

Who Cares About Digital Money?

There's quite a range of constituencies

by

Dave Birch <<mailto:dave@consult.hyperion.co.uk>>
Consult Hyperion <<http://www.consult.hyperion.co.uk>>

New Money

Digital money is, for the moment, small potatoes. Consider that last year Visa, MasterCard, Amex, Discover and Diners carried charges of more than a trillion dollars in the US alone (on which they earned billions of dollars in fees). By comparison, the economic impact of everything in the digital money world from DigiCash to Proton doesn't even show up on the spreadsheet. Yet digital money schemes are spreading, albeit slowly, and the subject attracts attention from a number of directions. The Net has a lot to do with this, since it is generating requirements for small (cash-like) transactions over networks and stimulating another cycle of evolution in the sector after the failure of early experiments like First Virtual and Cybercoin [1]. The Clinton administration, in the person of Stuart Eizenstat (deputy Treasury Secretary), has already called for a new "standard-based mechanism" to handle retail payments on the Net because of the cost and inflexibility of credit cards, the dominant payment method today [2].

A major difference between today's digital money landscape and that of the early pioneers (ie, a couple of years ago) is that there is a growing recognition that the role of banks may be limited. When interest in e-cash, as a specific example of digital money, began to grow it was assumed that the natural route to market for this technology would be through banks. Banks would licence the new money technologies—whatever they might be—and then carry on with business as usual. It seems, however, that the replacement of notes and coins by cool new technology has been taken up more enthusiastically by non-banks:

- ◆ In the Netherlands Shell have begun to issue drivers with contactless smart cards in the form of key fobs. The driver pulls up at a pump, punches in his PIN code, fills up and drives off. The cost of the fuel is automatically deducted from his nominated bank account. Imagine the hole in credit card acquirers' revenues when drivers stop using credit or debit cards at petrol stations.
- ◆ In Scandinavia, digital mobile phones are already used to pay for car parking and other small ticket items. In the particular example of car parking, Stockholm has car parking areas that accept payment cards (and oil company cards, not bank cards, dominate), e-purse (used in a minuscule fraction of transactions) and mobile phones (expected to dominate the next phase of development).
- ◆ The Hong Kong mass transit smart card, Octopus, handles around 7 million transactions per day through 9,000 readers throughout the territory. The scope of the system has already been extended beyond transit and the cards (soon there will be 8 million of them) can be used in phone booths, drinks machines and snack bars.

- ◆ In the US, five McDonald's restaurants in Santa Ana have reached an agreement with the local transportation authority to allow motorists to zip through their drive-through lanes and have the customers' *Fastrak* electronic toll transponders billed instead of using cash [3]. This will cut 15 seconds off the customer's average 131 second wait! The Massachusetts Turnpike Authority wants to introduce a similar scheme, allowing drivers to charge food and fuel from motorway services to their *Fast Lane* accounts [4].
- ◆ On the internet, cash alternatives ranging from "turbo Green Shield stamps" such as *Beenz*, *Flooz* and *Cybergold* to alternative currencies such as *e-gold* are springing up and innovating at pace. The digitising of existing offline loyalty schemes is also of note: starting in May, the 38m members of American Airlines frequent-flier programme will not only be able to earn miles by buying on AOL, but they'll be able to spend miles there as well [5].

While banks in Europe have, where they've done anything, concentrated their effort on the smart card (which, thanks to American Express' *Blue* card [6] has now spread across the Atlantic), US non-bank entrants have been chasing web-based payment and billing opportunities. At the same time, telecommunications operators are exploring the payments potential of their platforms. With all this activity, may be worthwhile to step back and see who exactly is interested in digital money and why they want it.

Taking Positions

There are, I think, a variety of different constituencies to whom digital money is a topic of great interest. These constituencies span radically different opinions on the requirement for digital money, but nonetheless regard the technological changes underway as a significant enabler. It's interesting to look at each of these positions in turn and to evaluate them in terms of the trends that are already visible in the money world to see if any of them stack up as viable.

The Crusaders. The Crusaders want to take control of money away from governments on a point of principal. Their modern champion is the Nobel prize-winning economist F. A. Hayek who, in the 1980s, argued persuasively against government monopoly on the issue of money and in favour of private institutions competing to provide currencies. The core of his thesis¹, in *Denationalisation of Money—The Argument Refined*, was that governments have systematically defrauded their subjects by forcing them to accept depreciating money and caused economic instability through using 'monetary policy' in misguided attempts to 'manage' the economy. He thought that commercial organisations competing for profit would be more successful in providing money that retains its value, but noted some practical difficulties.

- ◆ Firstly, Hayek saw that people are used to dealing with one currency and would find the concept of choice strange. However, he also noted that traders in border areas are usually happy to accept payment in the currency of a neighbouring country, providing its currency is reasonably stable at the time. Today, notions of locality and borders are being redefined. On the Net, we all inhabit a "border

¹ Set out in *Denationalisation of Money—The Argument Refined*.

zone", are already confronted with dealing in multiple currencies and, as economist David Riccardo said in 1816, "In the use of money, everyone is a trader."

- ◆ The second difficulty noted by Hayek was a technical problem to do with the use of "cash registers" or "vending machines", where issuers might mint coins of differing denominations, size or weight, and where in any case their relative values would fluctuate. Hayek foresaw that within a well-defined region (the Net?) perhaps one currency would predominate, or (with amazing prescience) that smart cards might be invented to solve the problem.

There's less debate about Hayek's ideas today, primarily because inflation seems to be under control, but the central concept of leaving currency to the market and freeing it from potential government interference and/or mismanagement has its supporters [7].

The Idealists. The Idealists can be categorised as those from the right (let's go back to commodity money) and the left (let's go forward to community money). Both sides dislike fiat currency and fractional reserve banking and therefore regard the current monetary system with suspicion.

Commodity money tends to mean gold. While in theory any basket of commodities could be used to denominate transactions, there is a historical reconnection with (one might even say nostalgia for) precious metal in this context. Many, from this perspective, view paper money as something imposed upon them, and unable to trade in gold (and having long-since been compelled to use fiat currency for payment of debts), accept it only by default as the best available medium of exchange [8].

Community money means Local Exchange Trading Systems (LETS), Time Dollars and the like. LETS are widespread but limited and all operate on a small scale, yet some see them as the vanguard of a money revolution [9]. It's a reasonable observation that that schemes such these that their limited scale and poor liquidity are at least partly to blame on the hassle associated with managing community ledgers and "cheque books". Therefore, the technology of digital money should make these alternative currencies more efficient and more successful. It's fair to observe that most proponents of these currencies are driven by moral (rather than financial) imperatives and these lead them to reject aspects (eg, interest) of the existing monetary system [10] and search for alternatives.

The Determinists. Over the coming years, it seems to me that the deterministic perspective can only gain ground in the face of constant technological advance and win more adherents in the government and central banking communities. This perspective recognises that since the introduction of fiat money and the demise of the gold standard, global monetary regimes have changed around once per generation [11]. The next change may be to render monetary policy and central banks obsolete: since, the determinists would say, this is an inevitability precisely because of technology which has a number of effects on money [12]:

- ◆ The Net drives commerce online, making geography less important and therefore making currencies defined by geography less important.

- ◆ The combination of pervasive computing and the Net means that conversion between units of account (eg, £/€) and means of exchange (eg, Mondex to traveller's cheque) can be automated and executed with transaction costs below the friction level.
- ◆ Increasing competition, because of online commerce, will support monetary stability. Thus because of the online commerce and efficient conversion, buyers and sellers alike will instantly desert weak currencies or inefficient systems.
- ◆ Virtual communities can define idiosyncratic currencies, and the lowered entry level costs mean that they will have an opportunity to build and launch those currencies.

The establishment response to technological change should be to embrace and extend (to use a stock phrase). If banks (and governments) help make the transition to digital money then they have some possibility of control. In many ways, this might be seen as being the current position of retail banks in Europe. Digital money in general, and electronic cash in particular, doesn't look like being a vastly profitable enterprise but they nevertheless have to be involved in order to retain influence.

The Non-Bankers. The non-bankers are sympathetic to the deterministic perspective but set it in a wider context of evolution in the financial world. In financial terms, they see a cusp coming where people will be happy to accept balances with non-banks, rather than only with banks, in final settlement. If this happens, because advances in communications and encryption further erode the banks special position, then digital money won't need new units of accounts. Digital money will still be Sterling, Euros, Dollars and Yen but it won't be bank money in any sense [13]. Organisations with the communications and encryption technologies in place (telecommunications operators, for example) could then cut banks out of the loop and handle money themselves. The non-bankers would also point out that banks have been slow to support new ways of doing business. The web has spawned a whole new marketplace for individuals, mainly through auctions, and there's a huge need for simpler payment systems than those now commonly used to effect person-to-person payments [14]. The technological backwardness of payment systems has implications, and one of these is increased transaction costs for business (ie, non-banks). In Norway, payment systems are a cost to the economy of around 0.5%, whereas payment systems cost around 3% of the US economy because of the reliance on antiquated paper implementations [15].

The Businesspersons. The businessperson looks to digital money to provide another area for competition and to support other business strategies. In 1994, lateral thinker Edward de Bono put forward the idea of private currency as a claim on future products or services produced by the issuer. In his example, IBM might issue "IBM Dollars" which consumers would use to obtain IBM products or services in the future. This gives a practical segmentation of the 'currency market'. He wrote:

Companies like British Airways or Sainsburys could issue their own currencies, and could benefit from the float until these currencies were used.

There is a clear resonance between these comments and what's happening with Air Miles, Sainsbury's Rewards, Beenz and who knows what else. Loyalty schemes are offering ever more cash-like tokens and it may be that in time these tokens might become as attractive as a store of value as well as means of exchange to the average consumer [16]. The Net has introduced more new elements into this equation. The low entry-level costs associated with bringing *money lite* to the internet, in the first instance, are a definite stimulus to innovation. It seems, therefore, that as the market for loyalty points of every type continues to grow and collides with the evolution of e-cash and the Net, this new conception of currency is developing.

Where Next?

It is difficult to predict how the rapid and unpredictable evolution of technology, with its apparent law of unintended consequences, will interact with radical economic and financial thinking to produce a new monetary system. There is, however, every reason to think significant economic benefits will attend the transition to digital money, primarily as a result of lower transaction costs. But how will this transition come about? Money is a network good, in that its usefulness depends on how many other people use it, and is also a convenience good in that it serves no purpose (as a means of exchange) unless it is more convenient than alternatives [7]. The convenience has a significant impact on its use. Money, as Adam Smith said², may very properly be compared to a highway which carries to market "all the grass and corn of the country". Convenience and widespread acceptance mean circulation, which means trade and prosperity.

These factors mean that an electronic alternative to notes and coins has to reach a critical mass of users fairly quickly and that those users have to see it as a better alternative to their existing options. It is possible to argue that digital money starts off at a significant disadvantage to existing options (such as credit cards) so far as the apparent requirements of e-commerce are concerned. This misses, however, the potential for new kinds of e-commerce that are currently infeasible precisely because of the limited payment options available.

More than one entrepreneur has put forward an interesting idea for a new e-commerce service only to see it founder on the simple question of how consumers will pay for it. If digital money helps to lower the transaction costs sufficiently in these cases then it seems to me more than likely that new kinds of commerce will arise to take advantage of the opportunities. After all, the factor that sent the internet exponential was not the fact that anybody using a browser could access a web site but that anybody could create a web site in the first place. If we reach a situation where digital money means that anyone can create a commerce site, one might expect to see an explosion in creativity in this field just as in the communications field.

Digital Money Forum

The Third Annual Consult Hyperion Digital Money Forum was held in London on 4th and 5th April 2000. Sponsored by Genie Internet and Globe ID, the forum brought together speakers from a range of backgrounds to discuss the current state of digital money in Europe. For more information, please see:

² In *Wealth of Nations*, Chapter II, Section III.

<http://www.consult.hyperion.co.uk/forum/digmoney3.htm>

References

1. Essex, D. *Big Dreams For Tiny Money* in *Computerworld*: p.66 (13th December 1999).
2. *Uniform internet payment system urged* in *Financial Times* (11th March 2000).
3. *A Speedier Path For Some Big Macs* in *New York Times* (30th January 2000).
4. Connolly, A. *Going Cashless: Turnpike Rest Stops* in *Boston Business Journal* (13th March 2000).
5. *E-Cash 2.0* in *The Economist*. **354**(8158): p.67–71 (19th February 2000).
6. Bryant, A. *Plastic Surgery at AmEx* in *Business Week*: p.55 (4th October 1999).
7. Spencer, P. *Prometheus unbound: towards a dedicated currency for e-commerce*. The ITEM Club, Report (London: February 2000).
8. Graves, B. *Market Money and Free Banking* in *The Freeman*: p.43–49 (September 1999).
9. Boyle, D. *Berkshires: money as vegetables* in *Funny Money*. p. 160–188, HarperCollins (London: 1999).
10. Jane, E. *Who's got interest* in *The Wrong Kind of Money*. p. 39–40, Common Weal Books (Faversham: 1998).
11. Klein, M. *Banks lose control of money* in *Financial Times* (15th January 2000).
12. Friedman, D. and K. Macintosh. *The Cash of the Twenty-First Century* at <www.best.com> (on 3rd February 2000).
13. *Who needs money?* in *The Economist*: p.98 (21st January 2000).
14. Smith, G. *Whisking Your Money across the Web Will Soon Be a Snap* (Business Week Online) at <<http://www.businessweek.com/ebiz>> (on 3rd January 2000).
15. Craig, B. *Resisting Electronic Payment Systems*. Federal Reserve Bank of Cleveland, Report (July 1999).
16. Boyle, D. *The Theory of Corporate Money in Virtual Currencies: Growth Prospects for the New Millenium*. p. 64–66, Financial Times Finance Management Reports (London: 1999).