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## **On the Links Between Open Source and Culture<sup>1</sup>**

Keynote Lecture at: Oekonux Conference, Dortmund, April 2001.

<http://erste.oekonux-konferenz.de/dokumentation/texte/index.html>

Mirror site: <http://news.openflows.org/article.pl?sid=01/07/24/2255224>

<http://www.noemalab.com/sections/ideas.asp>

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The Internet has at least five consequences: 1) technological (invisibility); 2) material (virtuality); 3) organizational (systemicity); 4) intellectual (contextuality) and 5) philosophical (spirituality). Most discussions of the Internet focus on the first three consequences. This lecture focusses on the last two.

Major advances in civilization typically entail a change in medium, which increases greatly the scope of what can be shared. Havelock<sup>2</sup> noted that the shift from oral to written culture entailed a dramatic increase in the amount of knowledge shared and led to a re-organization of knowledge. McLuhan<sup>3</sup> and Giesecke<sup>4</sup> explored what happened when Gutenberg introduced print culture in Europe. The development of printing went hand in hand with the rise of early modern science. In the sixteenth century, the rise of vernacular printing helped spread new knowledge. From the mid-seventeenth century onwards this again increased as learned correspondance became the basis for a new category of learned journals (*Journal des savants*, *Journal of the Royal Society*, *Göttinger Gelehrten Anzeiger* etc.), whence expressions such as the "world of letters."

The advent of Internet marks a radical increase in this trend towards sharing. Conservative estimates claim that there are over 7 million new pages per day with over 2.1 billion pages in all. Some claim that there are over 550 billion pages on the Internet. The Internet began as a new method for sharing in the sciences, particularly physics and astronomy and is now becoming essential for advances in the life sciences and especially in emerging fields such as the human genome project and biotechnology.

While many focus on the financial side of Internet some of its most amazing consequences have been in fields where no financial gain is entailed. Particularly interesting is a project called the Search for Extraterrestrial Intelligence (SETI). In this project volunteers make available the time that their computer usually has a screen saver and this time is used to process data and possible information concerning outer space. On July 30, 2000, for instance there were 2096 new volunteers and a total of 2,192,077 persons made their computer available for the SETI project. It is striking that this produced a combined power of 11.17 trillion operations/ second (or teraflops/second). The largest supercomputer in the world at the time, ASCI White produced 12.3 teraflops per second. Hence, the amount of computational power produced by volunteers without extra cost is close to that produced by a machine, which costs over \$100 million.

This leads to some interesting insights. If 1 million volunteers produce 5.5 teraflops, then if all 407 million computers which existed at the end of 2000 were used on a voluntary basis then there would be 2,238.5 teraflops available, which is 34.7 times more than the combined computational power of the top 500 supercomputers in July of 2000. This relates only to

computers being used when their screen savers are functioning during their time-off. The ASCI White computer has a power of 30,000 PCs. This means that the world's 407 million PCs at the end of 2,000 were theoretically 13,566 more powerful than ASCI white capable of a total of 167,861.8 trillion or 167.8 quadrillion operations/second. If current predictions hold and there are 2.4 billion PCs by 2006, this potential computational power would increase to 847.8 quadrillion operations and if one follows other predictions, which claim that the power of computers will increase by a million times within 20 years, then one would have a figure of 847,882,000,000. This makes the 64.3 teraflops of the top 500 computers in mid-2000 look rather weak or rather, it confirms that the real revolution is only beginning.

Linux has had an enormous impact on the world of software. There are now an estimated 250,000 persons active in the open source movement, with 37% in Europe. When printing began in Germany, it was largely out of a conviction that this was for the public good. Interestingly enough Germany is also the most active contributor to Open Source.

At one level, the term spiritual has to do with the non-material. The spiritual also entails doing something beyond oneself. In this sense, the spiritual entails everything that fosters sharing. Hence, the Internet as a new source of sharing, is fundamentally about spirituality. To be sure there are movements in America which would have us believe that the Internet has enormous implications for the time we are at work from 9-5 and that the Internet is inherently and mainly about money making materialism. This view overlooks that there are 24 hours in our day and that it can hardly be true that life is about work only. Money-making may be important but if there is no time to spend it then 'tis a rather boring exercise.

In this context, thinkers such as Eric Raymond distinguish between the *Cathedral and the Bazaar*.<sup>5</sup> He rightly argues that there is a distinction to be made between exchange culture and gift culture. In his view cathedrals were top down, elitist, organizations. In fact, they were typically constructed through a co-operation of a majority of persons in towns and cities. Hence, while Raymond's distinctions are right, the terms of opposition need to be reversed: the gift culture of cathedrals needs to be opposed to the exchange culture of bazaars and not conversely.

On the surface, culture may seem far removed from all this, although most would agree that cathedrals such as Chartres or Cologne, produced by sharing are also part of our shared culture. On reflection, however, culture too is essentially about sharing: the paintings, sculptures, theatre, dance, music are effectively multi-media commentaries on the great religious (*Bible, Shanahmah, Mahabharata, Ramayana* etc.) and literary (*Iliad, Odyssey, Tale of Gengi, Three Kingdoms*) texts and as such are related to that which we share together.

Advances in culture occur when the expressions of things shared increase using visual, auditory or other senses as shown in the schematic list below (figure 1). Implicit in all this is that there are profound links between developments in culture and the rise of open source, that both are stimulating a new kind of sharing. Some would go further and claim that hackers in the virtuous sense are a new kind of lay monk. The lecture will explore these parallels between the sharing of culture and the sharing of open source and claim that there needs to be an open source approach to culture; that there are philosophical reasons why culture has traditionally been in the public sphere, and that the developments of open source can lead to new sources of spirituality.<sup>6</sup>

1	(Totem) Objects connecting with Actions of Gods
2	Patterns (Ornament) connecting with Actions of Gods
3	Idealized Actions of Gods
4	Idealized Actions of Saints
5	Idealized Actions of Heroes
6	Universal Actions (Four Seasons, Seven Ages of Man)
7	Everyday Actions (Work, Play, Dance, Eat, Drink, Read, Paint)
8	Exotic Actions
9	Idealized Dreams
10	Dreams and Nightmares

Figure 1. Ten elements leading to an increased repertoire of shared cultural expressions.

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**Notes**

<sup>1</sup> The lecture will be given in German: *Über die Verbindung von Open Source und Kultur*.

<sup>2</sup> Eric Havelock, *Preface to Plato*, Cambridge Mass: Belknap Press, Harvard University Press, 1963.

<sup>3</sup> Marshall McLuhan, *The Gutenberg Galaxy. The Making of Typographic Man*, Toronto: Univeristy of toronto Press, 1962.

<sup>4</sup> Michael Giesecke, *Der Buchdruck in der frühen Neuzeit. Eine histrosiche Fallstudie über die Durchsetzung neuer Informations- und Kommunikationstechnologien*, Frankfurt: Suhrkamp, 1991.

<sup>5</sup> Eric S. Raymond, *The Cathedral & the Bazaar. Musings on Linux and Open Source by an Accidental Revolutionary*, Cambridge Mass.: O'Reilly, 1999.

<sup>6</sup> For a more comprehensive treatment of these ideas see the author's upcoming book: *Understanding New Media: Augmented Knowledge and Culture*.