

THE ULTIMATE IN E-BUSINESS: STRAIGHT-THROUGH PROCESSING

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THE ROAD TO E-BUSINESS

The road to creating intelligent e-Business networks started with the humble fax machine. Through email, EDI, and Extranets the route has now reached a state referred to as 'intelligent commerce' (a form of trading that may or may not use intelligent software agents). The aim is to improve planning and decision making across all the key business processes – a very much more sophisticated version of business process re-engineering than that envisaged in the early phases of that concept in the 1990s.

E-business can range from electronic funds transfer (EFT); electronic data interchange (EDI), which is still an important part of the supply chain management; electronic point of sale (EPOS) transactions, with which we are all familiar with in our local supermarket; to the web-based industry-wide and/or sector arrangements to deal with synchronised supply chain management. The network has now replaced the chain as the supply metaphor.

Gartner predicted that

“Across industries, geographies and businesses, the use of IT as an engine for efficiency, growth and opportunity will remain undiminished in 2002, although it will be accompanied by healthy scepticism and smarter planning.”

“The electronic dimension of the workplace is becoming more important than the physical for a growing majority of work activities and workers.”

E-business forces the re-consideration of the shape and nature of the firm. This is not just a question of 'going virtual'.

In the networked economy:

- collaborative networks are replacing traditional vertically integrated organisations
- core competencies are kept in-house, but support functions will be increasingly out-sourced
- partnerships will be founded to capitalise on complementary capabilities
- traditional industry boundaries will disappear
- some organisations will comprise only the brand: all manufacturing and distribution will be carried out under contract.

E-business forces organisations to have a fully integrated IT strategy:

- IT systems become more complex as the computing environment developments develops
- a wide variety of disparate systems must be integrated with state-of-the-art technologies
- information has to be accessible on a global basis
- inter-operability and scalability within and between enterprises is required, with the flexibility to adapt to new business changes
- Information and communications technologies [ICT] must be on the agenda at Board level.

Market places and exchanges (such as Covisint, the automobile Exchange) have grown in importance in several sectors.

Three major types of exchange can be identified:

- Enterprise networks:
 - Extending supply chains suppliers and customers
 - Focused on the dominating player
 - Savvy way to leverage the extended supply chain.
- Vertical e-Market places:
 - Enables collaboration between various players in an industry
 - Gives access to a wider audience.
- Horizontal e-Market places:
 - Access to specific functionality such as transport or auctioning.

There are fears in some quarters that these agreements could become monopolies. However, the volume of trade between partners is so great, that any model that can both reduce administrative costs and handling/data entry errors is seen as a huge benefit to industry. The Internet has changed the market place, and the linear inventory flow has been replaced by a multi-directional flow, further complicated by online auctions and other mechanisms. As business partners are now dispersed all over the globe, and forecasting even less reliable in the fragmented trading networks of today, the growth of market places and exchanges is not surprising. The B2B revolution will mean that business trading networks of the future will incorporate exchange frameworks, procurement and sourcing, logistics brokering and overall Trading Network optimisation.

The new economy requires a new way of working and a new way of thinking about the way we work. Automation differs from computerisation, as it implies that humans are being replaced by machines, rather than using technology as a support tool. This is particularly evident in routine clerical work, the use of intelligent software applications and the growth of self-service models. Straight-through-transaction processing (STP) is just one area where software solutions are being developed to reduce human input to a minimum. Many organisations are actively encouraging self-service. This can be seen, for instance, in the growth of multi-media interactions where customers have to complete online forms. This online data capture saves huge amounts of administration, and systems can be used to automatically verify the details such as matching identity against a database of clients. Humans need only be involved in the process if a problem arises or a sign-off is needed. We used to talk about the 'lights out' factory. Now we are contemplating the 'lights out' office.

The changes in business strategy in turn require new styles of management. Organisations must become more flexible – hierarchical forms of management do not work in the new dynamic business world. Organisations are flatter; traditional organisational charts are not only hierarchical, but they miss out that most important link - the customer. Now many companies are re-drawing such charts as process flows, to show the inter-dependence of all parts of an organisation. They are also including suppliers and customers in the process and recognising that effective management has to be not only cross-functional but across organisational boundaries.

The overall social and economic impact of information technologies (IT) is transforming more than just business organisations. As customers become more aware, their

expectations are rising. They expect faster access to information, better products, and higher levels of service. More and more companies are finding that joint ventures or alliances, whether long-term or temporary, are an essential feature of doing business[1]. And those partnerships are held together with Internet-based software applications. Jargon such as the term ‘virtual organisations’ should not deter anyone from investing in this exciting phenomenon. Distributed working is now complemented by distributed process management. That requires attention to ‘an increasingly loose federation of stakeholders’ [2].

Despite the disillusion that followed the ‘dot.com revolution’, it is evident that ‘e-Business’ is the norm, and that ‘cyber-business’ is here to stay. Huge efficiencies are gained through automation, and in particular through the implementation of workflow management systems. Such systems are increasingly sophisticated, automating many different commercial and governmental activities. The latest benefits are seen in the move to virtual process management and straight-through processing - STP.

STRAIGHT THROUGH PROCESSING - STP

Most STP operations are found in the financial sector, where the term ‘T+1’ is sometimes used as a synonym. T+1 means ‘settlement of trades on the day after the trade was made’. For instance, the cost of a delay of one day on a billion-pound deal would lose a considerable amount of interest. According to Paul Costello, [3], STP is required to provide the improvements demanded by the sector. He lists areas of concern as:

- Multiple points of data entry
- Manual intervention
- Delayed allocation processes
- Varied communication methods
- Lack of standards and protocols
- Batch processes.

He suggests that in the short-term, the main beneficiaries will be consulting firms, vendors and suppliers and the utilities (clearing organisations). In the long term, he sees particular benefits for investors, broker dealers, clearing firms and money management firms.

The drivers for change to STP include:

- Increasing volumes of trade
- Capacity expansion
- Demand for real time information
- Cost reduction
- Charging by the cost of individual transactions
- Use of new technologies
- Lead time reduction
- Risk reduction
- Service level agreements.

When this level of integration is attained, the seamless integration first suggested by proponents of CIM [4] will finally be achieved. As one old computer hand described it: “At last computer systems can do what I imagined they could do when I first heard about them in 1965!” The aim, as with all workflow implementations, is to achieve higher levels of customer service and support, together with cost controls, both key competitive issues.

Share trading, once the preserve of specialist brokers, is a good example of the revolution in working practices. In the UK,

there were about 2 million shareholders who were looked after in a very traditional, old-fashioned way. The system was totally protected and was rather like a cartel. Now, trying to keep up with changes in the investment fraternity is increasingly difficult. The arrival of the Internet caused a revolution in the industry. The notion that individuals could manage their own portfolios transformed the industry. According to Justin Urquart Stewart [5], the key issues that the sector had to face included:

- Changing technology
- Changing demands
- Service levels
- Capability
- Staffing
- Flexibility.

The financial sector does not like change, but in the last 5 years, customer expectations and competition have led to significant changes in the infrastructure of the industry. Well-educated customers are not prepared to rely on one firm, and advice is only a mouse-click away. However, designing good web services is a skill not yet appreciated fully in the UK. The facilities offered in the USA set a new standard. If financial products are seen as a commodity, it is important for a company to offer services to differentiate. To cope with this, many firms are turning to outsourcing. According to Butler Cox [6], services and service provision have become strategic differentiators for a whole range of businesses. However, their report on outsourcing stresses the need to identify those business processes that are suitable. It is not an option to choose merely to reduce costs. It should be a strategic decision.

SOCX - THE SETTLEMENT AND OPERATIONS CLEARING EXCHANGE

Real-time trading is now commonplace. However, even online the delay in processing the trade can lead to price differences. A transaction might be very simple and have no complicated additional processes. In other situations, the transactions involved are extremely complex, involving matching, credit checks and other operations. The possible variations in the process can run into the hundreds. Customers therefore want instant trading. Controlling this situation manually is too slow. Customers are not interested in personal contact when delays in the processing of a transaction could lead to losses of millions of pounds.

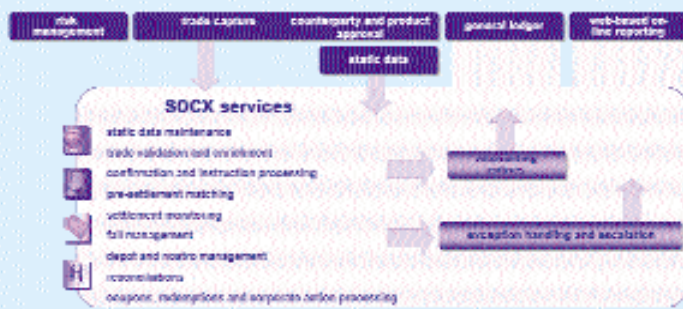
Maintaining the service levels demanded by customers and meeting the regulatory requirements means that financial institutions are seeking ‘straight through processing’ [STP] solutions.

Leading edge developments in STP solutions are illustrated by the Settlement and Operations Clearing eXchange – SOCX - an independent operations company providing banks and other financial institutions with the opportunity to outsource their settlement and clearing functions. The company:

- makes settlement and clearing its core competency enabling it to deliver a high level of service and control
- has developed an approach to pricing that means customers can move to a variable cost base at a cost per trade that is well below the market average
- has technology and resources that mean the solution can be delivered far more quickly than normal technology implementations
- has a system that provides timely, customised reporting of its activity on behalf of clients, allowing for maximum transparency and accountability.

Figure 1

SOCX



The service is accessible to global trading businesses on a 24x7 basis, with personnel who can be contacted at all times to respond to any question, request or issue. This service is maintained by keeping abreast of market developments and technological developments.

Staff recognise that they must work with customers to identify the scope, costs and benefits of an outsourcing arrangement and determine which option gives the most controlled, cost efficient and transparent solution. This exercise supports the construction of a compelling business case. By combining its considerable processing expertise with the latest technology, they come up with achievable and scalable solutions to even the most complex environments. Their implementation methodology supports swift deployment so that significant benefits are quickly realised.

The company has to support a variety of operational services which encompass the full lifecycle of a trade – from static data maintenance, through confirmation and instruction processing and pre-settlement matching, to final settlement and reconciliation. It can also generate accounting entries and pass these back to the customer's general ledger.

BUSINESS PROCESS MANAGEMENT/ WORKFLOW

Part of the solution is the use of automated workflow within the organisation. Exception processes are identified, escalated, and where possible automatically resolved. This has been made possible by extracting a series of lifecycle status messages from the processing engine that identify what part of a trade lifecycle a particular transaction has reached. Trades that have no exceptions will be processed without any manual intervention. However, in the event that a trade cannot pass a certain point, it will (depending on the exception) be routed to the relevant operator for resolution. Once an exception has been identified it is automatically checked to identify whether any deadlines based on value, date, or currency are approaching. If one of these variables is true, the exception is automatically highlighted as urgent and is escalated to the appropriate level.

A typical example of this would be as follows:

1. A trade is received with missing payment instructions.
2. The trade will automatically create an exception status message; an exception item is created and queued for resolution in the correct order of priority based on predefined variables.

This information can also be viewed at various levels of detail. For example, it is possible to get a complete overview of all exception items; or alternatively, to allow specific individuals

or teams to have access to specific work queues. Each exception item can then (if required) be viewed by an operator and the exception resolved. In the event that the operator cannot resolve the item, it is possible to allocate this exception item to another operator or externally to other organisations via a number of different media such as email, XML status messages or via a secure Web Site.

The creation and publication of real time lifecycle status messages to an Oracle database provides very detailed reports for workflow and costing analysis, including itemised billing information. As a series of generic processes within any trade type can be identified, rapid implementation of any new type of trade or product with minimal bespoke process definition can be achieved.

The sophisticated workflow and escalation management allows the company to offer very detailed Service Level Agreements to its customers and offers a very robust and secure environment.

CONCLUSIONS

“If you’ve done all the close-to-the-customer things that I begged you to do in my first three books (‘to-do’ lists that, combined, contain hundreds of items), I’m not sure you’ll be any ‘closer’ five years from now than you are today. Not, that is, unless you have also demolished the corporate superstructure”

Ten years on, the majority of organisations still have not embraced that message from Tom Peters. Ricardo Semler is one of the few that have seriously overthrown the traditional rulebook. Businesses are still trying to learn to dance, let alone dance to new tunes.

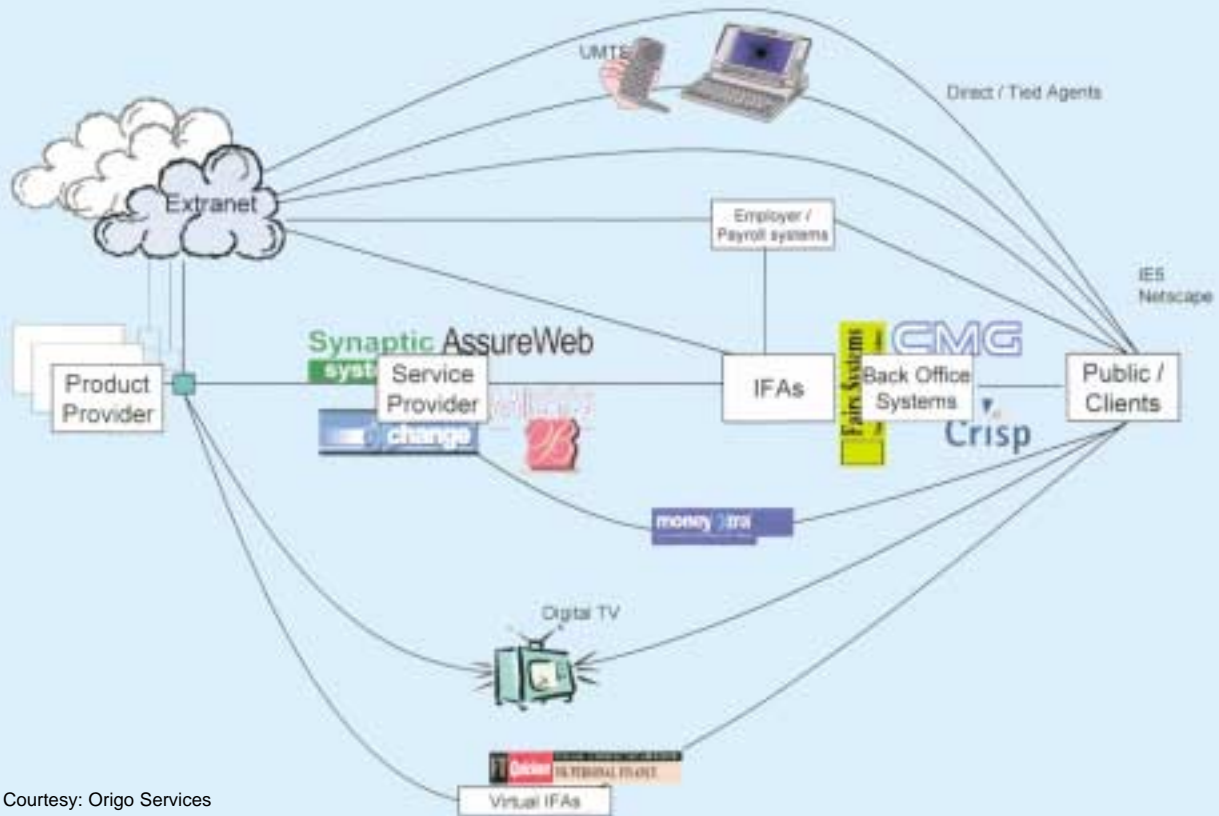
New developments are revolutionising the way we run our organisations, and the Origo Environment (Figure 2) illustrates the new view of organisations required today. This figure illustrates the numerous ways in which individuals and organisations now communicate, and Origo Services is one of a growing body of organisations developing standards to enable further integration.

Current levels of automation in e-Business challenge the generalisation that ‘people are our key assets’. Dis-intermediation is already widely accepted in supply chain management, as increasing numbers of consumers go online and use web sites and wireless applications. This trend will continue, requiring the re-assessment of human resource policies. Automation requires serious consideration of the human costs of virtual working. Issues include:

- increasing control and monitoring of people as well as processes through automated audit systems
- standardised procedures that reduce opportunities for staff to offer ideas for continuous improvement
- impact on motivation
- the conflict between empowerment, delegation and control by machine
- lack of career paths
- impact on training and education
- review of competencies and skills
- review of required levels of computer literacy.

Figure 2

Roadmap - Origo



Courtesy: Origo Services

Business process re-engineering in the 1990s received a bad press, but for organisational survival yet more re-design is inevitable. All managers must be network-centric, and develop a global mentality. To survive, they must be expert in understanding customer needs; open to new ideas; and be willing to try something different. To achieve this, four key factors must be addressed:

- Technology change
- Process change
- Structural change
- Cultural change.

Over the last 25 years, there has been much incremental change. E-business is bringing large-scale structural changes. The implementation of STP will result in further re-invention and transformation of large sectors of industry.

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About the author

Philippa Collins PhD currently lectures on business systems applications and strategy in the School of Management, Heriot-Watt University. Her research focuses on the effects of automation on management and working practices. She has recently published *Virtual and Networked Organisations* (Capstone).

Philippa has also taken part in an EU-funded project investigating the impact of ICT on work organization in collaboration with The Work Institute, Nottingham.