Marxist critique (see Wolff, 2010; Harvey, 2010) puts emphasis on the inherent unsustainability of capitalism, aiming at a different system—“modern society can do better than capitalism”, Wolff (2010) postulates—whereas neo-Schumpeterians, such as Perez (2002) or Freeman (1974, 1996), see crises as a chance to move the capitalist economy forward. This article is an integrative attempt at highlighting the potential of new modes of social production and organisation immanent in capitalism but which, in the long term, might transcend the dominant system.

Perez (2009b) emphasises the special nature of major technological bubbles (MTB), which are endogenous to the process by which society and the economy assimilate each great surge. The MTB tend to take place along the diffusion path of each technological revolution: from the installation period, when the new constellation of technologies is tested and investment is defined by the short term goals of financial capital (so a rift between real values and article values occurs), to the deployment period, when financial capital is brought back to reality, production capital takes the lead and the state is called to make effective “creative destruction management” (Kalvet and Kattel, 2006). Perez (2009b) argues that the MTB of the current TEP, that is the ICT revolution, occurred in two episodes (Fig. 1).

First was the Internet mania, based on technological innovation, which ended in the NASDAQ collapse in 2000. This was followed by the easy liquidity bubble, based on financial innovations accelerated by the new technologies, ending in the financial crisis in 2007–8. The essential implication of is that “what we are facing is not just a financial crisis but rather the end of a period and the need for a structural shift in social and economic context to allow for continued growth under this paradigm”. Moreover, Perez's essay (2009b) on the double bubble is used as a point of departure that treats the current situation as not just another passing recession, and sets the ground for tentative proposals concerning the second half of the ICT revolution's wealth-generating potential.

¹ The theoretical framework provided is a reworked excerpt from the book *Network Society and Future Scenarios for a Collaborative Economy* by the authors Vasilis Kostakis and Michel Bauwens (2014, Palgrave Macmillan).

Download English Version:

<https://daneshyari.com/en/article/6559254>

Download Persian Version:

<https://daneshyari.com/article/6559254>

[Daneshyari.com](https://daneshyari.com)