

Cyber-economies and the Real World

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also vfridge limited and aQtive limited

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<http://www.hcibook.com/alan/papers/SAICSIT2001/>

abstract

Pure cyber-economies of information goods traded within virtual space have their own dynamics similar in some ways to physical goods, but in other ways more fundamental as the products of cyber-space may transform the space itself. However, the most radical effect of e-commerce for ordinary consumers may be its transformation of the real world of physical goods in real shops. A theoretical view of information society and the informational role of money stretching from 40,000BC to the present day backs up this analysis.

The talk will be based around a 16th-century Venetian Monk, Mrs Goggins at the electronic village shop and a Birmingham prostitute. Three real and virtual people who have shaped my vision of what will be, what may be, and what might be if we make it so.

focus

As this is a keynote I'm taking the liberty of giving a very personal look at some of the issues that will shape all our lives over the coming decade. This is based partly on my academic background, but also from experience being involved in two venture capital funded Internet start-ups, aQtive and vfridge.

I aim to give you a slightly different view of the role of the growing cyber-economy. This will be partly

descriptive – what things are like

and, as behoves a keynote, partly

predictive – what things will happen.

But also it will be about

possibilities – what may happen

and perhaps most important about

potentiality – what could happen if we choose to make it so.

Academic work, like the world, is full of interlocking themes. This talk is no exception. However I will draw out two main threads:

the informational role of money

Clearly money has a principal role as a token of value. However, it has a secondary role in exchange of information. When I pay for a tin of beans, the coins don't just have an equivalent value, but also, by being involved in the transaction, say "Alan wants some beans". The success of the market economy is based entirely on these information flows of 'who wants what where and when' driving the 'hidden hand' of optimal supply. As electronic information increasingly takes this role, it is not surprising that businesses are having to restructure themselves radically.

the real economy and the cyber-economy

I believe that the most radical changes of e-commerce will be in the High Street or Mall, not that these will wither, giving way to pure electronic shopping, but instead they will be transformed as the supply and business information infrastructure become oriented to more individual and on-demand delivery.

people

The talk will be structured around three real and virtual people, a 16th-century Venetian Monk, Mrs Goggins at the electronic village shop and a Birmingham prostitute, who have in different ways shaped my vision of what will be, what may be, and what might be if we make it so.

I encountered Fra Mauro, the Venetian monk, because he was a map maker and maps are one of the sources we can use to explore our understanding of real space and so influence our design of cyberspace. However, Fra Mauro also lived at one of the turning points of history between the second and third of the four ages of information:

- *the age of proximity*
starting around 40,000 years ago, when the main means of information exchange and control was through direct physical contact or at most line of sight
- *the age of empires*
starting around 4,000 years ago, when the growth of the great empires allowed information and control to be exercised at a distance – the beginnings of cyberspace
- *the age of money*
starting around 400 years ago, when the rise of the merchant classes changed the main means of control from carnage to coinage, and money began to be the information flow that drove the development of market economies in the 19th and 20th century
- *the age of information*
starting around 40 years ago, when telecommunications and computing have become the principal means of information flow and control

And possibly we have just seen the dawn of a fifth age, from around 4 years ago, an *age of global information*. In taking a look at the pure cyber-economy of

information and communication goods, we may take a quick foray into *market ecology* and *market engineering* – how to understand the interconnections within the Internet marketplace and design products to exploit and transform them.

Mrs Goggins is the village postmistress in Postman Pat. Across the UK, and I'd guess also in other countries, village shops and small neighbourhood shops in towns and cities have been closing down, unable to cope with the pressure from large out-of-town superstores. As well as the personal loss to the shop-owners, there is a social loss, as they often represent the heart of the community and especially serve the needs of the 'transport poor'. However considering the future of these, and the possibility of the electronic village shop (a real place!) we can see how the business transformations engendered by cyber-economies may give Mrs Goggins a new role as the community information scientist navigating the e-shopping web and being a point of personalisation to an already more individualised delivery infrastructure. In looking at these issues we will consider the way *diversity density* (the number of different things in a given area) changes as one moves through a traditional supply chain compared with the new information-rich structures.

Finally a Birmingham prostitute teaches us about the effect of the information society on ordinary people. Yes, AIDS is driven as much by poverty as by HIV – what alternatives are on offer for those who walk the streets? In first world economies IT has eroded many traditional jobs of the unskilled and semi-skilled female workforce. However, there is potential for the transformation of business supply chains to offer more individualised goods: shoes for each foot in different sizes and clothes that really fit. As well as improving the consumer experience, just-in-time final assembly of consumer goods may open up new job opportunities in light manufacturing and textiles. Furthermore, the effects of information on the production side of the supply chain may allow more direct matching of local producers to local consumers countering some of the centralisation due to the limited information capacity of money. If this happens we will see environmental gains through localised transportation of goods and social gains as jobs are spread more uniformly.

However, some of the more hopeful signs are very much in the area of potential. They may happen, but *only* if *we* choose to make it so.

more ...

The slides for this talk and links to materials on analytic techniques such as diversity density and market ecology will be at:

<http://www.hcibook.com/alan/papers/SAICSIT2001/>

Read about Fra Mauro in:

- Cowen, James (1996): *A Mapmaker's Dream*. London: Hodder and Stoughton.

I talk about Fra Mauro and the four ages of information in:

- Dix, A. (2001): 'In a Strange Land: modelling and understanding cyberspace'. Symposium on *Human-Computer Interaction in the 21st Century*. OCG, Graz, Austria, 13th January 2001.
<http://www.hcibook.com/alan/papers/Graz2001/>

For more on the understanding of maps and cyberspace:

- Dix, A. (2000): 'Welsh Mathematician walks in Cyberspace (the cartography of cyberspace)'. Keynote: *Collaborative Virtual Environments – CVE2000*. ACM Press.
<http://www.hcibook.com/alan/papers/CVE2000/>
- Dix, A. Rodden, T., Davies, N., Trevor, J., Friday, A., and Palfreyman, K. (2000): 'Exploiting space and location as a design framework for interactive mobile systems'. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 7(3), pp. 285–321, September 2000.

Postman Pat's official site is at:

<http://www.postmanpat.co.uk/>

but only works if you have Flash!