SWP 32/90 ELECTRONIC DATA INTERCHANGE: THE LONGER TERM EFFECTS ON INTERNATIONAL TRADE - THE EFFECTS ON THE FINANCIAL SECTOR

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ELECTRONIC DATA INTERCHANGE:
THE LONGER TERM EFFECTS ON INTERNATIONAL TRADE

Introduction:

This series of working papers has been prepared as part of the early work in a new programme of research, based at the Cranfield School of Management. The topic for research is the "Longer term effects of Electronic Data Interchange" on business, in the United Kingdom, Europe, and elsewhere in the world.

Contents:

Seven working papers are available, as follows:

Topic	**Date**
Glossary of EDI terms and acronyms	18th July 1989
EDI: Technical Opportunity or Business necessity?	18th July 1989
Survey of EDI users and service providers in the UK	October 1989
An update report from the "EDI '89" conference in London	6th November 1990
EDI and advanced information processing - the way ahead	15th September 1989
EDI Standards and the Single European Market	11th September 1989
The effects of EDI on the financial sector	18th December 1989

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Introduction

This working paper is primarily concerned with the banks, but the insurance markets and to some extent the legal issues tend to affect consideration of financial services, of course. The main consideration here is the banks but there is some reference to securities trading and to insurance.

The banks are not visibly involved with EDI at the same level as some of the commercial sectors but they have not been idle. There are many ideas circulating within and around the banking community and it is very likely that the banks will be instrumental in giving EDI credibility in areas where it is not yet recognised, and in taking forward the design, implementation and provision of EDI related services. They seem to be more concerned with services which relate to "real" business transactions rather than to the securities and commodity trading markets, but this needs further research.

Background to systems in the financial sector

The banks:

The banks were amongst the very first to recognise the importance of information systems in helping them to save money and operate more effectively. Their early commitment to large conventional batch systems has hampered the development of systems, however. Having made enormous investments in large, complex systems the banks were then less able to move forwards than other later-starters and there is now evidence that commercial organisations that have always been dependent upon the banks for financial services are able to consider doing without them; indeed, there is some antagonism towards the banks for their lack of attention to the customers' detailed needs (for example in the UK it has not been normal to receive details of entries in bank statements for more than 20 years: this is clearly not in the customers interests and was originally introduced when the banks started to mechanise statement production in the 1960's) and some people would say that the banks are now defending their market position rather than continuing to enlarge it.

Thus the banks (in the UK at least) are very worried about the network suppliers taking over a significant proportion of their clearing business by the use of settlement systems and - following deregulation of the banking and financial services sector - they are also concerned by the ease with which other institutions have been able to encroach upon their traditional markets and put their business under threat. The principle of "disintermediation" (the removal of redundant elements in a trading value chain) is widely seen as putting "middlemen" (distributors, wholesalers, factors and agents) at risk; the principle of integration puts the banks and other supporting parties at risk - in building integrated systems that thread right through whole industry chains we begin to see the banks and other secondary organisations as an impediment and not as a help.

Other financial services:

Clearly other areas of financial service such as credit cards, insurance services, loans and hire purchase are also potential beneficiaries from EDI. Credit card services are of particular importance because there is high volume and some time dependency; the other areas may have volume but are not necessarily time critical.

The fact that in history the financial services areas have been heavily regulated and segmented has masked the dependencies that exist between them. When we buy a car we might see an insurance policy, a loan and our cheque account as being entirely separate but they are all only there to facilitate the acquisition and use of the car and other capital-intensive items which represent a significant investment. We are really only interested in the item, and we merely put up with the multi-faceted nature of the financing and insurance of the car as a necessary evil. There is probably a much brighter future than this.

The financial markets:

Trading in stocks and shares as well as in commodities is now a 24 hour world-wide business. At the moment there is little recognition of the potential for EDI in this area, probably because it is already fairly well served by special-purpose dedicated networks and services. This area continues to get special attention, for example the imminent new services from Reuters which will offer "blind" dealing world-wide, with full security, and with quick settlement. Where this trading needs to be done in truly open markets (perhaps at the point of the end-customer or investor, then EDI will take an increasingly important role. At the moment it is something of a specialist area. Many of the transactions are not related to anything tangible in the "real" world, and the business is rather more fluid and potentially unstable than traditional commercial trading.

The nature of financial transactions

The notion that the financial arrangements relating to a transaction (whether the purchase of a car or anything else) can be seen as a whole and not as separate is novel but very current. Any study of EDI centred on commercial trading transactions quickly embraces information about banks, agents, brokers and insurers, and the only attitude that makes any sense is to look at the transaction and everything that goes with it as a single "whole". Money is just a means of facilitating trade and many of us would really rather do without it! Handling many different sums of money and dealing with many parties in the matter of a single transaction is an overhead that we could well do without. Financial dealings are therefore in the background and just facilitate something much bigger - a real-world transaction. To see the whole transaction more clearly would help all concerned: the purchaser, the supplier, the financier, the regulatory bodies (such as customs and excise) and even management, all leading to better control, auditing and security.

There is a good example of this in Scandinavia. A motor car manufacturer has co-operated with a bank to deal not only with the transaction as a whole, but with the whole manufacturing, distributing and retailing chain as a whole. each car that is manufactured is financed by the bank individually before it is built. When it goes out to the dealer networks the financing arrangements are adjusted to reflect the dealers' interests in the product, and then when the car is sold to the end customer the leasing or financing is again handled by the same bank, quickly and without any need to re-enter bulk data and risk errors and costs. This means that the bank is substantially involved all the way along the chain and the cost of initiating and closing arrangements with many different financiers is reduced greatly. The chain is also "locked in" to dealing with the one bank: because the bank makes it all so easy none of the parties involved feel any real pressure to go outside the chain and introduce other parties on an ad hoc basis. This is an example of a bank which took an imaginative viewpoint and worked hard to share the benefits with its customers. Indeed, it probably turned one or two potential customers into regular and committed customers.

In other cases non-bank organisations that are aware of information systems and their potential are taking over from the banks. Retailing groups are making arrangements to settle with their suppliers directly thereby avoiding the costs of processing thousands of invoices. They are offering financial services to their retail customers which make for a better quality of service and further detract from the influence and revenue-earning potential of the banks. In the UK, building societies and hire purchase companies are extending the range and nature of their products and services. All around, the flow of information through businesses is become more tightly integrated and automated. Where the banks are not involved this is bad news for the banks; where they are involved they can take great advantage and put themselves in a position to greatly improve the scope and potential of their banking business.

This leaves the question of the financial securities and commodities markets. At this stage there is little evidence that they are other than completely dedicated to their own networks and quite separate from the commercial activity that uses the EDI networks. However, if and when there is a more open approach to securities and commodities trading then EDI might be a factor, and more practical connections with real-world events might be established. For example, commodities trading which is originated by the commodity consumer or provider, and managed on long time scales as a single investment (or as part of a single investment plan). Or, trading in stocks and shares which is particularly related to a single portfolio or investor, and identified as such in the trading data. At the moment this is all handled through brokers and agents, but (as in the case of commercial trading in manufactured goods and services) anyone who is in a brokeraging or agency role is (at the same time) at serious risk of losing business because of EDI and disintermediation, and presented with the opportunity to take advantage of EDI and to share the benefits with their customers.

The state of play

It seems then that there is as much EDI initiative in the commercial sector as there is in the banks, and that some sectors such as the securities markets are separate and dealing very much with their own affairs. There are hostile attitudes to the banks in the UK (quite evident for example at EDI'89) and one simple analysis is that the banks are falling behind and might be at risk. There is some dissatisfaction with the securities dealing systems also, where it can take months to receive settlements of deals that are done in some of the electronic markets.

In taking stock of the position of the banks, one needs to take account of their existing level of experience and competence and to recognise that they are in a position to invest heavily and quickly if they wish to. Their technical and management staff seem quietly confident that when the time is right they will move in and re-establish their grip on the financial services sector.

There are many examples of pre-EDI communications links within the banking area, of course; for example BACS in the UK and SWIFT at the international level. Although these systems might lack some of the generality and flexibility of true EDI systems the banks are under no illusion what it is like to implement communications facilities and to adapt a large ponderous organisation in order to take new technologies on board. There are still very powerful arguments for dealing with the banks as expert organisations which can provide great economy. For example at EDI'89 figures (from the USA) were quoted which suggested that if we are willing to pay the bank $1 they can save us $28 by reducing errors and by processing financial data more accurately and securely: at the level of simple economics there is much to be gained. This reflects or even amplifies some of the cost-cutting arguments that are evident in many commercial case studies.

There is some on-going work supported by the banks dealing with message standardisation - message types include

- Payment order
- Extended payment order
- Credit advice
- Extended credit advice
- Debit advice
- Remittance advice
- Multiple payments
- Direct debits
- Statements

and others. This is only the first stage, though. When the cost savings of message standardisation have been achieved, and when we have tinkered with our businesses to make them one or two degrees more effective, there is still the question of whether we need the business at all, and whether we are able to take completely new business initiatives which - based in EDI - will take us forwards into a new world with new opportunities develop products and to earn revenue? The mundane stuff of EDI in banking is important for routine volume business but it is not going to change the way we do business. Where are the proposals to do without debits and credits altogether? Where are the proposals to do without statements and to provide open access to our debit and credit histories? Where are the proposals to combine banking services with regular, fully integrated finance management services? They are there somewhere, but early experiments are still somewhat limited and the barriers to thinking are not universally displaced. There will come a moment when more adventurous banking and financial services will become acceptable and expected, and that is the time when those who are ready will move in and take all the benefits.

The London insurance market is very concerned to provide substantial benefits to its customers and has clear strategic intentions to preserve its world-wide position. It may be here that some early examples will be seen. Following is an extract from Working Paper 6.2 (which reports on the EDI'89 conference) which explains the state of play in insurance and within the banks:

> Insurance
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> LIMNET and RINET
> (London Insurance Market Network and Re-Insurance Network)
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> These network development programmes are now well under way. There are question marks over the emergence of two different networks (although it can be argued that they are aimed at different segments of the insurance business); users have already said that they do not want many different screens on their desks, nor do they want to learn several different system-user interfaces. LIMNET is seen by its sponsors as providing:
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> - an EDIFACT-compatible service based on
> - common systems and services,
> - to maintain London's position in the world insurance markets,
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> and the project is getting all parties involved. As well as providing EDI facilities for structured transaction data it is providing electronic mail facilities as a substitute for telex.
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> Although the benefits at the risk-placing stage are marginal, the key feature of these UK developments is that it will be possible to settle claims within 12 hours. Thus the LIMNET mission is as much (if not more) about customer service than internal efficiency. The core facilities of LIMNET should have been available by now but there are delays. Additional extended facilities will be made available over the next year or two.
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> Banks
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> The banks are in an interesting position - on the one hand they like all large organisations desperately need access to the benefits of EDI (the Nat West bank gets 40,000 telephone bills which require remittances to 120 different addresses) and on the other hand they need to provide it for their own customers. They seem to have done very little to date, other than the existing CHAPS and SWIFT services which have been in place for some time now. The risk of independent settlement and trading arrangements on the EDI networks is now stirring the banks into visible

action. There are signs that they now understand the concept of "adding value" to the information that passes through their hands, and we must expect radical developments.

Presentations from the Nat West and Midland Banks left the conference in no doubt about their intentions: as might have been anticipated the banks have to date been waiting to observe developments. They seem totally confident of their own future; this might result from un-announced EDI products or from a simple blind faith in their ability to survive. Others are not so confident that the European banks will survive EDI in anything like their present form, and the general attitude to the banks at the conference (amongst the delegates) was rather antagonistic.

Standardisation of routine banking messages is proceeding and the work covers payment orders, credits and debits, and remittance advices. A wide variety of other messages are also scheduled for development.

There is a change in attitude evident in much of the commercial use of EDI, or at least an awareness of the additional potential from EDI in the "third stage", when we begin to more radically alter the way we do business. There are no clear signs of what might happen in the financial sector. There are signs of what must be done, though.

It is interesting that the banks have been holding back, and there is actually little doubt that when they decide to move they will move decisively and with some effect. Those who are close to the plans of different banks all indicate that there are radical ideas afoot and seem to understand the argument for a "complete" approach to the business transaction.

The need for information modelling

If this is to be achieved then we need to be able to model business systems with some rigour and to redesign them with a discipline that will let different kinds of business understand what is being proposed and the effect that it will have. Many of those spoken to are very keen on information modelling as a way of doing this and it is interesting to note that the international standards makers (the ISO - IEC joint technical committee known as "ISO-IEC/JTC1" has set up a special working group to look at the development of a conceptual model for EDI. Any study of message and syntax standards reveals the level of data and information modelling involved and it is very likely that these skills will be important in taking our understanding of the fuller potential of EDI forwards. The purpose in mentioning this here is that it is within certain of the banks that this information modelling is taking place. This is likely to give them a clear advantage over other players who have not tried to get to grips with the problem at this conceptual level. The new ISO-IEC/JTC1 working group will be an interesting one to watch.

The prospects

The financial institutions (and the banks in particular) now see EDI as clearly strategic. While it is likely that senior management in the banks will need time to absorb the ideas (just as has been the case in commerce) they will soon see the persuasive business arguments for getting involved. They need to think about basic questions of what a bank is and what it does. The international nature of banking and EDI means that it is a very international issue - for example certain southeast Asian as well as European and American banks want to see fully integrated services made available which will embrace the banks, transportation and commercial sectors and are anxious to be able to offer services through the medium of EDI. The lack of interactive EDI facilities (where parties can converse together over open networks in real time) is a problem at the moment but will ultimately be dealt with. EDI is a route to many different market places which the banks would like to be involved with, but some of which need fully interactive facilities.

It is important that we see business at different levels: Global business is of concern to some of the larger organisations which are already acutely aware of EDI and its importance; local business is less aware but is equally likely to benefit. When EDI fully recognises the nature and characteristics of individual transactions, then it will reveal its potential at the personal level; from every individual's point of view there is great potential for EDI in very many senses, not the least of which is the management of personal funds.