

The Future of Payment Systems

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FOREWORD

For several decades the global banking industry has enjoyed a near monopolistic position in the world of 'payments'. Some analysts claim that this business can contribute more than 40% of a bank's income so it is not surprising that the banking industry is very active in developing this evolving franchise in order to at least maintain its lead and protect the revenue streams. But there are challengers to the crown, and banks are having to adapt to guard against new players tapping into this lucrative business by means of the electronic payment, a strategy that could disintermediate the banks' franchise. Clearly, a reliance on paper payment methods is not sustainable; volumes are at best stable and in certain key markets around the globe they have been falling.

So the challenge is clear: banks are now rushing to create the new revenue streams from electronic payment services in order to protect their profits but more importantly, secure the banking industry's position as custodian of the world of payments.

Unisys is a leader in the provision of services and solutions to the world of payments. We continue to be the catalyst assisting banks and governments in adapting to new payment mechanisms and economic models. Our contribution to the banking industry dates back more than a century and payments have always been at the heart of what we do best. Our unrivalled expertise led to significant inventions such as MICR (Magnetic Ink Character Recognition) in 1960 – MICR is the machine-readable code line at the bottom of a check, still the main bridge between manual and automated clearing systems. We have been at the forefront of the move towards truncation, the process of imaging all paper payment instructions at the point of presentment, a vital component in the move to improved service, increased security and reduced costs. Unisys has assisted banks all over the world to migrate from paper to image based processing, with our core technology enabling image capture and archive. This move has allowed banks to explore and implement new revenue streams thereby maintaining and growing their payments businesses. Our credentials in this area are undisputed. Customers around the world testify to the strength of the partnership with Unisys for leadership in the area of payments. Notable projects in France, Hong Kong, the UK and the US underline our leadership in providing everything from consultancy to software solutions.

A recent and significant development is the emergence of the 'Payments Utility'. This is a new model that allows banks to share costs, minimize risk and better utilize funds that would have previously been sunk into payments infrastructure purchases. This model is enabling banks to differentiate themselves through their distribution channels, brand and customer service, and can be seen in action in the UK at iPSL and Australia at UPSL, two Unisys payment utilities established in partnership with client banks to service the largest banks in their respective countries. We expect to see a trend towards the utility, the US market may be next, (American Banker week of 2/26/02), and Unisys is poised to assist banks in migrating to this business model.

Unisys has a wealth of core competencies in the area of payments with critical assets in both intellectual capital and solutions. This strategic business spans all forms of payments such as check, remittance and Giros, cash management, secure payment networks e.g. S.W.I.F.T., payment infrastructure for the New York Clearing House, clearing and settlement systems for banks, associations and central governments, card solutions such as credit card management and dispute processing, credit card internet security, smart card implementation consulting and implementation services, electronic invoice and bill presentment and payment, letters of credit, foreign exchange and automation of cross border payments.

Whilst our knowledge of the world of payments is broad, it is also deep and this depth enables us to help our clients apply the business models most appropriate in today's demanding environment. A managed service and/or the shared utility model are but two of the possibilities we have first hand experience of implementing and operating.

Our payment business is continually challenging the borders of where we operate and where and how the financial services industry delivers service. We have invested and continue to invest in new thinking, challenging new models and contributing to the development of the payments business. With this in mind, we commissioned a leading money systems expert, Bernard Lietaer, to publish his thoughts on where the future of payments might be headed. Bernard has many years of experience working both within and alongside the banking industry and while working with the Belgian Central Bank he was one of the original architects of European monetary union.

I believe all readers of this white paper will find the material interesting and thought provoking. Bernard's vision is both multifaceted and controversial, leading the reader to appreciate a bigger picture than is normally considered in the world of payment systems. Whilst the premises of this paper are somewhat familiar, the consequences of some of his observations and recommendations have far reaching implications.

A handwritten signature in black ink, reading "Gary Cawthorne". The signature is fluid and cursive, with the first name "Gary" being more prominent than the last name "Cawthorne".

Gary Cawthorne
Vice President Global Payment Solutions
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Executive Summary

Payment systems have operated as a privileged space reserved for the banking system, and their importance in the total income stream of banks remains significantly underestimated. Although these systems have been running remarkably smoothly in consideration of the exceptional volumes they are processing, there are several systemic weaknesses that may threaten the status of the current providers. Specifically, the general standards of service are antiquated and their costs to the users peculiarly high. There are clear exceptions to this rule: mainly for inter-bank and high value transactions. More troublesome is that even on a national level, most of today's systems tend to be fragmented. Therefore the inefficiencies and delivery costs to the banking system itself have remained abnormally high compared to the potential of today's technologies. Prospective competitors, who don't have to deal with legacy structures, are in a position to potentially exploit these various inefficiencies. (Chapter 1 and 2)

Over the short-term future (1-5 years), the requirements of the emerging e-markets will generate mounting pressures to design and implement more efficient, totally digitalized, e-payment solutions. The pressure is already on in the B2C market segment and solutions have been emerging, regardless as to whether the banking system cooperates in creating them or not (e.g.: stored value cards, PayPal, mobile phone micro-payments, Beenz). But it is the B2B markets that will prove the juggernaut that will shake out anybody who isn't capable of playing at the new level of integrated payment technologies over the next 3 to 5 years. (Chapter 3).

While the above has focused on payments in the conventional national currencies, an even more radical change has been quietly brewing: private currencies. Commercial loyalty currencies such as Frequent Flyer Miles have been evolving from

marketing gimmicks into true currencies, accepted even in supermarkets as payment for a wide variety of goods and services. Similarly, barter transactions – once considered a primitive pre-money form of exchange – are now coming back as sophisticated information-age trading techniques. Both loyalty currencies and barter

currency transactions have, for all practical purposes, already broken the monopoly of conventional national currencies as medium of exchange. (Chapter 4)

Even further below the radar beams of officialdom, more than 3000 social-purpose complementary currencies have been emerging all around the world over the past 15 years. What is perhaps most intriguing about this phenomenon is that they have proven that - contrary to a classical hypothesis in economic theory - money is not value neutral. On the contrary, the kind of currency used in exchanges affects both the nature of the exchange and of the relationships among its users. Because the issues that they enable to address include major megatrends that will shape the social and political agendas of the next twenty years, these currency innovations may play a more significant role in the longer-term future than is generally anticipated today. (Chapter 5).

The implications for the payment systems of all the above are summarized into an indicative calendar. Some broader societal issues affected by changes in payment systems are recognized, and strategic recommendations for existing and new payment systems are singled out. Also, what all this means for suppliers of payment systems, particularly the banking system, is identified. (Chapter 6).

In the Conclusion, the key findings of this paper are synthesized (Chapter 7).

I. An Investment Proposal?

*"Economics is about money.
And that is why it is good."*

WOODY ALLEN

Your staff prepared a proposal for investing in a particular on-going business activity. The following six main characteristics were identified:

1. This line of business is completely taken for granted by the corporation because they have enjoyed almost a monopoly position in it for over a century.
2. Not only is it taken for granted, but also its relative importance in the corporation's overall business is dramatically underestimated. According to the corporation's own accounting this line of business contributes only about 7% of total revenues. However, your staff's research indicates that it in reality represents more than 40% of total revenues.
3. As a consequence of both the above points, the standards of service to customers have for all practical purposes been frozen for 25 years: service is remarkably slow, expensive, and less and less adapted to the customer's foreseeable requirements.
4. The costs to the corporation of delivering the service are also high, and curiously the most expensive forms of delivery are being encouraged. This is happening because there are massive cross-service subsidies: the most cost-effective methods are being penalized by overcharging at sometimes more than 200% of the actual costs, while the least cost-effective may be provided for free. But the opacity of the accounting systems is such that management itself sometimes doesn't know the real costs or revenue of its various delivery mechanisms.
5. Recently, a new breed of competitors has manifested that are both capable and eager to move into this juicy business line, with technologies that would cost only a fraction of the current delivery mechanisms.
6. And simultaneously, unprecedented societal needs are suddenly obliging a fundamental shift in the very definition of this whole business field.

Now, the Tolstoyan question: what then should you do?

Can you imagine that you would rubberstamp an approval for an investment in this business line? Or instead, would you consider that the time for a major policy rethinking might be appropriate, or indeed may be overdue?

The line of service we are describing is today's payment systems, and the corporation the banking system.

The next four chapters provide the supporting evidence for the six claims made above, and will lead to identifying in the last two chapters the implications for payment systems providers of the on-going changes in society and of the competitive landscape.

II. The Competitor's Landscape

"Money, money, money..."

LIZA MINNELLI IN CABARET

According to the Boston Consulting Group, worldwide domestic payments are running at \$1,800 Trillion, with revenues to the banking system (and costs to their users) of \$200 Billion per year. One needs to add another \$168 Trillion of cross-border transactions generating an additional \$28 Billion in revenue.

The total social costs (bank revenue plus payor and payee non-banking expenses) are higher still. For the United States alone, the total social costs of payments are evaluated at a staggering \$225 Billion per year.¹ This represents 3% of GDP or over \$3000 annually for a family of four. Another way to look at this: the average cost of a payment absorbs about 5% of the value of an average consumer purchase.²

At first sight, these vast volumes of transactions work remarkably well. Indeed, despite some occasional gripes and generic complaints about bank bureaucracies, it is noteworthy that customer complaints in the payment domain are insignificant as a percentage of transactions performed. But this may have more to do with the lack of a credible alternative rather than because the service itself is so efficient and customer-friendly. This chapter will focus on the underbelly

of the payment system, rather than all the good things it delivers. Here we will look at the inefficiencies and the problems it generates, because it is through this soft underbelly that potential competitors may be able to penetrate the field.

In the process of doing so, we will also be able to provide the evidence supporting the claims made in the "Investment Proposal" of the first chapter. We should emphasize that there are certainly exceptions to every one of these claims – either specific institutions or even whole countries to which a particular critique may not apply. This is inevitable, given the wide variety of domestic and cross-border payment practices, and the constraint that hard data is available only from studies that focus on specific countries or bank groups. So it is only with great caution that extrapolations from the specific case studies presented below should be made to the entire industry. Nevertheless it is hoped that the points made – unduly general as they are - should trigger some useful questions everywhere.

¹ Santomero, Anthony M. (President, Federal Reserve Bank of Philadelphia) "The US Payment System in the Global Context" A presentation at the Bank Administration Institute in Orlando, FL. on April 3, 2001.

² Humphrey, David B., Lawrence B. Pulley, and Jukka M. Vesala. "The Check's in the Mail: Why the U.S. Lags in the Adoption of Cost-Saving Electronic Payments," *Journal of Financial Services Research* 17 (2000), P. 17.

Next, each of the findings of our "*Investment Proposal*" will be dealt with in turn.

1. Payment Systems as a Privileged Banking Space

Under American, European and most other countries' rules, banks are the only organizations with immediate and unmediated access to the official clearing and settlements systems. Banks may sponsor other institutions, but those other institutions have no influence over the decision-making in these systems, and they must pay their sponsoring bank for access to them.

This comfortable situation may lull the banking system into complacency about potential competition in this field, as they historically have been able to preserve the payment field pretty much as their own 'chasse gardée'. But this situation may not be that different from what happened in the post-office business or the telephone industry, when it was perceived that these monopolies were hampering the innovations necessary for the development of an Information Society. For the post offices, this meant that Federal Express and other high quality service couriers suddenly erupted into a market that had been a monopoly for centuries, and where quality/cost standards had been left drifting down over time. The forced and synchronized deregulation of the entire telephone industry worldwide is an even more striking and germane precedent.

For instance, it is now widely asserted that payment systems have become a key bottleneck for further development of e-business. 80% of all Internet purchases have to be paid for by credit card, the least cost effective method available; and a process that requires risky transmission of confidential information on the Net, as well as settlement via a slow paper trail completely outside of the Net.

The recent Cruickshank Report ³ to the Chancellor of the Exchequer about the (lack of) competitiveness in UK banking services concluded: "Money transmission services are supplied through a series of unregulated networks, mostly controlled by the same few large banks who in turn dominate the markets for services to Small and Medium Size Enterprises (SMEs) and personal customers. This market structure results in the creation of artificial barriers of entry, high costs to retailers for accepting credit and debit cards, charges for cash withdrawals up to six times their costs, and a cumbersome and inflexible payment system that is only slowly adapting to the demands of e-commerce."

This report found three key features that reduce competition:

- The Association of Payment Clearing Services (APACS) is a de facto monopoly, controlling the terms and costs of access to the money transmission system;
- APACS has no direct competitive incentive to reduce its own costs or to provide innovative services;
- The internal decision-making process operates by consensus, so that innovations tend to happen at the pace accepted by the least innovative.

The situation in other countries may differ to the case in the UK, with a stronger or weaker role in payment systems for the Central Bank, for example. But the final results may not be that different. Furthermore, the supervisory or advisory boards of payment systems have typically no representation at all from outside the banking industry, and specifically no customer representation, be it corporate or individual.

³ Cruickshank, D. Competition in UK Banking: A Report to the Chancellor of the Exchequer (2000).

Such arrangements may go a long way to explain some of the antiquated standards of service, or the fragmentation and the high costs of existing payment systems. If the banking sector does not self-correct this situation, then governmental or regulatory intervention to break up the existing arrangements should not be excluded. This is so because of the growing awareness that payment costs affect the efficiency of the entire economy. The pressures for such intervention will inevitably increase as the demands for internationally competitive e-commerce solutions grows for the foreseeable future, as will be shown in Chapter III. For instance, the UK Office of Fair Trading is expected to act on the Cruickshank report in 2002 and compel the banking sector to correct the problems it uncovered.

Even without any formal governmental intervention, we may simply see an acceleration of what has already started: a gradual penetration by non-banking corporations into what used to be banking territory. In the payment domain, this has started with micro-payments. The same new providers may well gradually migrate to the larger ticket items as soon as security and authentication issues are solved to everyone's satisfaction. A striking precedent for such a process has been the gradual take-over of saving accounts by non-bank investment companies, such as Fidelity. It is currently estimated that well over half of US dollar deposits have already migrated to such non-bank investment funds.

A third option is that, instead of trying to protect a fraying franchise and status quo, the banking system itself decides to engage in a major update of the payment system, in order to make it more effective, fairer, and truly adapted to the needs of the businesses and global villages of the 21st century. The objective would be that the standards and technologies applied today for the transfer of large value items could become generally applicable. What the stakes and the ingredients in such a reform might be is the topic of the last chapter of this report.

2. The Relative Importance of Payment Systems

Banks tend to consider payment systems as an unglamorous but necessary activity - a bit like plumbing in a house. It is often regarded as a good sign that one does not see or hear much about it: it means it is working smoothly. It is clearly low-prestige compared to the lending activities, global corporate services, or fancy financial engineering innovations that attract the attention of top management, of the press, or of the regulators.

So it must have come as a surprise even to the Federal Reserve of New York when its own research⁴ unearthed that this unsung activity generated almost as much fee-income for the largest 25 bank holding companies as the interest-income on their entire lending portfolios!

The chosen sample of the 25 Bank Holding Companies, the largest by assets in the US, should be representative enough at least for the US banking system. Together they control almost two-thirds of total assets held by all Bank Holding Companies in the country, and a little more than half of all bank and thrift deposits.

The reasons why the importance of payment systems to bank income seems systematically understated include narrow definitions of payment services, highly fragmented reporting among the different service lines, and a lack of an economic modeling of banking activities that identifies the payment function.

Indeed payment services involve many more bank activities than just the actual transfer of currency; they also entail all the customer support and transfer capabilities furnished to a transactions account owner. Also included are the security-handling services to corporate and institutional customers such as pension funds, mutual funds and endowments. Similarly, credit card fees (as opposed to interest on credit card loans) should be counted as income from retail customer payment services.

⁴ Radecki, Lawrence, J. (AVP, Federal Reserve Bank of NY) "Bank's Payment-Driven Revenues" FRBNY Economic Policy Review (July 1999) pp. 53-70.

By adding up all the pieces of revenue identified as directly relating to payment services, the Federal Reserve study finds that for the 25 main US bank holding companies payments contributed as much as \$59.2 billion, or 42.2% of the combined operating revenue of \$140.2 billion earned during 1997, the year chosen as reference. For five of those twenty-five companies, the payments-driven revenue represents even between half and three-quarters of total operating revenue!

This finding should bring into question the conventional way of modeling the banking industry for macro-economic purposes simply as an intermediary between borrowers and savers. It is clear that payment services should now be considered as one of the main "outputs" of the banking industry as a whole.

3. Standards of Service

There are no technically valid reasons today why we shouldn't have a payment system that operates on the following service standards.

Anyone can make payments to whomever they like, whenever they like, in whatever type of currency they like, at the cost of a few cents per transaction. There are no settlement delays or mountains of paperwork, and value is received instantaneously. There are no distinctions in costs or delays between a domestic and a foreign currency transaction.

Interest is computed real-time rather than on a "settlement day", a relic from the ancient times when accounting was done manually. Finally, privacy and security are guaranteed.

The contrast with what is happening in reality is of course glaring, particularly in terms of delays and costs. The current payment system involves basically the same method to transfer value as it did 25 years ago, with parts of it dating back well into the 19th century. Despite the huge changes in the economy and available technologies, it takes almost as long to clear an ordinary payment today as it did then.

Even in the wholesale markets for foreign exchange and money market contracts, "spot" transactions mean two-business days hence. This convention made sense when book-keeping was done manually.

Similarly, all debts today are conventionally settled on a "settlement day", and interest is invariably computed to accrue on a daily basis. Why would it not be possible to operate in real-time, to reflect the difference of a deposit arriving at 10 am instead of 4 pm? By doing so, the delay between the time when the payment is made and that value is received would simply disappear.

Notice that some evolution in this direction has already started to happen at least for the large transactions. For instance, in the UK, large transactions have been settled and cleared in real time via the CHAPS payment system since 1996.⁵ Although originally intended only for multi-million pound sterling transactions, and notwithstanding substantial cost markups, one third of these payments are for less than GB£10,000, and two-thirds for less than GB£100,000. Private individuals (for house purchases or other personal financial transactions) now initiate more than a quarter of all CHAPS transactions. The main reason people are willing to pay the high transaction fee, is the real time credit feature, and the banking system has clearly demonstrated that technology can provide this level of service when they want to. Similarly, several of the major international banks operate today state-of-the-art payment and worldwide cash management systems for their larger corporate clients. So the payment world seems to be one with two means of transport: Ferraris for some selected clients and donkeys for everybody else, with not much in between.

But the reason for those antiquated delays should also be obvious, as the benefits of the "float" generated in the process accrues to the main suppliers of the payment services.⁶ Speed is however, only part of the issue. The other important one is costs.

⁵ CHAPS has existed since 1984, but it became a net settlement system only in 1996. "Instantaneous" in this case means in practice within 90 minutes. There are on the average only 80,000 transactions per day, but the average amount per transaction was GB£2.3 Million in 1999.

⁶ Here again, practices vary widely from country to country. For domestic payments, major banks "give value when they get value" in the UK and Canada, for example. In such cases, it tends to be small businesses paying suppliers with checks who get the benefit of the float. In other countries, such as Germany or the US, float of up to one week for inter-city transfers benefit the clearing banks.

4. Payment System Costs

We should start here by acknowledging that – in contrast with delays - overall costs of payment transactions have fallen significantly over the past decades, both as a consequence of a shift towards more cost-effective electronic payment mechanisms as well as technical advances in processing paper-based systems. For example, based on data from Fedwire (the US Federal Reserve electronic transfer system), the average costs of electronic transfers fell by 62% in real terms from 1979 to 1996.

But the main areas where those cost reductions have been passed along to the customer are mainly for large payments by corporate and financial services clients. For other types of payments, there is another side to the story. According to one study: "The world's payment system currently has a lot more in common with 18th century toll roads than the vision of an information superhighway that is starting to take shape all around us. Critics could argue that the banks are cast in the role of both toll collector and highway robber. And the pickings are very rich indeed." ⁷

The earlier analysis of the significance of payment-related fee income to the banking system has a direct mirror image of costs to the consumer and the non-bank business-sector. As mentioned

earlier, the global estimate by the Boston Consulting Group of the value of this fee income is US\$228 Billion per year.

But such statements hide the fact that the costs between different methods of payment and money transmission vary dramatically. The following graph, based on US data, illustrates this point ⁸

The use of each one of these delivery mechanisms varies just as dramatically from country to country. For example, among all industrialized countries, cash is used least in the US. In comparison, cash is used more than four times more frequently in Japan, while Europe operates in the middle of these two extremes. ⁹

⁷ Logica: "Frictionless Money – The Future of Money and Payments in an Electronic World" pg 8.

⁸ Source: Federal Reserve Bank of Philadelphia.

⁹ The key sociological variable determining cash use seems to be personal safety for carrying cash: it is lowest in the US and highest in Japan. There is fewer hard data on cash transactions than on non-cash payments in different countries. But national differences can be evaluated indirectly through the amount of cash circulating as a percentage of GNP. In the US, this percentage is around 2%, in Canada 3%, in Europe around 4% and in Japan 9%. Note that, even in the US, the Federal Reserve estimates that up to 85% of all daily transactions are still done in cash, including bills or coins. But the bulk of these transactions are for small purchases - at newsstands, supermarkets, gas stations, restaurants, etc. - and therefore amounts to only a small percentage of the total value.

Figure 1: Social Costs for an Average Payment Transaction by Various Delivery Mechanisms, in US cents (Source: Federal Reserve Bank of Philadelphia, 2001).

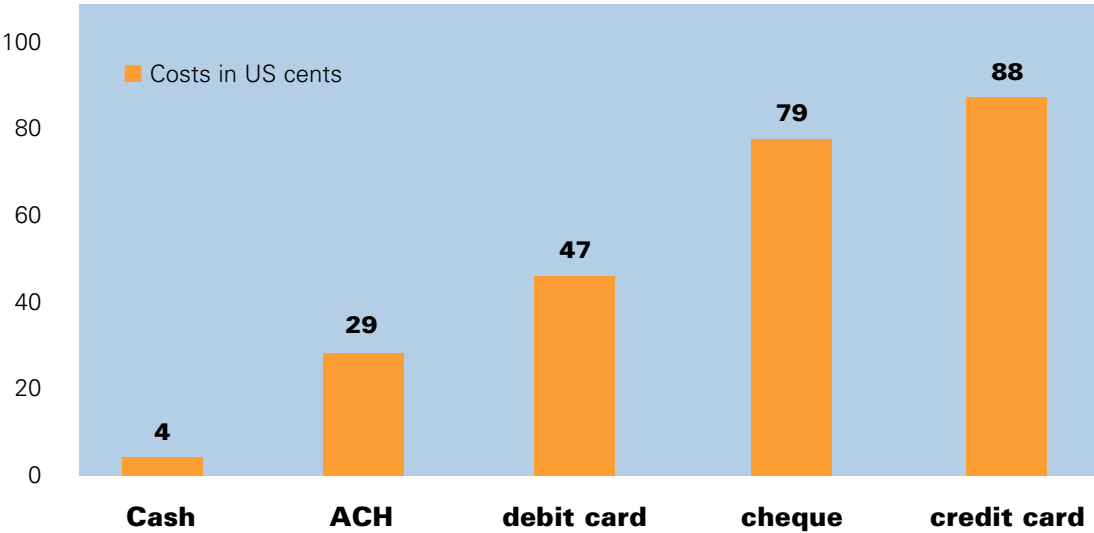
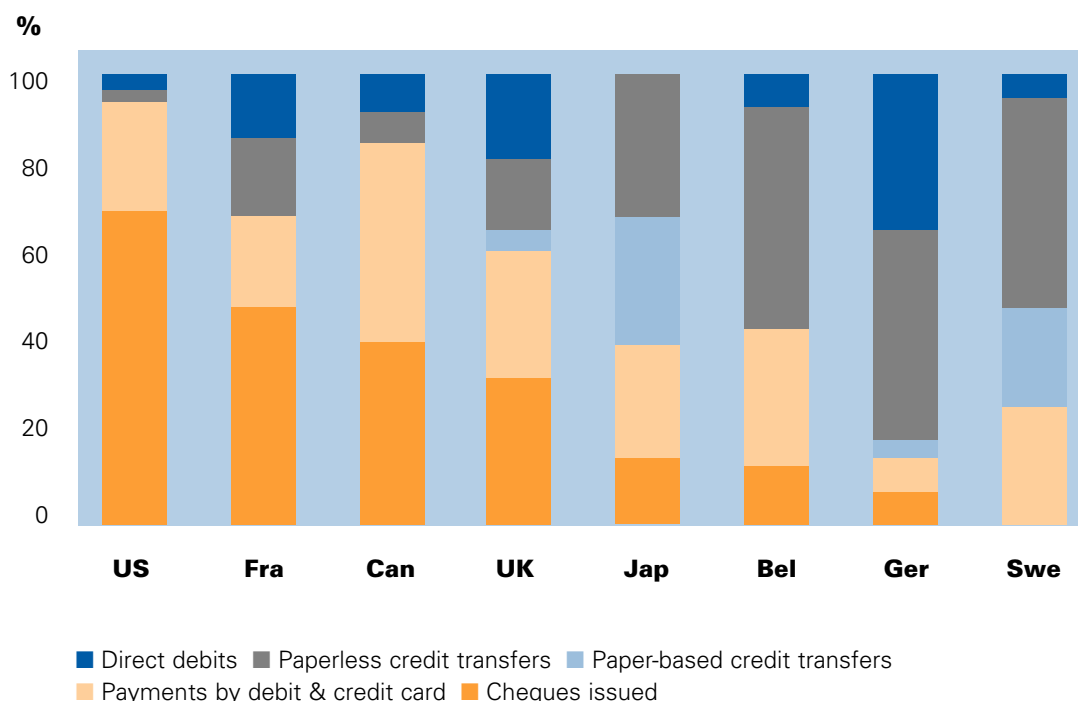


Figure 2: Use of cashless payment systems, by country, 1998.
(Volume in percent of total cashless payments) (Source: Bank for International Settlements).



1. 1997 figures used for Germany's paper-based credit transactions.
2. No direct debit figures available for Japan.

The non-cash delivery mechanisms similarly fluctuate widely as is shown in the next Figure.

Just by comparing and combining mentally the two graphs (Figure 1 and 2), one can see how different payment habits and incentives can also explain dramatic differences in total payment costs for different countries. Similarly, one can imagine the change in costs made possible in any particular country by providing some incentives to switching from a more expensive payment approaches to cheaper ones. For instance, if in the UK half of the checks currently processed were moved to direct debit transactions, about GB£280 million would be saved.¹⁰ In the US, where non-cash transactions are more frequent, the impact would be correspondingly more impressive. One US study estimated that just by switching from checks to electronic payments (ACH, and debit cards) about US\$91 Billion would be saved, or 1.25% of GDP annually. This translates into a savings of US\$1400 annually for a family of four.¹¹

The cost issues are further confused by the systematic cross-subsidy policies that are applied among the different payment delivery mechanisms. Some channels of the payment system are literally given away gratis regardless of their actual costs (free checking accounts for example). At the other end of the scale, some transactions with a low real cost are significantly overcharged. The Cruickshank report mentions cash withdrawals that are charged at 600% of its costs. Notice that the flack that resulted from this finding was strong enough so that in virtual all cases these charges have now been dropped and free withdrawal became available in the UK through the LINK network, irrespective of where the account is held. However, CHAPS transactions¹² or international fund transfers are still marked up at 200 or 300% of their actual costs.

¹⁰ Logica: "Frictionless Money – The Future of Money and Payments in an Electronic World" pg 10.

¹¹ Humphrey, David B., Lawrence B. Pulley, and Jukka M. Vesala. "The Check's in the Mail: Why the U.S. Lags in the Adoption of Cost-Saving Electronic Payments," Journal of Financial Services Research 17 (2000), pg. 22.

¹² A CHAPS transaction costs about 8.20 GB£, but is sold to between 15 and 20 GB£, according to the Cruickshank Report.

In all fairness, part of this problem stems from regulatory history. In a US case study ¹³, it is shown that the combination of three factors have led banks to keep giving checking services for free while recuperating costs via an implicit charge on interest rate spreads on minimum balances. These are:

- a) Antiquated laws (dating back to the US Depression era) forbidding payment of interest on demand deposits that gave an incentive to give checking services at no charge to the user to attract depositors;
- b) tax considerations (interest income is taxed while bank services in kind are not);
and
- c) a desire to mask price comparisons among banks.

Also, it was assumed that once a customer had a checking account, other services could be marketed to him or her to recover the costs of the checking services. The result is a systematic pattern of cross-subsidization. This also means that to the user, the marginal cost for using checks appears to be zero, thereby encouraging their overuse. Similarly, the only monetary inducement American consumers have to choose among different payment instruments today is the ability to earn frequent flyer miles by using a credit card - the most expensive payment instrument of all.

There are several significant problems that result from such systematic cross-subsidies. First of all, there is often confusion about what the real costs are for a specific delivery channel, and this applies internally within the banks also. Such confusion cannot be helpful in making appropriate decisions, even from the banks' own viewpoint.

Potentially more troublesome still, these cross-subsidies also tend to penalize the poorer people. In the first Global Future Forum (GFF) Survey of financial services industry, a majority of all banking executives feel that it is the banking sectors and not the government's responsibility to cater for the financially excluded or the "unbanked". ¹⁴

On the other hand, these same people are being systematically penalized by bank policies in the payment system, creating a potential public relation and political disaster that is waiting to happen.

Just two examples:

- Policies on credit cards prohibit a merchant to provide a discount to customers paying cash. As noted in a recent OECD report ¹⁵, this implies a systematic subsidy from the people who pay cash (typically the poorer people) to those who pay with credit cards (typically the better off).
- When a migrant worker sends \$100 back home, \$30 can be lopped off as a payment charge, a price clearly not related to the costs of providing such a transfer.

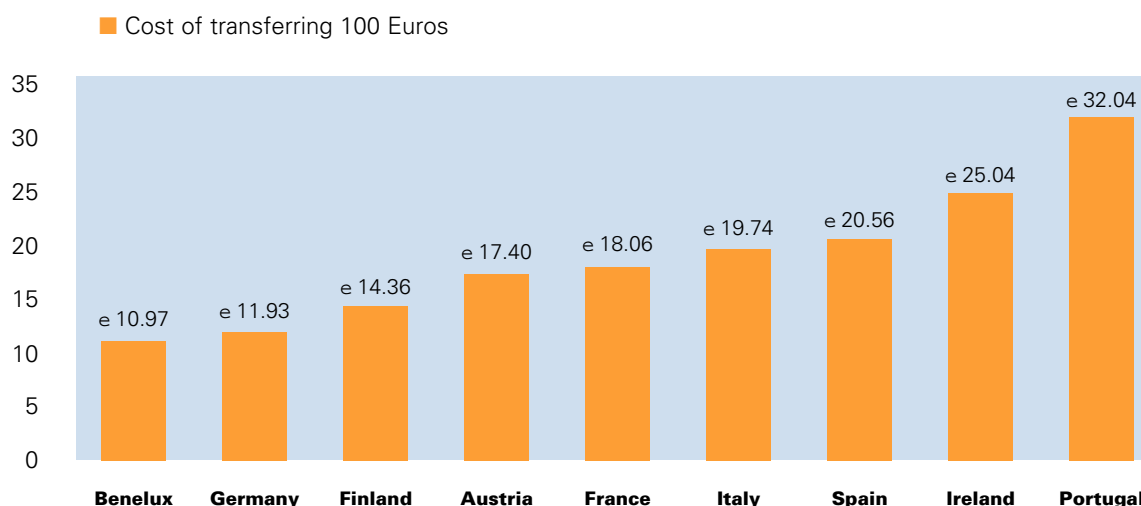
As the awareness of such cases multiply, the likelihood of a crackdown on the banks' domination of payment systems by governments and/or regulatory authorities increases. During 2001, the European Union crackdown on the cost of Euro-transfers among Euroland banks is an example of what has been labeled an abuse of the banking monopoly position in payment systems. The European Union forced banks to drop their Euro transfer charges to the level of national transfers within 18 months, because – even with more than a decade of forewarning and two years after the generalization of electronic transfers in Euros – the banks kept charging the same transaction fees as they did when each country had its own separate currency. For the same service - sending 100 Euros to another Euroland country - these charges vary from a low of 10.97% in the Benelux countries (Belgium, Netherlands, Luxemburg) to a high of 32.04% in Portugal. (see Figure 3).

¹³ Humphrey, David B., Lawrence B. Pulley, and Jukka M. Vesala. Ibid pg. 24

¹⁴ Specifically, 71.4% of all North American CEO's, 45.2 of the European and 41.2 of Asian Pacific CEO's agreed with this statement. See: Unisys, International Institute of Banking and Financial Services: Risk and Reward: Views of Financial Services Industry Executives on their issues and drivers in Asia Pacific, Europe and the United States. (2000)

¹⁵ Miller, Riel; Michalski, Wolfgang & Stevens Barrie: "The Future of Money: An Analytical Synthesis of the Discussion on the OECD Forum for the Future" (OECD: Luxemburg, July 2001).

Figure 3: Cost to transfer 100 Euro from various Euroland countries in 2001
(Source: European Union, *Die Zeit* 29 November 2001).



The justification by the European banks for these lofty and variable charges highlights a potentially deeper vulnerability of the existing systems. Their argument was that the patchwork of different national clearing systems and conditions, and the differences in security levels among those systems, means in practice that the costs of transferring funds from one country to another has not changed because of the single currency introduction. It is a fact that even within the same country (among the exceptions we could mention Japan and Belgium, and more recently Singapore, where fully integrated national systems operate), there is a patchwork of different clearing systems. Some are high-volume/low-cost clearing systems set up among the larger banks; some are geographically based; while others have provincial Banks, Savings and Loans or the Postal Giro-system clearing on still another - more expensive system.

So the deepest vulnerability of the existing bank payment systems may not be the political issues around a perceived monopoly, nor even the high fees charged on some specific types of transactions, but the inefficiency of the patchwork of legacy systems currently used for delivering payment services, locking in high systemic costs to the banking system itself.¹⁶ And this is exactly what some of the new players in the global payment system have in mind to exploit.

¹⁶ Just as there is scant data on the total revenue generated by payment systems to the bank system, few countries provide a realistic estimate of the total costs of maintaining such systems. One exception is the UK, where the APACS estimates that the costs of maintaining payment systems for banks and building societies amounts to GB£6.5 Billion per year.

5. New Competitors?

Banks have increasingly become computer networks - organizations specialized in delivering various electronic services. As Citibank's ex-CEO John Reed, pointed out: "banking will become a bit of application software on an intelligent network."¹⁷

Viewed from the other end of this looking glass, this means that there is no technical reason why any organization that has mastered computer network management couldn't start providing some services traditionally supplied by banks. The regulatory environment has protected the banking system from most of such inroads, but this should be expected to remain only for as long as the general interest is perceived served by such protection. The field of payments may or may not remain such a protected field, depending on how the banking system uses its privileged position now and in the future, and how it is meeting the challenges from the transition from an Industrial Age to a Knowledge economy. But even with the current level of protection, the first significant inroads have already been made.

For example, phone companies are ideally set up to get into the micro-payment business. Up to 70% of the costs of a phone company relate to computing the cost of each phone call, and to billing their customers. So it is not surprising that it should be tempting to use that expensive micro-payment infrastructure to generate additional income beyond the phone calls themselves.

To illustrate: in Finland, mobile phone users dial up vending machines to obtain a can of Coke, the cost of which is then added to their phone bill. In the same country, Sonera Mobile Pay is offering another application: it enables customers at Pizza Hut to pay for meals on their mobile phone. Probably the most sophisticated mobile payment system worldwide is the Merita Nordbanken WAP system. It allows value to be downloaded onto a non-removable smart card, which can be passed from the phone to a retailer terminal using wireless Bluetooth technology.

But phone companies are only one of the potential new players in this field.

Stored value cards are another means of payment that is being successfully implemented in a number of places. Over the past few years, Proton in Belgium, Geldkarte in Germany and Cashcard in Singapore have become routine. In Singapore, fully integrated smart-card systems are being implemented which enable people to make payments directly on the Net, and the cards can be recharged by Internet or by phone. The stated objective of the government in Singapore is to eliminate all conventional non-electronic payments by 2008.

While several of these systems are now implemented by consortia of banks (as is the case with Proton in Belgium or Geldkarte in Germany), such new payment means could be launched by any company.

This is what Virgin and the UK supermarket chain Tesco did, in the latter case on the strength of their own loyalty currency.

¹⁷ at a meeting in Washington sponsored by the Treasury Department, quoted by Mayer, Martin *The Bankers: The Next Generation* (New York: Truman Talley Books/Dutton, 1997) pg. 34

III. New Needs for E-Business?

"At most, a faulty or crackable system of electronic money could lead to an economic Chernobyl."

STEVEN LEVY, WIRED

The last characteristic in our "Investment Proposal" list was a "fundamental shift" in the very nature of the payment business. Given its importance and lower familiarity, the next two chapters will be dedicated to this one topic.

Two types of structural shifts are relevant here:

- In the short- to medium-term: new requirements for payments with conventional national currencies due to e-business in general and electronic B2B transactions in particular;
- In the medium- to long-term: an increasing role for new private currencies of various types, a need driven by major social megatrends that can be expected to play a growing role over the next twenty years.

Both those structural shifts will be explained in more detail, respectively in this and the next chapter.

Beyond the Hype

If anything, too much has been said about Internet, information super-highways and an all-digital information society. The hype has been so overblown in the last phases of the dotcom bubble that today there is a general disillusionment with the whole field. Nevertheless, after discounting all the hype, it should be expected that a more mature view of the real possibilities of e-markets would re-emerge over the next couple of years. And in these e-markets, we should expect a gradual but fundamental change in the way businesses deal with a growing segment of their customers, and with each other.

One generic effect of these e-business developments is the gradual erosion of the distinction between "domestic" and "cross-border" payment systems. There will always be a certain geographical concentration of economic activity and therefore for payments, but these concentrations may not necessarily follow existing national borders. This is going to be the case by design within Euroland; but this trend would not necessarily stop there. For example, the North-Western United States and South Western Canada could evolve into a single payment zone.

The problem is that present payment systems are still dominated by paper-based processes, which makes them peculiarly ill equipped to deal with digital business needs. Some observers even claim that the key factor holding up the development of true e-markets are the constraints imposed by the payment system.

Business to Consumer (B2C)

E-Payment Requirements

Today, we still have over 80% of transactions completed on the Net ending up with a payment by credit card. This is ironic, given that credit cards are the most expensive of all the available payment means. Notwithstanding the electronic front-end (the magnetic strip on the card), this payment method is indeed heavily paper-dependent. After all, most credit card bills end up being sent as paper slips by snail mail to the customer. The customer typically pays the credit card bill by sending back another partially hand-written piece of paper – a check – the second most expensive way of settling that bill...

Credit cards are inadequate for retail customer digital business from two other perspectives:

- It often requires transmitting unencrypted payment data across the Internet. Potential customers often mention this risk as one key reason why they don't trust Internet purchases.
- Credit card payments are notoriously unsuited for small transactions. The minimum fixed fee charged to the retailer for processing a transaction can even overwhelm the value of the good sold irrespective of the payment size.

This is why some new payment processes, such as PayPal, have been developed specifically for Net payments. PayPal is a secure online payment system allowing direct payments by e-mail. When your counter-party is also a registered PayPal user, value can be transferred directly by email to their account. And your account can in turn be topped off from your own credit or debit cards, and presumably soon from your phone or e-banking account. This service is heavily used by online companies such as e-Bay or Amazon.com and has already attracted more than ten million users. Now it has also become possible to use PayPal credits with the 19 million brick-and-mortar MasterCard merchants worldwide, without ever having to go through a bank account. How much time will it take before the first migrant worker asks his mom to open a PayPal account so that they can avoid the \$30 international transfer charge?

Another system has originated in Europe – Paybox,

provided by Webtrade.net – and is now already providing payments in 150 different currencies to 38 different countries. They aim at specifically enhancing their international capabilities, making available international money transfer services at the cost of only a phone call and a fixed annual membership fee.¹⁸

Another example of a new payment technology where banks have played no role at all is the V-Sync payment system in Japan. V-Sync is a music and Internet content provider. It is now marketing a matchbox-sized gadget that can be attached to the battery socket of a mobile phone to change it into an electronic purse. It works like a pre-paid debit card, but has several advantages over it. It is quicker and cheaper, for example the shops need a reading device that costs only one tenth of a debit card reader. Moreover it provides improved protection for the customer's security and privacy. Unlike credit or debit cards, which require the transfer of customer data to the retailer, this device transfers the retailer's account information to the customer. Such devices could of course also be linked to a PC or any other electronic device to make Internet payments.

A whole range of similarly secure and anonymous payment innovations are emerging from the next generation of Personal Digital Assistants (PDA's), that have the potential to advantageously replace not only cash payments, but also checks, debit and credit cards. More radical still is the emergence of new Net-currencies, operating on the Net or in normal life, which will be discussed in the next chapter. But here we should nevertheless mention Beenz - a private currency that started as a pure Internet currency - because it is now following the same track as PayPal by extending its reach into normal shops as well.

¹⁸ Website www.webtrade.net and Pay-on.net. See also Spanke, Klaus: "Preiswerter Grenzverkehr" Die Zeit # 49 (November 29, 2001) pg. 39.

Business to Business (B2B) E-Payment Requirements

Over the next few years, the strongest pressures for streamlined digital payment exchanges will be coming from the B2B sector, and will prove even more pressing than those coming from the e-retailers and customers. Indeed, according to North American surveys, a majority of the banks' largest corporate customers are now irrevocably engaged in the direction of fully integrated payment solutions. Such integrated payment engines imply a seamless processing flow between several key functions that have traditionally been handled separately:

- Integration of both paper and electronic payments with the related remittance information that can be internally processed as a single stream by the Accounts Receivable departments;
- Integration of several functions that are currently handled separately, including: transaction origination, fulfillment, invoicing, accounts receivable and payable, cash management, financing and management reporting.
- All this with appropriate levels of authentication, digital certification, and an increased level of data security.

These are tall orders, and at the present time few if any corporation has achieved those objectives. What is now happening instead is the following:

- In the US and Canada, there is an annual growth rate of 50-60% of payments received in electronic form (such as ACH payments); so that by 2003 it is expected that between 20 and 30% of all payments received and made by corporations will be electronic.
- However, the vast majority of corporations (according to one estimate about 80%) have to deal with electronic payments manually as exceptions in their Accounts Receivable departments.
- Paper-based and electronic payment services are therefore two different processing channels, and are not integrated. Some corporations have even given up trying to do this themselves: about 20% of the

North American corporations now use an external payment consolidator to reconcile paper and electronic trails with the remittance information.¹⁹

- Each of the management functions - from transaction originating to fulfillment, invoicing, Accounts Receivable and Payable, cash management, financing, accounting and management reporting - have their own electronic so called "point-solutions", but these are not yet integrated into a seamless flow.
- Similarly, each of these point solutions tends to have their own security system, and those may still be different from the ones applicable to today's electronic transfers.

Nevertheless, most on-going corporate projects have a "P-Day" - the deadline for switching to the new integrated payment engine - staggered sometime between 2003 and 2006. As a consequence, it can be expected that within the next 2 to 5 years there will be a strong re-emergence of B2B e-markets. Some "lead corporations" are making business with them conditional to making all information exchanges and transactions compatible with their integrated payment engines, and/or are providing financial incentives for their suppliers to follow them in that direction. Most often mentioned in this context are companies like General Motors, General Electric or Wall Mart. The main motivation for these corporations is straightforward: cost reductions and better quality operational and financial control. But what this means is that the move towards e-markets, once started, will provoke a movement in the payment domain more akin to an avalanche rather than the glacial changes to which payment systems have been used.

¹⁹ Notice that even banks are now outsourcing some of their paper flows. For example, the continual growth of the check volumes have led major UK banks to outsource check processing to the likes of EDS and iPSL (Unisys).

It should also be noted that the re-emergence of these more mature e-markets will put a huge pressure not only on payment systems and on vendors supplying integrated solutions, but also fundamental changes in the operations of the back offices of entire industrial sectors. This in turn will require modifications in the organization structures and back offices of the banking sector itself.

Indeed, banks are typically organized in departments and divisions that each specialize in delivering specific slices of these functions, and their own internal IT softwares tend to be designed to support "point solutions", with separate and narrow functionalities. So, going from the old model to the fully integrated payment systems necessary for the B2B markets can be expected to become a growing headache over the next half decade.

What most banks have achieved so far is to make available the access to parts of their existing "point solutions" on the Net. Many of them are now in the process of reviewing their own back-office systems, in order to be able to deliver more integrated solutions in the future. Some leading banks have even created new separate task groups for B2B development, with a wide-ranging access to all areas in the bank and isolated from short-term quarterly profit pressure, with the sole purpose of preparing the transition towards corporate e-markets support.

In conclusion, what is pretty certain is that, over the next few years, getting the existing payment systems up to speed for the requirements of e-markets will increasingly move to a front-burner position in both the overall society's, corporations' and even the banker's own concerns.

IV. Private Commercial Currencies

"We are witnessing nothing less than the birth of a new industry – the development, issuance and management of private currencies"

KONRAD ALT, US TREASURY DEPARTMENT

It was a cliché of the 1990s that we are in the middle of a transformation from an Industrial Age to an Information Age. We have undergone a media bombardment with the idea that our economic production processes, our education system, our household habits, our leisure – in short, our entire life – will undergo a fundamental transformation under the impact of the new and ubiquitous information technologies.

Nevertheless, there has been an implicit assumption that the one thing that will remain impervious to change is the nature of money itself. The predicted changes in payments were invariably about the form that our familiar national currencies would take: we would put our Dollars, Euros and Yen on smart cards, in electronic purses, send them as e-payments, etc. But that the type of money used in our exchanges might also change has been mostly overlooked or dismissed. This is ironic, given that money systems are in fact our oldest and most universally prevailing information system. Indeed, even "writing was invented in Mesopotamia as a method of book-keeping."²⁰

This chapter will show why the assumption of an unchanging type of money is not valid.

In his massive study entitled *"The History of Money from Ancient Times to the Present Day"*²¹, Glyn Davies remarks that over the past five thousand years there have only been two fundamental

innovations in the technology of money. The first was paper money, invented in China during the 9th century and spreading to Western Europe during the late Renaissance. What it enabled was the transfer of the power of creation of money from kings and emperors to the banking system. We are now in the middle of the second fundamental innovation: electronic money. Already today, over 95% of the money existing in the world resides in the form of bits and bytes in computers at banks and brokers. The open question is whether this will also imply the transfer of the power of creating money from banks to other agents in society. All signs are that this is indeed already the case.

But before exploring these new types of money, it might be useful to clarify some relevant money distinctions.

²⁰ Indeed, the earliest known texts dating to 3200 BC in Uruk, describe various financial transactions, including secured and unsecured lending, and "foreign exchange" transactions. See Oates, J. Babylon (London, 1979) pg. 25

²¹ Davies, Glyn A History of Money from Ancient Times to the Present Day (Cardiff, University of Wales, 1994)

Some Money Distinctions

Economic textbooks tend to define money in terms of it does – e.g. its functions such as standard of value, medium of exchange, or store of value – rather than what it is. For our purposes here, we will define money as an agreement within a community to use something as a means of payment.

When looked upon from this perspective, a number of new types of currency are already in widespread use. We need to distinguish between

- legal tender currency;
- commercial private currencies;
- complementary currencies;
- and social purpose currencies.

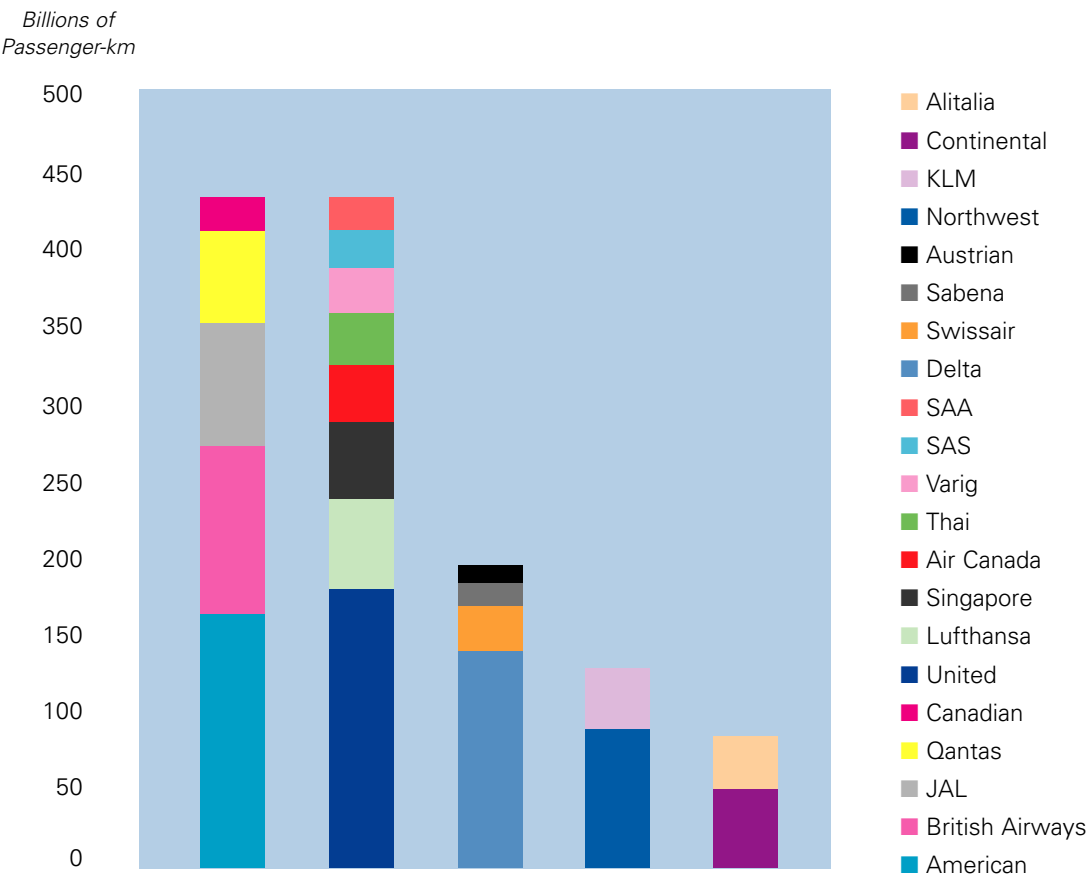
Legal Tender "for all debts, public or private" means that when someone owes a debt and offers to pay with this currency, then the currency must be accepted. If the currency is refused, the debt can be declared void. One important debt covered in

this respect is tax payments. National currencies are typically the only legal tender in a country.

Commercial Private Currencies: Two types of commercial private currencies are relevant: loyalty currencies, and so-called "barter currencies". The most common type of commercial private currencies today are loyalty currencies, the best known of which are "frequent flyer miles". Not only airlines, but also telephone companies, supermarkets, book-chains, and e-businesses are now commonly issuing loyalty currencies. Barter currencies are used as medium of exchange among members of commercial barter clubs.

Complementary Currencies: Currencies, different from legal tender, that are accepted in payment, and do not aim at replacing but only complementing conventional national currency. They are therefore designed to function in parallel with – or as a complement to these conventional currencies.

Figure 4: Airlines Miles issued by the five major airline alliances (Passenger - km, 1996)



Social Purpose Complementary Currencies:

Currencies that aim at resolving a variety of social problems, such as elderly care currencies, unemployment currencies or environmental currencies.

The claim here is that conventional national currencies – which today are in fact primarily bank-debt money - will in most countries maintain their privileged monopoly status as legal tender. However, other types of currencies can and will nevertheless play an important and growing role in society, to the point of becoming what could be called "common use tender", as opposed to legal tender.

New Commercial Currencies

It might be useful to remember that credit cards - a mainstay business of many banks today - originated as loyalty cards issued by oil companies as a convenience to pay for the gas, oil changes and repairs for car drivers across America.

But the loyalty currencies that have been cropping up over the past couple of decades go one step further: while the oil credit cards just made it easier to shop with conventional currency, the new ones are actually creating a new unit of account as well.

The best known commercial currencies are Frequent Flyer Airline Miles, issued at the rate of 1.5 Trillion passenger-km per year by five consortia of airlines (see Figure 4)

Initially, these loyalty currencies were only a marketing gimmick issued by each airline individually. The next step was consolidation through the still ongoing alliance building among the different airlines. Today, there are only five such alliances left, and it is likely that we will end up over the next few years with only three such groups. In parallel with broadening the issuing capability, the liquidity is also enhanced through alliances with organizations that will accept the currency: phone companies, hotel and car rental chains were the typical first joiners.

But today, for example, two-thirds of all British Airline Miles are cashed in for something else than purchasing air travel. Sainsbury, the largest supermarket chain in the UK, is now accepting them as payment in their shops. Some of the more creative banks have actually used these new currencies as a way to promote loyalty for their

own services. One can now also earn miles without ever flying, simply by using a VISA card tied in with specific banking groups.

Phone companies, book-chains, supermarkets have similarly started issuing their own loyalty currencies. Just like what happened in airline companies, initially each of those currencies had only a narrow use, but alliances among different issuers gradually broaden the acceptability of such currencies. We already mentioned the example of Beenz, initially a purely internet-based loyalty currency, which is now moving out into the brick-and-mortar shopping world.

But of more relevance still may be the case study of Tesco, one of the leading supermarket chains in the UK. Tesco introduced in the mid 1990s a remarkably successful loyalty program that forced rival retailers to follow suit. The Tesco Clubcard is credited with increasing customers by one third during the year 1998 alone, overtaking rival Sainsbury as the UK's most successful retail chain as a result. One in three UK households now are Tesco card members and their Clubcard magazine is Europe's largest circulation customer magazine. On the strength of its loyalty currency program, Tesco proceeded to provide services in conventional national currency, thereby directly competing with retail banks. Tesco, in contrast with banks, didn't charge customers for withdrawing conventional money from the 350 ATM's that it operates around the UK. Every store also provides leaflets and a freephone service for other financial products such as interest-bearing saving accounts, loans, insurance, pensions and a Visa card.

The second type of commercial currency that is often overlooked is barter credits. Barter - the exchange of goods or services without the use of any currency - has been around since the dawn of mankind. Until the 1980s, barter used to be considered a shady business mostly associated with tax evasion and illegality. International barter, "countertrade" in technical parlance, was something done as a last resource to deal with countries without convertible currencies, such as the now defunct Comecon or some Less Developed Countries.

All this started to change when in 1982 the US Congress formally legalized barter and introduced specific IRS tax-reporting requirements. The barter

industry has now over 600 professional barter companies, and two major trade organizations: the International Reciprocal Trade Association (IRTA) and the National Association of Trade Exchanges (NATE). The leading industry publication BarterNews, with a circulation of 30,000 (see www.barternews.com), estimates that broker-facilitated barter deals now amount to approximately US\$ 10 Billion per year, and growing at 15% per year, three times faster than normal currency facilitated transactions.

Far from being a "primitive" form of pre-money trade - as Aristotle initially labeled it - their growth today may be an inherent part of the maturing of an information society. Corporations in major industries such as media, travel and hotels are now handling up to half of their transactions without exchanging conventional national currency. It is notable however, that in many of those deals, the word "barter" is in fact a misnomer. Most of these systems in fact use a "barter currency" useable among the members of each barter group. There are also now attempts at improving liquidity by creating a "universal currency" and facilitating some clearing among different groups.

More significant still is countertrade, the technical term for international corporate barter. *Fortune* reports that two out of three of the major global corporations perform such transactions routinely, and have specialized departments focusing on such deals. The US Department of Commerce, the World Trade Organization (WTO), and The Economist magazine out of London, all estimate countertrade to be common among 200 countries around the world, with a staggering volume now ranging between \$800 Billion and \$1.2 Trillion per year. This represents between 10 and 15% of all international trade!

The driving forces behind this barter resurgence vary widely. Some countertrade deals are being done simply because the countries involved don't have access to hard currency financing: a typical example is the PepsiCola deal in Russia with payments in Stolichnaya vodka. Another factor is that the wildly fluctuating foreign exchange markets make it safer to get paid in something that has a known value and use, rather than a currency that may drop by 50% in value, as has happened even among major currencies like dollar-Yen or dollar-Euro. But none of these arguments can

explain why there is such a growth of barter even within the same country: for instance, why United Airlines would barter airline seats for TV advertising spots with CNN in Atlanta.

Shocking as it may be to some people, it turns out to be more cost effective to use one's own inventories as working capital instead of having to borrow dollars with interest to perform such exchanges. Furthermore, the old argument that multilateral barter is too complex to arrange so that each party ends up having exactly what is wanted - another argument dating back to Aristotle - is now also being turned on its head. Cheap computing and sophisticated relational databases now enable such matches to be made automatically, at a very low cost.²²

Once the back-offices and inventory management systems have been brought online with the appropriate level of security of access, the B2B exchanges in the e-markets could make it a lot easier and profitable to expand the use of barter between corporations by only having to settle the net dollar balances of the barter deals. This isn't that different from what happens today in the inter-bank clearing houses, or with foreign exchange netting within the credit card systems.²³

One should notice that none of the new commercial private currencies, whether loyalty or barter currencies, would have appeared had it not been for universally available and cheap information technologies. They are therefore indeed a manifestation of the shift of the power of creating money due to the appearance of electronic money; similar to what happened with the shift from sovereigns to the banking system when paper money became common in the 17th and 18th century. This is also why we can safely predict that the appearance of private currencies are not a passing fad or an accident. Instead we should expect, as the Information Age matures, for them to grow in importance, increasing their acceptability and liquidity through alliances among different systems, as has already happened in airline loyalty currencies.

In conclusion, the long-established monopoly of national currencies as medium of exchange has already died over the past two decades without most people even noticing it. Loyalty currencies and barter currencies have grown to the point

where they play a non-negligible role in the world economies. While economic theory hasn't caught up²⁴, practice is now well ahead of theory in this field.

The same can be said about another domain - the explosive appearance of over 3000 complementary currencies systems worldwide over the past 15 years, which is the topic of the next chapter. Here too, we can expect this trend to accelerate over the next twenty years because of the pressures generated by major social megatrends that converge over that same time period. Together, they oblige us to collectively and fundamentally rethink our money.

²² See also literature presenting the role of barter in the modern economy. For instance Amann, Erwin & Marin, Dalia "Risk-sharing in international trade: an analysis of countertrade" *The Journal of Industrial Economics* Volume XLII (March 1994) pg. 63-77. Williamson, Stev & Wright, Randall "Barter and Monetary Exchange under Private Information" *The American Economic Review* March 1994 pgs 104-123 Taurand, Francis "Le troc en Economie Monetaire" *L'Actualite Economique, Revue d'analyse economique* Vol 52 numero 2, Juin 1986.

²³ When someone uses his or her credit card abroad, the exchange rate obtained is sometimes even better than the one that can be obtained on the spot in the local markets. The mystery is cleared up when one realizes that the credit card company is in the enviable position to be able to charge for a service it typically doesn't have to perform in the first place. Only the net balances between the two countries involved – normally a small fraction of the total volumes of exchanges – need actually to be exchanged, while it can bill as if every transaction is in that situation.

²⁴ One useful first step would be to acknowledge the existence of such non-conventional currencies.

Neo-classical economics usually defines three different types of quantities of money:

M1 = Money issued by Central Banks, also called "High Powered Money"

M2 = M1 + checking accounts and short-term deposits (up to 1 year)

M3 = M2 + savings accounts and longer-term deposits.

We could define M4 = M3 + complementary currencies as defined in this text.

²⁵ Cahn, Edgar :quoted in YES! A Journal of Positive Futures special issue on Money: Print your Own (#2 Spring 1997) pg. 12

V. Social Purpose Complementary Currencies

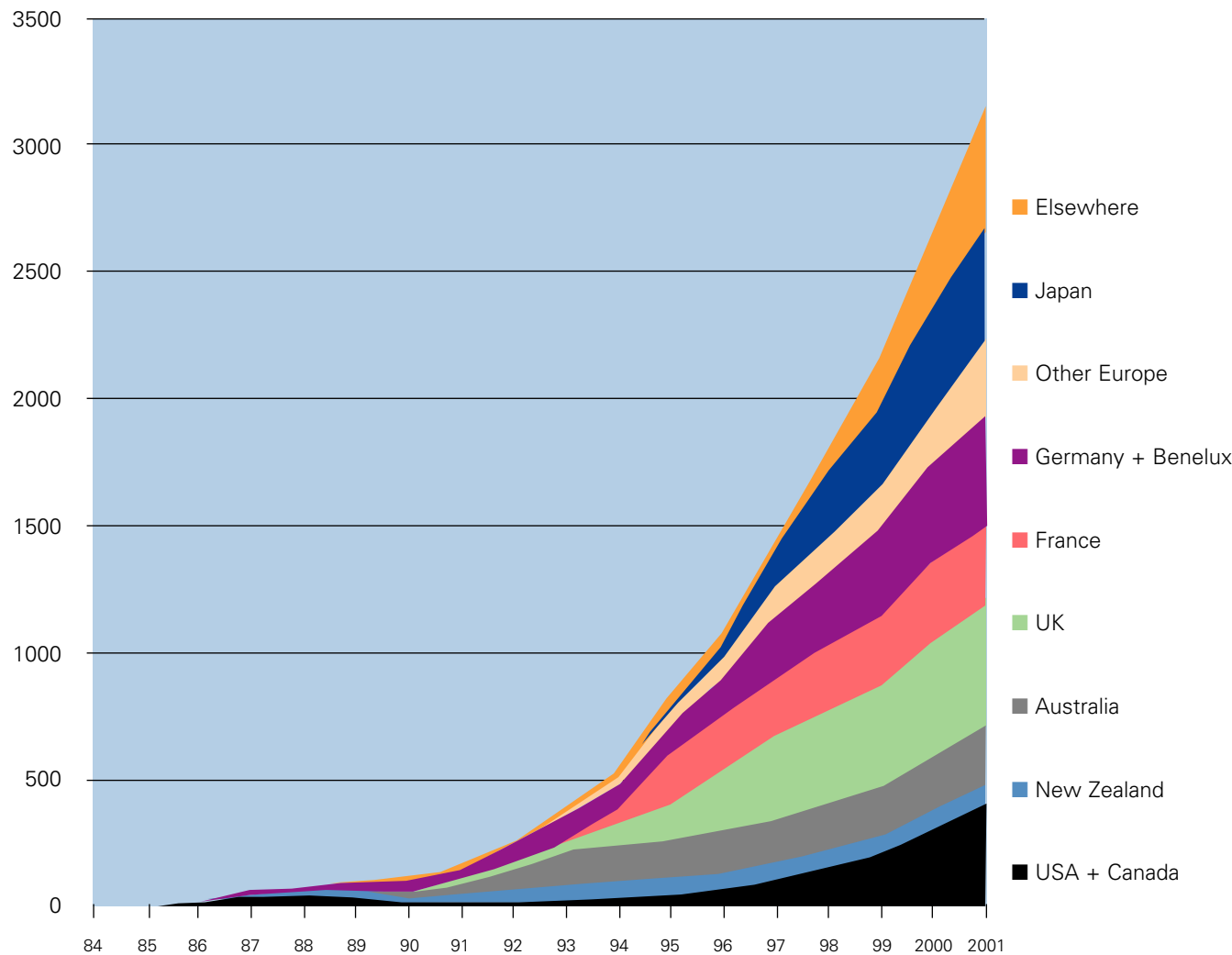
*"The real price we pay for money is
the hold that money has on our sense of
what is possible - the prison it builds for our
imagination"*

EDGAR CAHN, INVENTOR OF THE TIME
DOLLAR SYSTEM ²³

In this chapter, the surprising emergence of a wide range of new social purpose complementary currencies will be documented. They have already proven to have the potential to address various key issues that have proven difficult to resolve within the conventional single national currency

framework. Because this topic is probably the least familiar, we will provide a more detailed evidence for the reasons why such currencies are emerging than in other parts of this report.

Figure 5: Number of Social Purpose Complementary Currency Systems Operational in a dozen countries (1984-2001) (Source: *The Future of Money*).



The Emergence of Social Purpose Complementary Currencies

The following graph (Figure 5) shows the evolution of the number of complementary currency systems operational in a dozen different countries. In 1984, there was only one such system. By 1990, there were about one hundred around the world. Today, there are over 3000!

Notice that this is not the first time in history that local currencies have appeared. The last time was in the 1930's as "emergency currencies" in the middle of the Depression.²⁶ What is different about local currencies today is that they have appeared without being triggered by a major economic collapse, a war or a civil war. Another key difference: the current systems are designed not as short-term emergency measures, but as systematic tools to solve some specific social problems. Finally, the vast majority of them today are electronic currency innovations. Just like the commercial loyalty currencies, they wouldn't be thinkable without low cost computing being available to everybody.

There are a wide variety of social purposes pursued by various local complementary currency systems. They vary in use from providing care for the elderly to relieving issues of local unemployment; from the restoration of a spirit of community in well-off neighborhoods near Washington D.C. to getting kids off drugs and crime in Chicago; they operate in a megapolis like Mexico City and in fishing villages in Canada; they use low-tech paper based systems in Berkeley, CA, to high tech smart card applications in Asia; they were designed for small groups of 50 people in Australia, a city of 2.3 million people in Brazil or prefectures of 10 Million in Japan.

While local activists on a shoestring budget have started most of these systems, governments have started to actively support other systems:

- in Australia and New Zealand local authorities are funding local currency start ups;
- in the UK, the Blair government recently financed a GB £500,000 start up for a Time Bank in London;
- in the US, the IRS has declared one such system (Time Dollars) officially tax-free; and 31 States now pay State employees to start up Time Dollar systems;
- in Japan, the Head of the Services Department of the Ministry of International Trade and Industry (MITI) has started 40 different experimental "eco-money projects", in order to choose the models that would be most appropriate for general application in the country;
- the city planning office of Curitiba, the capital city of Paraná in Southern Brazil has launched and managed a community currency for 25 years that is providing up to one third of all income of its citizens, and has been a key for its remarkable development as the "most ecological city in the world" by UN standards.

Detailed descriptions of those various systems, their specific uses, and their respective qualities and problems are available elsewhere.²⁷

What matters here is what they have in common:

- 95% of these systems are computer driven;
- they have already proven that they can solve real-life social problems without burdening taxpayers or governmental budgets;
- the vast majority are small scale affairs that are purposely kept on a local scale;
- the only mature system today (the WIR in Switzerland) has 80,000 members, including one quarter of all small and medium size businesses in the country, and enjoys an annual turnover equivalent to US\$2 Billion.

²⁶ For instance, there have been a number of historical periods where local currencies sprung up in the US. They became popular during the Panic of 1837, the Civil War years, and the Panics of 1873, 1893, and particularly of 1907 and the Great Depression of the 1930s. During the Depression, more than 5000 local currency systems operated in the US. For a catalog of this last period, see Mitchell, Ralph A. And Shafer, Neil Standard Catalog of Depression Scrip of the United States in the 1930's including Canada and Mexico (Iola, Wisconsin 54990, Krause Publications, 1984).

²⁷ See Lietaer, Bernard The future of Money (London: Random House, 2001) Part Two

²⁸ For theoretical considerations, see Ibid. chapter 6 and 9.

²⁹ Information collected by personal interviews with Hotta-san in Tokyo. See also: A l'ecoute du Japon (Brussels: Information bulletin of the Japanese Mission to the European Union) July 3, 1995 pg. 7-8.

There is one generic question that should be addressed to fully understand the societal implications of this phenomenon. Why would people bother with creating and using a currency other than the familiar national money?

According to one implicit economic assumption dating back to Adam Smith, money is supposed to be value neutral. It is indeed seen as a passive instrument that doesn't affect the nature of the exchanges or the relationships between its users. This is why the first and classical reaction to the above phenomenon by someone trained in economics is to dismiss it as a tax-dodging scheme.

However, in this case, this explanation clearly doesn't hold. As any drug dealer or tax evader can explain: "the best way to avoid taxes is to get paid in cash, and specifically in national currency bills. The most ineffective way would be to be part of a system where every transaction is recorded on some computer somewhere..."

As more than 95% of the 3000 social purpose complementary systems currently operational in the world are computerized systems, there has to be another reason that explains this strange phenomenon. What could that be?

Is Money Value Neutral?

In fact, what both empirical fieldwork and theoretical research have proven is that Adam Smith's implicit assumption that money is value neutral simply isn't valid. Instead, what has shown up again and again is that the use of different kinds of currency does significantly affect both the behavior and relationships of the people using it. And the users of complementary currencies actually state that this is indeed one of the main reasons why they are bothering with the use of different currencies in the first place.

Rather than argue from theory²⁸, two concrete examples will show that the use of different money types can encourage different behavior patterns:

- the Japanese *Hureai Kippu* currency, an elderly care system of which more than 300 examples are currently operational in Japan;

- the impact on the types of investments made when a currency is interest bearing or not.

One illustration: Japanese *Hureai Kippu*

The Japanese population is becoming older. In fact, they are the second fastest aging population in the world. There are already 800,000 retired people needing daily help and another 1 million handicapped people, and the Japanese Ministry of Health forecasts a vast increase in these numbers over the foreseeable future. In order to face this rapidly rising problem, Tsutomu Hotta, a highly-respected retired Supreme Court Judge, started a new type of Health-Care Currency in 1995, that he called *Hureai Kippu* (literally "caring relationship ticket").²⁹ It is designed to complement the normal national health care plan: any help not covered by health insurance can be obtained through this means. Each contributing volunteer has a Time Account, managed exactly as a savings account, except that the unit of account is hours of service instead of Yen. Different values apply to different kinds of tasks. For instance, a meal served between 9 a.m. and 5 p.m. has a lower credit value than those served outside that time slot; household chores and shopping have a lower credit value than personal body care. These *Hureai Kippu* credits are guaranteed to be available to the volunteers themselves, or to someone else of their choice, within or outside of the family, whenever they may need similar help. Two national electronic clearing houses have sprung to enable people to send their credits, for example to their parents, even when they live in other parts of the country.

Most significantly for our purpose, a survey among the elderly themselves reveals that they prefer the services provided by people paid in *Hureai Kippu* over those paid in Yen, because the relationships turn out to be of a different quality than those established with Yen-paid social service workers. In addition, it enables them to stay in their own familiar homes even when they can't take care of themselves anymore, rather than being sent to retirement places, where the costs to the taxpayer skyrockets as well. So it is a win/win all around: for the quality of life of the elderly, for inter-generational relations, and even for the taxpayer.

Started in 1995 with a few local systems, this approach has grown to over 300 time credit systems by 1998, mostly run by private initiatives such as the Sawayaka Welfare Institute, or the "Wac Ac" (Wonderful Aging Club, Active Club) and the Japan Care System (a non-profit with some governmental funding).

Interestingly, as of mid 2001, the Chinese government has started implementing a similar system in China. They are also trying to reduce the number of people needing to be moved into retirement homes as the population starts aging rapidly.

Just to prove that this difference in relationships when two different types of currencies are used isn't a peculiar "oriental" phenomenon, one could mention a completely independent experiment known as Elderplan, also on-going since 1995, but in Brooklyn, NY. Here the unit of account is called Time Dollars, the brainchild of Edgar Cahn, a well-known lawyer and professor in Washington DC. Here again, the users report that they enjoy

the better quality in human relations made possible by this approach. Since the year 2000, the Elderplan system has started spreading beyond Brooklyn to Queens, Staten Island and Manhattan.

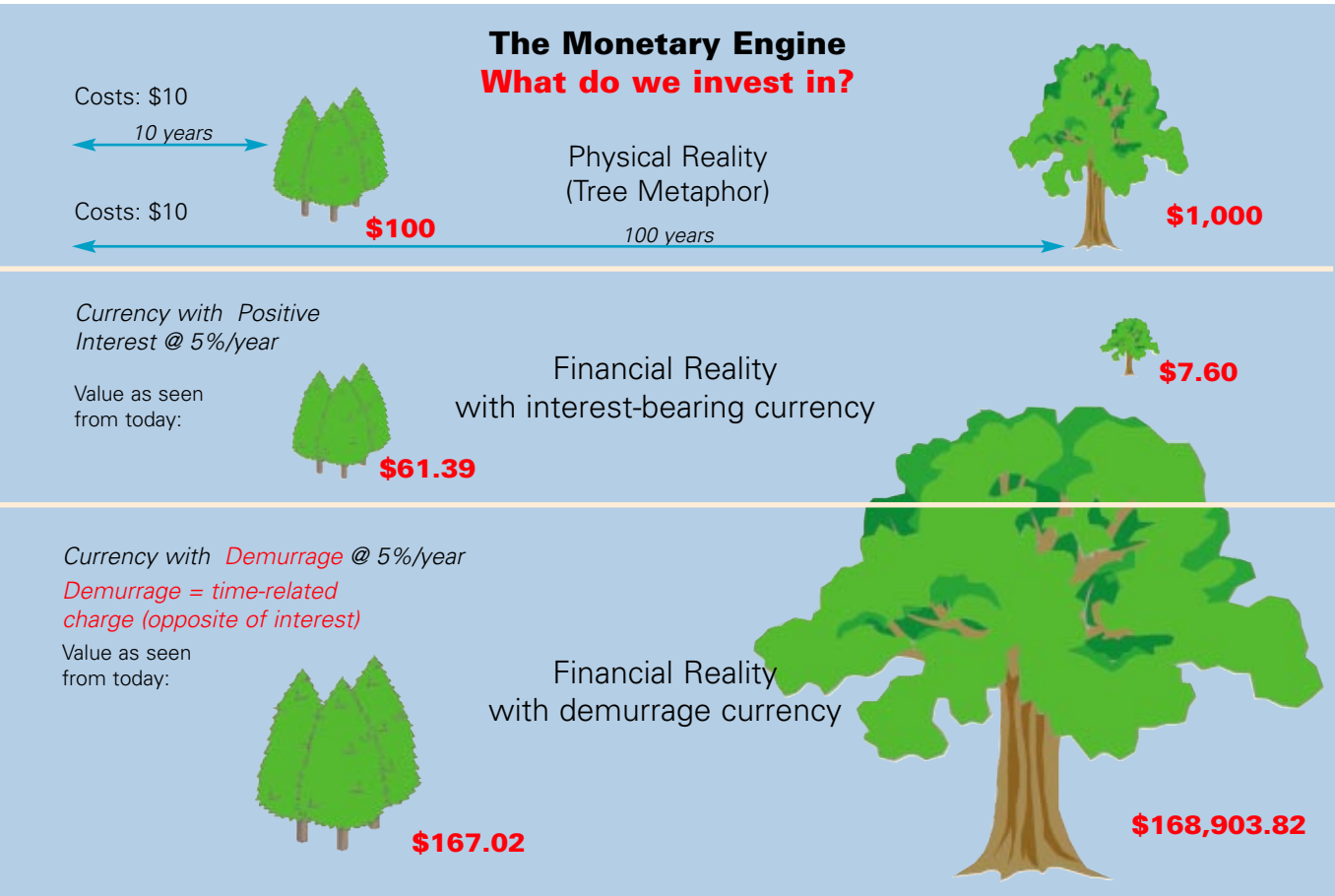
Interest and Time Perception

It is generally assumed that there is no relationship between the short-term thinking typical of our civilization and the kind of money we are using. This section will show why this isn't the case. Specifically, the point is that interest bearing currency dramatically affects the kind of investments made.

To illustrate this point, we will use a simple metaphor. Let us suppose that we have to choose between 2 simple investments: planting a pine tree or an oak tree. The costs of planting either one are assumed to be the same at US\$10 per tree.

The top part of the graph (Figure 6) shows that after growing 10 years the pine ready for harvesting is worth US\$100; while the oak takes 100 years and

Figure 6: Tree investment metaphor in physical reality, and in two different monetary systems



is then worth US\$1,000. Let us further assume that all the numbers used in these examples are in constant dollars.

The middle part of the Figure illustrates the situation when we live in a world with a positive interest rate currency.³⁰ If one looks at the financial world through a positive interest rate currency (in our example, at the rate of 5%/year), one sees why one will always invest in pines and not oaks. The pine value discounted to today is valued at \$61.71, but the oak's value seen from today melts down to an insignificant \$7.60. It makes much more financial sense to cut down oaks and plant pines, something we are doing metaphorically (and sometimes literally) on a worldwide scale today.

Finally, the bottom part illustrates what happens when a currency with demurrage is in operation. Demurrage is a time-related charge on hoarding money i.e. the reverse of interest. This may sound like a very strange idea to us today, but entire civilizations used to consider it quite normal for many centuries (including the Egyptians for a couple of thousand years; and the Western Europeans for three hundred years, during the "Age of Cathedrals" from the 10th to the 13th century.)³¹ Just to put to rest an immediate objection in the minds of today's readers: people would still save and invest in those societies, but they wouldn't save in the form of this kind of money, but rather in the form of productive assets. These currencies were used exclusively as a medium of exchange; not as a store of value.

Now what happens to our little tree metaphor in those societies?

With a demurrage-charged currency (also at 5%/year), oaks become the obvious winners as an oak tree as seen from today would be worth a whopping US\$ 168,903!

Societies using such currencies invest with time horizons that look outlandish to us today. For example, when such currencies were in use the Egyptian and European buildings were designed to last forever: we can still visit their temples and cathedrals today. In contrast, how many of our own creations will be standing in 800 years?

The purpose of this metaphor was to show that, contrary to the generally prevailing hypothesis, the type of money system operational in a society can significantly affect investment patterns and general behavior.

It is also interesting that none of the 3000 social purpose complementary currency systems that have spontaneously manifested over the past 15 years have interest built in, while all our conventional national currencies invariably do.

The relevance of both the Japanese *Hureai Kippu* system and the tree investment metaphor, is that monetary experiments have a deeper relevance for our societies than is sometimes perceived. If it is true that very different behavior patterns can be generated - spontaneously, without regulation or coercion - when different types of money system are made available, then monetary experimentation will become a key ingredient for the peaceful evolution towards a better global society. Humanity faces the greatest series of challenges ever seen. Can we afford not to use the remarkable motivational power of money to try to solve some of them?

³⁰ This metaphor has been somewhat simplified for didactic purposes. The applicable discount rate is not only interest but the "cost of capital of the project" which includes three components:

- the interest rate of the currency involved;
- the cost of equity;
- and an adjustment reflecting the uncertainty about the cash flow of the project itself. The third component is completely project-related and therefore unaffected by the currency used. It would remain identical whatever the monetary system. For relatively safe investments like trees, this project risk is also very low. The first two, in contrast, are directly affected by the monetary system of the currency involved. And interest has typically the larger influence of these two, which is the reason we focus on it here.

³¹ See detailed case studies in Lietaer, Bernard: *The Mystery of Money*, available in German under the title *Mysterium Geld* (Munich: Riemann Verlag, 2000) and Japanese (Tokyo: Diamond Press, 2001).

Some Key Megatrends of the Early 21st Century

"The modern crises are, in fact, man-made and differ from many of their predecessors in that they can be dealt with."

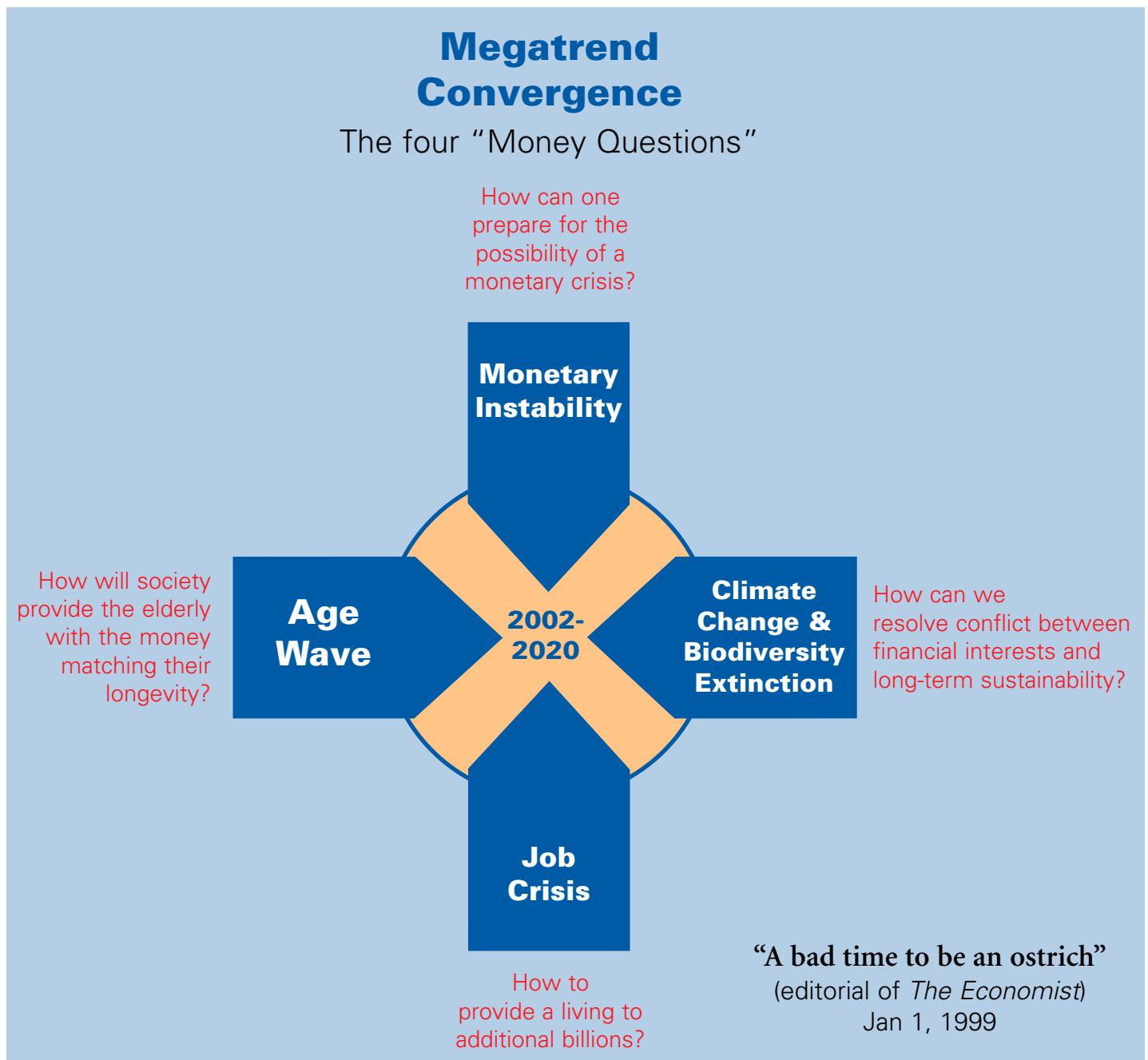
SECOND REPORT TO THE CLUB OF ROME ³²

There are four major megatrends, all four of them already well under way and intensifying over the foreseeable future, that together may force our societies to reconsider money. Only a short synthesis of the evidence of these megatrends will

be provided here, just enough to ensure that these issues are not passing fads.³³

It is also important to notice that there are projects under way that demonstrate different types of

Figure 7: Four Megatrends and their convergence by 2020.



social purpose complementary currencies can address each of these issues effectively.

Each of these megatrends will also be summarized in a straightforward "hard-nut money question" that will need to be answered one way or the other, by initiative or by default, over the next twenty years. A few words on each megatrend follow.

The Job Crisis

In 2001, we entered a simultaneous recession of all three major world economies for the first time since the 1930s. Japan has been struggling with a deflationary liquidity trap for a decade, ever since its real-estate bubble burst back in 1990. Europe's budding recovery attempts have all but collapsed after the high-tech and dotcom bubble burst in 2000-2001. Furthermore, the "stability pact" introduced to protect the new Euro against inflationary risks will now ensure that no Keynesian recovery solution is available there. Finally, in the US, overcapacity across the board creates the risk that stimulus packages will not necessarily provoke the re-investment patterns that can restart the economy. On top of all this, the September 11 events provided a suitable nail on the coffin of what we might well label "the roaring 90s".

All this comes in the middle of a much deeper, long-term trend of erosion of jobs. Even during the recent good years, it should be acknowledged that the world economy wasn't working for a majority of the people in the world. It was indeed during those "good years" of the late 1990s that employment specialist William Bridges quipped: "within a generation, our scramble for jobs will look like a fight over deck chairs on the Titanic."³⁴ The extent to which the writing is on the wall can be comprehended by statistics quoted by William Greider³⁵: the world's 500 largest corporations have managed to increase their production and sales by 700% over the past 20 years, while at the same time reducing their total workforce. Economists will correctly argue that productivity improvements in one sector tend to create jobs in other sectors, and that therefore "in the long run" technological change doesn't matter. However, nobody can claim that technological shifts are not generating massive displacement of jobs, fundamental changes of the qualifications required



to perform a function. If the changes are rapid - as is the case with Information Technology - such job displacements are just as destructive as permanent job losses.

Wassily Leontieff, Nobel Prize-winning economist, has summarized the overall process as follows: "The role of humans as the most important factor of production is bound to diminish in the same way that the role of horses in agricultural production was first diminished and then eliminated by the introduction of tractors."³⁶ We could let the horses peacefully die out, but what do we do with people?

³² Mesarovic, Mihajlo and Pesterl E. Mankind at the Turning Point: The second report to the Club of Rome (New York: New American Library, 1974).

³³ Detailed support is provided in The Future of Money chapter 1.

³⁴ William Bridges, author of Understanding Today's Job/Shift in a conference in San Francisco, 1995

³⁵ Greider, William: One World: Ready or Not (New York: Simon and Schuster, 1997; juxtaposition quoted in Success Digest March 1997

³⁶ Quoted by Rifkin, Jeremy in "After Work" Utne Reader May June 1995 pg. 54. Several of the examples provided above are also quoted in that article.

The issues of economic exclusion are likely to grow in importance over the next decade both in international debates as well as within each country's political agendas. And there have not been many good ideas forthcoming lately to address this burning issue.

Would it not make sense to look at the possibilities offered by transition tools like the 1000+ complementary currency systems that have proven effective at creating work in pockets of high unemployment in a dozen different countries? Those currencies clearly enable exchanges to happen that otherwise wouldn't have taken place. And for example, the UK government has already officially concluded that Local Exchange Trading Systems (LETS) are an ideal tool for such transitions.

Age Wave

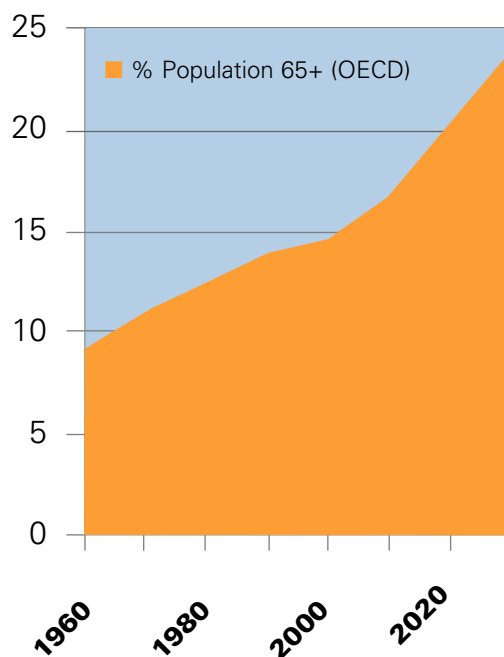
Japan isn't the only country that is going to have to struggle with the economic consequences of an aging population.

When Bismarck decided last century that 65 years was an appropriate age for retirement, the life expectancy in Germany was 48. So only about 2% of the people were expected to be able to enjoy those "golden years". For those who have visited Florida - where 18.5% of the population is now 65 years or older - this is the vision of our collective future. In the 1960s about 1 out of every 11 people was 65 or older in the OECD countries. Now, it is 1 out of every 7. The year 2000 was the point where this trend accelerates significantly (see graph in Figure 8)- and it is estimated that by 2030, we should reach one out of every 4 people.

There are lots of good things about this trend. For one, we all have a better chance than any previous generations to be part of this hallowed aging population. However, there is also one important unresolved problem: unfunded liabilities. These are benefits already earned by today's workers, but for which no reserves exist. Indeed, funds received by today's workers have been paid out as benefits to the currently retired population. These unfunded liabilities have now accumulated to \$35 trillion in the OECD countries alone ³⁷ (more than four years of the entire Gross National Product of the US economy).

Adding healthcare to these costs would more than double that figure. And even these staggering numbers do not take into account the future growth in the number of the elderly as reflected in Figure 8.

Figure 8: Population of 65 years or older (OECD) (1960-2030).



The following hard "money question" synthesizes the socio-economic dilemma that this Age Wave presents: How will society provide the elderly with the money to match their longevity?

The conventional answers to this question fall into two categories:

- The anglo-saxon (US and UK) solution: we'll just have to reduce the support level per person to whatever money will be available. And implicitly, this may mean that the "non-productive elderly" who haven't been able to accumulate privately the necessary funds, may just have to die a bit earlier.
- The German/Scandinavian solution: a promise is a promise. Let's go bankrupt trying to keep them...

³⁷ Data in this paragraph from Petersen, Peter G. "Gray Dawn: The Global Aging Crisis" in Foreign Affairs (January-February 1999) Pg. 46.

In contrast, the non-conventional solution is the Japanese one: let's create a new currency that will enable the elderly to remain much longer in their own homes, to complement whatever the national health care net supplies as funding. As seen earlier, this Hureai Kippu solution has proven not only more cost effective but also more humanly caring than either of the conventional solutions.

Of all future forecasts, demographics have proven among the most reliable ones. After all, the people involved are already alive today. The forecast here is that –as the economic consequences of the Age Wave grow in each country - there will be more and more that may consider the Japanese solution an attractive one.

Indeed, the real difference between the political attitudes in different countries may have less to do with disparities in national attitudes than one might think, and more with the relatively urgency of a political time bomb. The following list shows the year when the average population in particular countries will reach the "Florida benchmark" of 18.5% being older than 65:

Japan 2005
Germany 2006
UK 2016
Canada 2021
US 2023

Currency Instability

We have all heard of the big monetary crises of the past decade: Mexico (1994-5), Asia (1997-8), or Russia (1999). However, what is less generally perceived is that these are only the tip of the iceberg. According to World Bank data, no less than 87 countries have undergone a major monetary crisis since 1975.

Nor is this supposed to be the end of this trend, as two very different observers of today's money system testify:

- Paul Volcker expresses his concern about a "growing constituency for instability".
- George Soros claims that: "Instability is cumulative, so that eventual breakdown of freely floating exchanges is virtually ensured"

It is also a fact that under today's global geopolitical context, the likelihood of a fundamental change in the global monetary system is low.

As a consequence, isn't it logical that both corporations and local communities may want to set up back up systems just in case a monetary crisis hits the currency of their own country?

Climate Change and Species Extinction

It is well-known that ecologists tend to be professional pessimists. In contrast, biologists tend to be a little more level headed typically working for corporations and universities. That is why the American Museum of Natural History survey among professional biologists (not ecologists) is so striking: 69% of them claim we are now living the "sixth extinction". At current rate, they claim we are losing 50-70% of the planet's biodiversity within a time span of only 20 years to 30 years.

Meanwhile, the time horizon for most of our corporate decision-making remains focused on the immediate future. Even individual CEO's who make routinely decisions for their children with a time horizon of 20-30 years, complain that when they come to their corporate offices the relentless financial pressures force them to scale back their decision making horizons to one or two quarters. We have seen earlier in the tree metaphor that the deeper mechanism behind these pressures relates to the type of currency used for planning and reporting business deals. It should also be clear that rewarding longer-term thinking best ensures a sustainable future, particularly when compared with relying only on regulation or governmentally negotiated controls.

The relevance of this topic to this paper is to show one potentially important example of a currency innovation that could play a role in solving some major societal problems. Indeed, what can be done to re-align financial thinking with long-term concerns?

One proposal out of this dilemma is the Terra (Latin for Earth), a supra-national currency whose unique characteristics would make long-term financial thinking automatically rewarding, while assisting in stabilizing the world economy. Characteristics include:

1. The Terra is basically a standardization of international countertrade activities. A Terra would be defined as a standard basket of the most important commodities and services in the global market of the type for which futures markets could be established (e.g. oil, wheat, copper, etc., and some standardizable services such as Carbon Emission rights). Because it is fully backed by a physical inventory of commodities, the Terra would be a very robust unit. It could even become an international standard of value, something that has been lacking since the demise of the Bretton Woods system in 1972.
2. The Terra can be designed as an inflation-proof currency. Inflation is always defined as the changes in value of a basket of goods and services. Therefore, by selecting the appropriate ingredients in the basket, the Terra can be made inflation-proof by definition.
3. The cost of storage of the physical commodities in the basket would be applied to the bearer of the Terra (an estimated 3.5-4% charge per annum). This makes the Terra a 'demurrage' charged currency as demonstrated in the tree metaphor earlier. It would ensure that its use is mainly as a trading and planning device, as it costs the bearer to store or hold onto this currency. Notice also that these costs are not new – those same storage costs exist already today in the economy and are part of the costs of the goods and services purchased. What the Terra mechanism does is simply identify those storage costs separately and give them a socially useful function.
4. The Terra currency is complementary to conventional national currencies, operating in parallel to them, and without replacing them. Specifically, it wouldn't be used for financing purposes; only for trading, contracts and planning.
5. The Terra would be an ideal mechanism to re-launch the world economy out of a simultaneous recession. The reason is that during a recession, there is invariably a glut of raw materials, and raw material producers would have a strong incentive to exchange their excess inventories for Terra. The demurrage feature of the Terra would ensure that this currency is not hoarded but rather actively circulated. Therefore the additional liquidity in the form of Terra injected in the world markets would have a stronger stimulating effect than what happens with conventional currencies. In a boom period, when raw materials are scarce, the reverse would happen: corporations would tend to cash in the Terras to take delivery of the underlying raw materials and thereby cool inflationary pressures on the economy.
6. Last but not least, the Terra is a win/win mechanism for all parties. The raw material producers would benefit by reducing their storage costs; its users would benefit from having a more stable international reference compared to today's national currencies; and because of the standardization, countertrade transactions would become bankable just like foreign exchange accounts today (one could have Terra accounts and electronic transfers done by a bank, in contrast with today's countertrade transactions from which banks are completely excluded). Bank's credit portfolios, all other parties and society at large would also benefit from the counter-cyclical effects of the Terra mechanism, and the better chances of a sustainable future.

In short, the Terra would be an inventory receipt that can be used as a supra-national planning and trading currency. Its unique characteristics of being inflation-proof combined with the demurrage charge, would realign financial interests with longer-term concerns, thereby eliminating the conflict between financial concerns and long-term priorities.

Use of the Terra would automatically tend to counteract the prevalent business cycle, thereby improving the overall stability and predictability of the world's economic system. The development of a model of the world economy that would be able to measure quantitatively the counter-cyclical effects of the Terra mechanism is being planned by the IFO Institute, the well-known German economic research center.

The reason for mentioning this mechanism here is

to show that complementary currencies don't have to be necessarily small-scale social affairs. If implemented correctly they could potentially play a non-negligible role in a much larger economic arena as well. And, as mentioned earlier, a systematic incentive for long-term thinking can only be helpful in addressing some of the big issues that are looming beyond the horizon of the quarterly decisions of most business thinking.

In conclusion, all four megatrends described above are clearly not short-term phenomena that will miraculously evaporate after a political campaign flurry. Rather, we can safely predict that we are only seeing now the early phases of the pressures that they will exert on our societies over the next twenty years. Each of them separately will tend to contribute to a build-up of social and political stresses to look for new solutions to the dilemma they pose. Together, it is believed that they will manage to force fundamental questions about our existing money *modus vivendi*.

From a payment system perspective, what all this means is that the idea that value will continue to be transferred over the next twenty years exclusively through the existing national currencies should be questioned. This is not true today, and all signs are that it will become even less true in the long-term future. It might therefore be wiser to plan on a more flexible approach to currencies, and therefore to payment systems as well. This is what we will now explore in more detail.

VI. Implications for the Future of Payment Systems

*"The future is like everything else,
It isn't what it used to be."*

CHARLES KETTERING

Let us now synthesize in the form of an indicative calendar the impact of the five previous chapters for change in payment systems, and consider what would be their implications for: the future of society, for payment systems, and for the main actors in the payment scene.

An Indicative Calendar?

One can be reasonably certain that there will be massive and rapid changes in payment systems than has been witnessed to date in the history of payment systems. A rough chronology would run as follows:

- **Immediate (On-going changes):** information technology now makes it possible for new entrants to enter payment services, previously almost exclusively handled by the banking sector. This has already started happening particularly in micro-payments, in stored-value systems, and in retail Internet exchanges.
- **Over the next 3-5 years:** the juggernaut of B2B e-markets will force entire industrial sectors to switch simultaneously to integrated payment engines, a technology that will oblige changes not only in payment systems but also in back-office integration and interconnectivity in both the relevant sectors and in the banking industry itself.
- **From now to the next 10 years (partially overlapping with above):** a growing role for private currencies, both commercial (e.g. loyalty, and barter currencies) and social purpose ones. This will automatically increase demand for mixed payments (payments using both conventional and private currencies in a single transfer of value).

- **Over the longer-run (from 5 to 20 years):** switching towards a Knowledge Economy and meeting the challenges of the four megatrends mentioned in the previous chapter may require money innovations, which in turn will affect payment systems.

Implications for Society

One saying runs: "wars are too important to be left to generals." Some people believe that the same is now true for payment systems: it is an activity that has become too important to be left exclusively to bankers.

The present global economic downturn is an immediate motivation for trying to accelerate a recovery from the backlash against the "new economy". From what we know about previous major economic cycles,³⁸ the best way to reduce the length and depth of a major downturn is to accelerate the smooth transition to the new technologies and production processes that will replace the old infrastructures. Today, this means facilitating the changeover to digital and knowledge based societies. The sooner one would be able to revive investments and trust in efficient and fair e-markets, the better the world will be off. Those countries that will make those transitions first will not only shorten their hardship, but also position themselves as the leading post-industrial countries of the 21st century. And efficient, fully digitalized payment systems are a necessary - but currently a lagging - ingredient in this recipe.

³⁸ Such policies are relevant both to expedite Shumpeterian "creative destruction" processes, or the longer-term Kondratieff waves.

This is why the OECD report on the Future of Money claims: "There would probably be a fairly high pay-off from a more rapid transition, particularly in terms of encouraging the emergence of an Internet-enabled global knowledge intensive economy. An important current reason for an activist stance is that governments need to find ways to support the creation of worldwide markets that facilitate inclusion and participation. Looking to the longer-term, by pushing for policy breakthroughs in this [payment systems] domain governments can make a major and timely contribution to bringing the monetary system into closer alignment with changing socio-economic conditions. By doing so, there is a good chance of both reducing the costs and expanding the benefits of the fundamental economic and social transformations under way. The primary method for implementing this goal [is] to accelerate the development and diffusion of economy-wide instantaneous clearing and settlement methods, similar to the ones that have been taking over in the sphere of inter-bank transactions." ³⁹

Similarly, the megatrends described above are not only "social issues", but they are likely to reshape the political agendas over the coming decades in many countries around the world. One expert's view is that just one of those megatrends will be sufficient to have this effect: "Global aging will become not just the transcendent economic issue of the 21st century, but the transcendent political issue as well. It will dominate and haunt the public-policy agendas of the developed countries and force renegotiations of their social contracts." ⁴⁰ The convergence of all four megatrends over the next twenty years is certain to create pressures the likes of which our societies haven't seen for many generations. On a longer-term basis, it is not only payment systems, but the very concept of money will need to be revisited for the first time in several centuries. The creation and support of worldwide markets that facilitate inclusion and participation for a majority of mankind may only happen if one is willing to take those extra steps.

In such a context, even as powerful an interest group as the banking system could continue to slow down the changes in payment systems to protect the status quo only at its own risk. Fundamental changes in payment systems will

happen, with or without the banking community's support or initiatives. The OECD specifically considers this as a fact: "Initial resistance may be expected from banks and other intermediaries that generate significant revenues from the delays and service charges that are associated with physical cash and near cash instruments, usually in the context of rather antiquated clearing and settlement systems. Digital systems can drastically reduce many of these transaction costs, including the time it takes for checks to clear, the service charges added to foreign exchange activities, and the expenses incurred trying to stop criminals from both stealing and using cash. Faced with the advantages of digital money there is a good chance that the champions of change will at least get the ball rolling." ⁴¹

In a nutshell, the time may be ripe for a major policy review in payment systems.

Some Recommendations for Payment Systems

The pragmatic recommendations that flow logically from the various findings of this White Paper fall into six main categories:

- Strategic redefinition of Payments
- Organizational Changes within the existing systems
- Operational Changes within the existing systems
- Pricing and Marketing
- Switching from a Closed to an Open-system Strategy for new systems
- Design Flexibility

The extent to which these recommendations apply to any specific country or payment system will of course vary, depending on its own history and current situation. But together, they may provide a check-list of issues that may be worth considering.

³⁹ Miller, Riel; Michalski, Wolfgang & Stevens Barrie: "The Future of Money: An Analytical Synthesis of the Discussion on the OECD Forum for the Future" (OECD: Luxemburg, July 2001) pg 10.

⁴⁰ Petersen, Peter G. "Gray Dawn: The Global Aging Crisis" in Foreign Affairs (January-February 1999) pg. 43.

⁴¹ Miller, Riel; Michalski, Wolfgang & Stevens Barrie Ibid pg. 12.

Strategic redefinition

Payment systems are typically designed today to transfer only national currencies within closed networks. The first key strategic redefinition is to design systems that transfer value, not only dollars or other national currencies.

This implies not only the capacity of transferring value in currencies other than the national currencies, but also to transmit mixed payments. The following two vignettes illustrate situations that could happen today, but whose frequency will increase over the foreseeable future.

- Your daughter is stranded in China and has lost her bag with her money and airline ticket. You want to immediately send her some dollars and frequent flyer miles so that she can safely return home. You send her a secure email to her Personal Digital Assistant that includes both value transfers. Or is this transfer happening through her mobile phone? Or do you expect that both still would have to scramble to queue up first at the American Express or Western Union office, and then at the airline?
- United Airlines closes a deal with CNN for five advertising spots against the corresponding value of airline seats for their news crews. This means transferring \$280,000 worth of barter credits, and a cash balance of \$30,000 in normal dollars. Do they call their banker, or their barter company? Or do they still have to call both separately, and then have a manual reconciliation of the two payments because these two payments correspond to a single remittance document?

Organizational within the existing infrastructure

Given that payment services are about servicing the client base, it might make sense to have people who actually represent them on their supervisory or advisory boards. A representative of the corporate world, of the retail sector, and of the average consumer could bring a voice in the decision-making of payment systems that today is rarely heard in such environments. For banks that feel that the unbanked/excluded should be

the responsibility of the banking system, and not the government's, an advisory position for a representative for this sector of society might also be considered.

Operational within the existing infrastructure

There is a great deal that the current payment systems could do to start addressing some of the problems arising from the current modus operandi, and thereby start shaping up for the future. Even within the existing environment and infrastructure, there are indeed substantial opportunities to improve the standards of payment services.

One of the obvious improvements is increased speed, sometimes even at delivery costs lower than current procedures. There are currently many examples operational around the world with rapid clearing and settlement procedures. For example, Canada encodes checks electronically, and most banks allow consumers immediate access to deposited checks. For decades, Belgium has been successfully using check truncation with electronic image retrieval of the original check for the few cases when a copy of the original document is needed for legal purposes. Specialized outsourcers for check processing (e.g. EDS or iPSL) could play an active role in improving efficiencies across the industry by accelerating the introduction of image archiving, truncation, and faster check clearing cycles. Similarly, purely electronic transactions, such as direct debit card transactions, could be expedited. And even without real-time payment procedures, netting could occur more than just once a day.

For Internet transactions, digital wallets could store the various credit or debit card numbers, expiry dates, billing and shipping addresses and other authentication data if needed, and transmit them securely encrypted on the Net. In addition, the more flexible forms of such wallets can store multiple cards in the same application, allowing the customer to choose different cards for different transactions. Small value purchases could be done on debit cards, a larger ticket item with a credit card, and airline mile accounts when they are relevant. Such service would be much more convenient for the consumer (one electronic wallet

instead of a lot of different cards); for the retailer it gives the same service as the Amazon.com one-click shopping tool; and it is more secure for both.

Even for B2B applications, some improvements are possible within the existing framework. For example, for many business deals instantaneous confirmation of a transaction can often be even more important than instantaneous settlement. Corporations could also give permission to the clearing exchange for automatic direct debit from specific accounts within some parameters of amounts and receivers (such as employees and regular suppliers); so that this would enable a direct credit to payees. All this could happen without further manual intervention, and within the existing procedures of direct credit transactions today.

Pricing and Marketing

We can expect significant changes in pricing policies over the next few years, probably more spectacular changes than what has happened in decades. They will be the result of:

- either governmental regulations (like what happened in the UK as a result of the Cruickshank report, or in continental Europe through European Union intervention);
- or banker's reactions to specific moves and pressures from competition;
- or – as happened in Norway and is recommended here – as part of a fundamental policy revision in the cost models employed by the banking system itself.

The time for a return to truth in costs and pricing may indeed be nearing. The current patterns of cross-subsidization are so pervasive that even bank management itself may not know where costs and revenues are really being generated in payment systems. Particularly perverse are attempts at recovering costs on legacy paper based systems (e.g. checks) by penalizing the cheaper electronic delivery mechanisms. Such policies give the wrong price signals to users, promoting the older, inefficient systems that are not favorable for the banks themselves, and that ultimately the consumer has to pay for as well, even if it is through the back door.

Some of the best bank cost studies relate to Norway, where direct costing of the payment transactions has been implemented for more than a decade, with electronic payments having a much lower fee due to their lower costs. This price incentive was sufficient to raise the share of electronic payments from 10% in 1987 to 60% in 1996.⁴²

Of course, it would be counterproductive from a marketing perspective to use this "truth in pricing" policy as an opportunity to try to increase overall payment costs. For instance, if checks need to be paid for, it would be important to simultaneously offer access to much cheaper electronic payment means, and cut other service fees that were historically justified as a way to recover the costs of the free checking service. A consumer backlash can be avoided only if true transparency in costs and fees are part of the marketing and incentive pitch, and if taking advantage of new efficiencies reduces the total payment system costs.

From Closed to Open-system Architecture

Today's payment systems are purposely designed as closed systems, both technically and organizationally. The historic rationale for this was that strictly closed systems improved security. But this rationale has also excluded agents of change that might otherwise have upset the existing status quo. Today's digital security technologies have reached a level of sophistication that would enable the implementation of an open electronic architecture for payment systems that actually would strengthen the security level rather than weaken them compared to today's practices. Even the military operate with Open Systems architectures today.

It is certainly technically possible today to implement platform-independent international standards for payment systems that would be fully interoperable. The first step would be to design a standard for cross-border payment transactions. But this standard should be conceived so that it can apply for domestic payments as well, to encourage countries to opt for using the global standard domestically.

⁴² Humphrey, David B., Lawrence B. Pulley, and Jukka M. Vesala. Ibid. pg. 25

An open architecture standard is what was accomplished for the Internet itself when one platform-independent standard of communication (the TCP/IP) enabled the remarkable flourishing of a wide range of connectivities, applications and types of users that today characterizes the Net. For payment system standards, additional criteria would of course have to apply:

- ensure both privacy and universal access through mandatory technical standards, combined with legal protection and recourse for users;
- ensure the necessary transparency and authentication to avoid wholesale tax avoidance and improve control over illegal activities;
- inspire trust to its users worldwide;
- provide an appropriate role for monetary authorities so that monetary aggregates can be monitored.

As pointed out by the OECD Forum for the Future, the toughest challenges in designing such open international payment standards are not technical, but institutional. In this domain, like in many others, it is the weakness of international political institutions and processes that limits the governance capacities required. One needs to be able to strike the appropriate compromises and resolve potential conflicts between countries, and between different commercial interests, while protecting society's future needs. But, exactly as is the case already in domains like international trade, the global environment or international justice, such challenges can and are being addressed, specialized institutions created, alliances built. It certainly hasn't proven smooth sailing, but progress has nevertheless been made in all these fields. The question of which existing or new international institution(s) should take the lead in such issues falls beyond the scope of this paper.

Design Flexibility

Meanwhile, what can today's designers of payments systems do?

The one thing that this White Paper hopes to have made clear is that almost whatever a payment system designer decides independently

today is probably going to be challenged or changed in a not too distant future; at least until we have universally acceptable platform-independent payment standards.

In such an environment, flexibility in design is the key towards a less expensive adaptation to future requirements.

At the very minimum, an inexpensive precaution is to design standards with built-in adaptability. For example, instead of designing transactions that automatically assume that your payment system will deal only with national currency, one can easily include extra data fields in payment data bases and transaction designs, such as:

Type of Currency	Example of Issuer
National	US Federal Reserve
Frequent Flyer Miles	American Airlines
Barter Dollar	Mitsubishi
Corporate Scrip	Microsoft-Barclays
LETS	Manchester LETS

Whose Initiatives?

Change in payment systems is certain. But what is a lot less certain at this point is who will play the role of the orchestra conductor for such massive changes. For some of these recommendations, such as updates in existing systems, the only logical agents are today's Boards of the existing payment systems themselves. But in other cases, the answer is less clear-cut. The key actors could be:

- **Governments?** Both the Cruickshank report for the UK and the OECD Forum for the Future recommend that the time for governmental intervention has come. Payment systems have become critical for a country's international efficiency of e-commerce. They both claim that the privileged position by the banking sector on these services is serving the public interest less and less. Concerns about the possibility of an "economic Chernobyl" if the security standards of electronic money are too lax provide another type of motivation for governmental regulation.
- **Competitors?** Telecoms, utilities, supermarkets, e-businesses, B2B alliances, technology vendors are all potential candidates to muscle into the juicy markets of payment system. In the other direction,

some banks are planning to provide themselves with platforms for specific e-markets, and thereby enlarging their role as a financing institution operating in an increasing e-commerce world. In such an environment, the most effective actors are probably going to be alliances between several major players whose strengths complement each other. Interestingly, some of these alliances may include banks as well as telecommunications companies. After all, the destiny of telecoms and some major banks are now more deeply intertwined than ever before because of the massive financing commitments for the purchase of Third Generation licenses. Ironically, because of the very size of their financial commitments, the banks now have also a vested interest in the success of telecoms. Over time, what is pretty sure is that joint ventures around integrated payment engines and more efficient payment systems in general will tend to further blur the shape and role of each participant, be it financial or non-financial. This would be a simple extension of what already happened as brokers, supermarkets or e-business providers sometimes become bankers.

- **Banking System?** Most observers, as was stated above by the OECD, would give this third option the lowest probability. Nevertheless, the banking system is also the one that has the most to lose if they hold onto their current strategy of trying to protect the status quo. As it is pretty sure that fundamental changes will happen anyway, with or without bank involvement, banking leaders may actually have an incentive to take the bull by the horns and deal with it in their own terms. To use another metaphor: switch from pushing on the brake to pushing on the accelerator. Why they may want to consider such an option is the topic of the next section.

Implications for the Banking System

Payment systems issues have rarely emerged as agenda items in Board meetings of major financial institutions. This may be a time to make an exception. Indeed, both short- and long-term considerations may justify a re-visit of payments

as a significant policy issue.

To begin, one should first take one step back from payment systems, and note that banking itself is in the middle of its biggest transformation in its long history.

Changing Banking

In his classic book, *The Bankers* (1974)⁴³, Martin Mayer recounts the following true story. A man was honored for 50 years of loyal service to a Virginia Bank. At the party celebrating his long service, he was asked what he thought had been "the most important change that he had seen in banking in this half century of service?" The man paused for a few minutes, then went to the microphone and said "air conditioning." In his 1997 follow-up book *The Bankers: the New Generation*, Mayer notes: "Twenty years later, this story is prehistoric. It's still funny, but it's incomprehensible. In these twenty years, banking has changed beyond recognition. ... Almost nobody who has a job in a bank today works as his predecessors worked as recently as twenty years ago."⁴⁴

Banking has indeed changed more in the past 20 years than it has in hundreds of years. The 1970 US bank holding company law still defined a bank as an institution which "agglomerates the transaction balances of a community to lend it at interest to its commercial enterprises," a definition quite consistent with Adam Smith's two centuries earlier. It is also, at its core, the same "banking" business that the Babylonians and the Italian goldsmiths had started when they too gathered local savings and lent them out to businesses for a fee.

Today there are few such banks. Most surviving banks are involved in different businesses, with products like credit cards and financial services as their mainstay. By 1996, almost 85 % of the US banking industry's resources came from sources other than insured deposits.

Mayer believes that in the "olden days" of 20 years ago, "banks used to fancy themselves as advisors to their clients. In reality, they simply took advantage of the monopoly they had over financial market information." When the first wave of information technology made it possible for anybody to have direct access to financial market quotes, the ground shifted under their feet.

Many corporations used this access to issue their own commercial paper, bypassing the commercial banks in the process. The largest financial lender in the US today is not a bank; it is General Electric Capital that completely finances itself without a penny of bank loans.

Banks that tried to protect the old business lines did not cope well with this massive change. Since 1980, over one-third of US banks have merged or disappeared in the turmoil that ensued. Even those that remain have shrunk their staff dramatically.

Now, those remaining banks are facing the second wave of computerization that has just begun - the Internet revolution. And this entire White Paper explored in fact only the implications of this second wave for payment systems. But the impact of this second wave runs deeper than just payment systems: it can already be detected in all aspects of banking. For instance, in Australia the branch network of a bank used to be the origin of 93% of all sales revenues for banking products as recently as 1991. Nine years later, branches account for only 24% of such sales revenues (see Figure 9). What has been picking up the difference is marketing channels that are all less brick-and-mortar bound: mobile systems, external originators (brokers, life agents) and mail and telephone driven transactions. So if this data is representative of a general trend, banking itself seems to be shedding its last vestiges of materiality. In such an organizational context, would an open-system, interoperable payment system not be more cost effective even for the banks' internal operations?

From a policy level also, is there not something to be learned from the impact on banking of the first wave of computerization depicted earlier?

In payment systems too, banks have until now simply been taking advantage of their privileged information access. Now again, information technological shifts make it possible for some agents to short-circuit the banking system. And here also, those banks that simply try to protect the status quo may be left hanging with little to show over the long run. Could there not be a better way?

Let's look at another possibility.

Switching Payment Strategies?

What if banks took the initiative in designing the global open-system payment standards? What if banks became the leaders in breaking the molds of the old patchwork of payment and settlement systems?

Yes, by doing so they would run the risk of seeing the time period when they can enjoy the old benefits of the existing payment situation cut by a few years. But what would they gain in exchange? Is there not another side to this balance sheet?

There are indeed three types of arguments on that other side:

- Protecting key existing assets of the banking system;
- Strengthening their customer base;
- Reducing existing costs and generating new types of income.

Protecting key assets

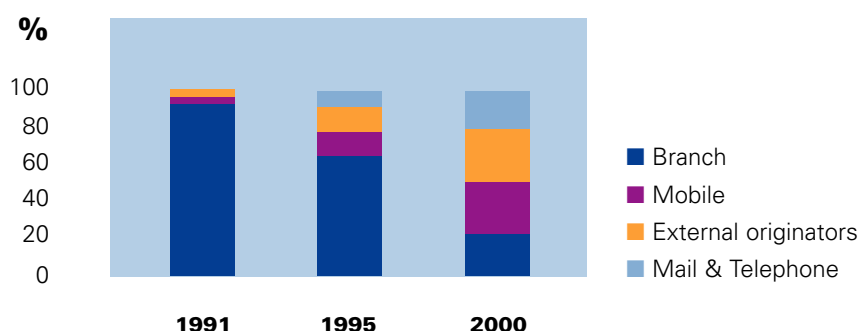
A bank's most important asset in an information age, a trusted brand name, would be protected and enhanced in such a strategy. If the changes are the result of a struggle between governments and international organizations on the one side and the banking system on the other, where the banks are seen as protecting legacy systems and out-of-date fee structures, this is likely to provide a field day for the media. In the summer of 2001, the spats around the fee structures for Euro transfers gives a foretaste of things to come. How many countries may end up producing a report similar to the Cruickshank one for the UK?

The image of banking and banks doesn't tend to come out favorably in such episodes.

⁴³ Mayer, Martin *The Bankers* (New York: Weybright and Talley, 1974) pg. 16

⁴⁴ Mayer, Martin *The Bankers: the New Generation* (New York: Truman Talley Books/Dutton, 1997) pg. 16 and 19.

Figure 9: Proportion of Sales Revenue for Banking Products by Marketing Channel (Australia, 1991-2000) Source: Australian Payments Clearing Association



Another key asset is privileged customer relationships. The fact is that the vast majority of consumer current accounts are now with banks, and most new payment systems will have to - at least initially - debit funds from consumer's existing bank accounts. By playing a leadership role in payment systems, the banking system would build on this strength to keep the new patterns of cash flows within the banking system. The alternative is that - just like already happened in savings accounts migrating to financial service companies - there will be a migration of current account deposits towards the new service providers.

The nightmare scenario for banks is that - based on current strategies - they will retain ownership of a huge legacy payment infrastructure (and therefore remain responsible for its costs and socio-political liabilities), while losing the front-end customer relationships.

Strengthening the customer base

Banks in many countries are conducting expensive public relations campaigns to try to broaden their customer base. For example, aiming for the younger generation to open their first bank accounts. Most kids don't have a bank account, but almost all have a cell-phone and use it extensively.⁴⁵ Where do you think their loyalty will go when their phone company provides electronic payment services while the banks are still pushing them to open a checking account? There is also a growing political awareness of a technological underclass, people who are effectively excluded from the world of fast and cheap payments, and that will therefore be excluded from

much of the economic activity in the world. Some potential payment systems providers are talking about a radical solution to this economic exclusion problem: that every member of society has the automatic right to an account on their system. Banks in their current expensive legacy framework would not be able or willing to match such an offer. Where does that leave them?

Reducing existing costs and generating new income

The Achilles' heel of the existing payment system is its fragmentation and built-in inefficiency, so that the costs to the banks themselves for delivering payment services are abnormally high compared to what can be delivered with available technologies. This problem can only be solved in one way: by the banks replacing their legacy systems with more up to date ones. The more there is a delay in realizing the importance of this problem, and the urgency of this solution, the more vulnerable the banks' position in payment systems will become. By taking the initiatives on designing internationally compatible, open-system, platform-independent payment standards, they would keep the full advantage of their existing client base, while benefiting from the new more efficient, low-cost service capabilities. They would also be able to ensure that their own transition from the old to the new standards can be performed cheaply, and on their own timing. This would not be the case if other organizations end up playing the role of new standard designers and implementers.

Taking the initiative of reforming payment systems would not only structurally reduce a bank's operating costs, but also generate new revenues by

strengthening its role in electronic commerce beyond simple clearing. For example, authentication will become an important and high-value function in future fully-electronic open-system payment systems. The initiative by a group of major financial institutions to create Identrus, a global electronic authentication service, is proof that there is a growing awareness about additional income from such new services.

Such new incomes may not replace lost ones in the immediate future. But the benefits of the status quo are only going to remain available short-term, while all the advantages are valid long-term. Another relevant dimension: most of the investments in the legacy systems are sunk costs, while the incomes are new and unencumbered. The ultimate trade-off will have to be made by each banker's own cost-benefit analysis.

Banking on Sustainability⁴⁶?

Particularly for those banks that would be willing to consider such a "jump into the future" option, some broader possibilities are also available. Payment issues are indeed only a small part of a much broader societal turning point in which we are currently engaged.

There is a consensus growing worldwide that the "business as usual" model of development is not sustainable. There are three types of sustainability that are relevant here: social sustainability, political sustainability, and finally ecological sustainability. Bank assets will not tend to fare well if there is a collapse in any of those three areas.

What if banks decided to support the social innovation complementary currency movement?⁴⁷

What if some of them decided to co-design a sustainability promoting currency like the Terra mechanism described earlier? What if banks became the moral authorities not just on keeping money but also on sustainability?

Some may consider such possibilities a very long shot indeed. But after all, what will be the value of money if sustainability –social, political or ecological - breaks down?

Who can argue that a sustainable economy and world would not be better for banks as well as for the rest of society, in view of the alternatives of an unsustainable one?

⁴⁵ At least in countries where cell phone penetration has been successful. The one major exception is the US, where network fragmentation and unenlightened pricing strategies have kept cell-phones as an expensive emergency solution, rather than a life-style possibility.

⁴⁶ Title of an unpublished manuscript by Dr. Michael Jackson. It is a novel describing the fate of two financial institutions over the next twenty years: one which sticks to the narrow definition of its role as "optimizing stockholder's value", compared to another that broadens its responsibilities to include in addition as stakeholders its clients, the community and the world environment. I don't want to betray the outcome, but you can try a guess...

⁴⁷ Some local banks are doing this already. For example, the Bank of Ithaca, New York, is providing such services for the Ithaca Hours, the local complementary currency system. Similarly, some Hypovereinbanks in Austria are opening local currency accounts.

VII. Conclusions

*"History is a race between learning
and catastrophe"*

H.G. WELLS

The standards applicable to large value transactions today will become the general standards of operation in payment systems, and at a fraction of today's costs. This means instantaneous money transmissions and settlements, with real-time interest accruals. In this process, familiar practices like the use of settlement days, daily interest computations, "spot" foreign exchange transactions, and the ubiquitous delays generating float and fees at every point of the payment process will go where the manual accounting originally justifying them went a long time ago.

This is not going to happen instantaneously, but by successive waves of applications.

There is already an ongoing variety of business to consumer e-payment innovations. But the juggernaut of integrated payment engines for business to business e-markets will be a much more demanding issue that will break in the open over the next 3-5 years. In addition, the appearance of private currencies, both commercial and social, will end the long-standing assumption that value is being transmitted only through national currencies.

The speed and breadth of such changes will also depend on who will initiate them.

For the first time, both governments and a new breed of competitors are readying themselves to get involved in payment processes that used to be exclusively a banking sector prerogative. This paper argues for a pro-active - as opposed to the currently defensive - strategy by the banking system. It also recommends a strategic redefinition of the payment function in terms of transferring value instead of only national currencies; identifies the organizational and operational improvements that can be made in existing systems; and highlights the changes in pricing, in system architecture and in transaction design for future payment systems.

About the Author

Bernard A. Lietaer has had twenty-five years of professional experience in money systems, from an unusually wide variety of perspectives. For fourteen of those years, he was a professional management consultant working with multinational corporations, banks and governments on four continents. During five years, he was President of the Belgian electronic payment system, identified at the time by the Bank of International Settlements (BIS) as the most comprehensive and cost effective of such systems. While at the Belgian Central Bank, he was one of the co-designers and implementers of the ECU, the convergence mechanism that has now led to the single European currency. He was Professor of International Finance at the University of Louvain, and general manager and currency trader for the Gaia Hedge Funds, whose main fund during the time of his management was ranked by Micropal as the top performer of the off-shore currency funds and of all 1800 off-shore funds. He is the author of nine books, written in four languages. The most recent of those are "The Future of Money" (London: Random House, 2001) and "The Mystery of Money" (Munich: Riemann Verlag, 2000), as well as a youth book "Die Welt des Geldes: das Aufklärungsbuch" (Würzburg: Arena Verlag, 2001).

