



An Introduction to eBusiness

This booklet has been produced by BASDA to help users understand and enjoy the benefits of eBusiness and to promote the development of a free open standard for eBusiness communications.

We will explain the technology in non-technical language and spell out the cost savings and efficiency improvements that eBusiness brings. We will also point out the pitfalls and the risks associated with the development of commercially driven proprietary standards and the use of bullying tactics by large organisations.

We will tell you how to create your own eBusiness forum within your industry for your suppliers and customers to exchange orders and invoices without spending millions.

Recent surveys demonstrate that interest in eBusiness has increased considerably in the last six months as businesses look for ways to improve efficiency and streamline their supply chains.

In that time, a number of key industry groups have adopted the **BASDA eBIS-XML** open-standard suite of messages which allows them to exchange orders, invoices and other messages directly between their own computers and those of their suppliers and customers. In 2002 over 100 organisations were using the eBIS-XML suite with over a million orders and invoices exchanged.

And what's more, the benefits of using this technology can be directly measured in financial terms. The UK Audit Commission found that it was costing a typical government department £75.00 to process a purchase invoice. One of the early adopters of eBIS-XML recently confirmed they have reduced their costs to less than £1 for a similar process - an improvement which represents a huge saving. This same company estimates that, in postage alone it will soon be saving more than £250,000 per year. Another company found that 50% of its orders / invoices were with only 35 of its suppliers; so by focusing on those first it could achieve a major saving almost immediately.

These figures come from organisations using the **BASDA eBIS-XML** standard but this is not the only option and software already exists to simply and easily map between the different emerging standards. The real benefit comes from the adoption of electronic business and this booklet has been developed to show how easy it is for every organisation from the smallest company to the largest conglomerate to benefit from this new technology.

eBusiness today

The move to eBusiness is the biggest change that we have experienced in IT for years - probably since the PC was born. Effective eBusiness will depend on interoperability standards. It could take up to 10 years for this situation to become reality. That isn't to say it is a pipe dream, it is effectively happening in most large to medium organisations in some way or another. It is not something that can be undertaken overnight. It has to be planned and carefully considered.

Although there are huge benefits to be had from the development of eBusiness, there have been many problems which have delayed its implementation. The dot.com debacle not only affected the start up companies but it also affected a lot of eBusiness initiatives. In particular, business-to-consumer (B2C) electronic commerce and business-to-business (B2B) electronic commerce have been significantly affected by the uneasiness in the market. E-Marketplaces, hubs and catalogues have also been affected, although here the reasons are more to do with commercial exploitation and dubious charging methods. Many of the marketplace and catalogue initiatives have been originated by buyers who required their suppliers to provide services which are uneconomic. Without any standards, suppliers have been pulled in lots of different directions with different message standards and have therefore backed away from investing.

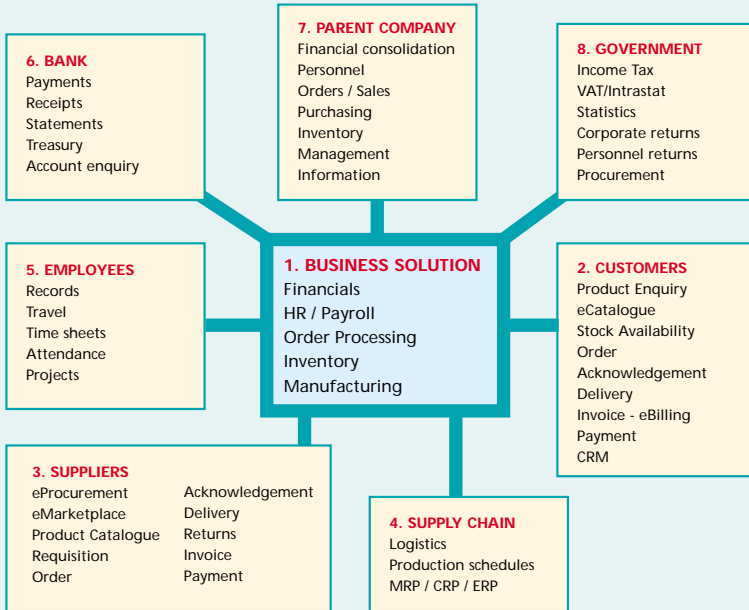
Using the eBusiness language - XML, it is very easy to establish a message structure. Instead of trying to use a common universal message, many organisations have written their own XML messages only to find that they are incompatible with others that have been developed.

Within the main message repositories there are huge libraries of XML message definitions for invoices, orders and other documents that organisations have developed. Many of these different XML message standards have a proprietary commercial value. They have been devised by vendors who hope to either charge for the use of the message or force organisations to use their applications associated with them. Unfortunately, this is generating total incompatibility and stagnation in the market place.

The situation has not been helped by large consultancies advising customers that any investment in e-Commerce would probably be written off, because they will probably select the wrong standard. This does not inspire confidence for people about to implement an e-Commerce solution.

eBusiness - the Future.

What is the future for eBusiness? Every expert has a different idea, very few have the depth of business experience to understand the whole picture which is outlined below.



This diagram shows how every part of a business can benefit from eBUSINESS.

The centre section (1) headed **BUSINESS SOLUTION** represents the typical organisation with its own business systems offering finance, accounting, HR, payroll, order processing, inventory and, if necessary, manufacturing.

To communicate with its **CUSTOMERS** (2) a company can develop a website so that customers can review the products, choose from eCatalogues, look at stock availability, delivery, times and discounts. Electronic orders can be raised, acknowledgements can be sent electronically and electronic invoices billed automatically.

Likewise, to deal with **SUPPLIERS** (3) the company can use eProcurement, eMarketplaces, product catalogues as well as the whole suite of electronic messages to link to those suppliers.

If the business is part of a **SUPPLY CHAIN** (4) then that supply chain may already be using EDI techniques, alternatively it can use electronic messages to handle the logistics, production schedules, manufacturing and capacity requirements planning.

An **EMPLOYEE** (5) self service hub offers an alternative to a human resources department that has to be informed of every change of address, addition to the family or salary change. Employees maintain their own information; they are able to book their own travel using approved terms of business with existing suppliers and can enter their timesheets and expenses remotely. Employers can also monitor time and attendance electronically.

The **BANK** (6) will be able to handle simple electronic payments, receipts, statement reconciliation and even more sophisticated functions like treasury management and online account enquiries.

If the **ENTERPRISE** (7) is a subsidiary of a larger group of companies then that enterprise will need to provide information to the centre. Today, consolidating financial information once a year is no longer adequate. Modern businesses want up-to-date financial information, often on a daily operating control basis. As well as the general information on personnel, purchasing and stock control, managers may also require the ability to drill-down to detailed information in the subsidiary companies.

All **GOVERNMENT DEPARTMENTS** (8) expect to be capable of communicating electronically by 2005. The Inland Revenue is developing electronic filing of Corporation Tax, PAYE and personal taxation; HM Customs and Excise - the next generation of VAT and Intrastat reporting and the Office of Government Commerce (OGC) in standardising on XML for eProcurement based on the BASDA eBIS-XML standard.

At present, although every communication link in the diagram is available, no one is using them all because they each require a different system. In order for every aspect of the diagram to become universally available, standards need to be agreed between all of the parties concerned. By providing information and promoting open standards for eBUSINESS, BASDA hopes to change this situation.

Background to eBusiness

Until recently, the best known method of business to business eCommerce was EDI, Electronic Data Interchange which has been around for over 20 years. A brilliant idea but, sadly, taken up by less than 5% of organisations. The reasons for the poor take up and the lessons to be learned from them are fundamental to the future development of eBusiness.

Very few **BASDA** members have an EDI interface because there is no generic message standard. Whilst there are EDIFACT and US ANSI standards, these have been adapted for different industrial applications making the resultant messages incompatible. Ford's EDI standard is different from General Motors'. Tesco's EDI standard is different from Marks & Spencers'.

Because there is no generic solution the application developers have been unable to put it into their software. EDI is therefore a complex bespoke solution requiring middleware developers and systems integrators to write the interfaces. It is very expensive to implement and out of the reach of most small to medium-sized organisations.

This must not be allowed to happen to XML and that is why **BASDA** is working so hard to promote a standard that can be universally adopted at minimal cost to users.

We must learn from the reasons for the failure of EDI to become a mass market concept. Larger businesses and Government organisations in particular, need to learn some lessons:

- ◆ Large organisations cannot be allowed to stipulate their own XML message structure with their suppliers, thus rendering it incompatible with other XML message structures.
- ◆ It is important that an open universal standard is implemented rather than ineffective proprietary standards.
- ◆ Organisations cannot implement eBusiness in isolation.
- ◆ Only when an open-standard can be developed, free of any charge, will the market start to move forward.

BASDA members represent over 80% of the installed accounting applications used in the UK today as well as a significant proportion of those used around the world, so **BASDA** is ideally suited to create a generic eBusiness standard.

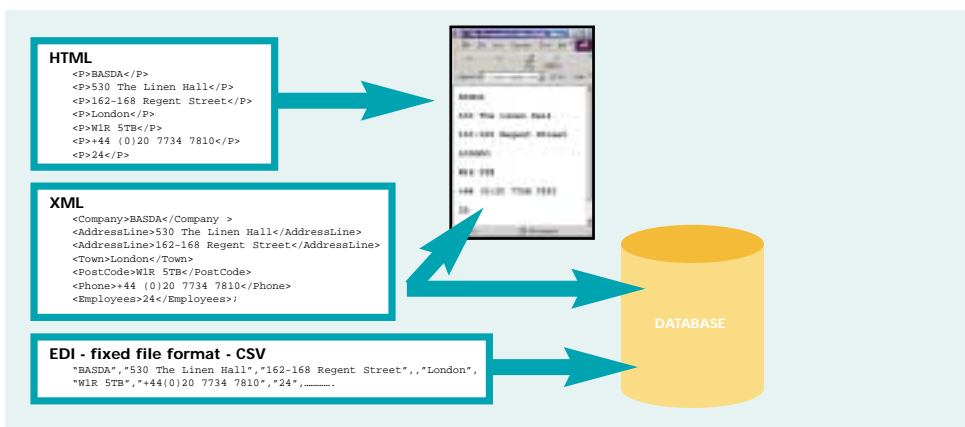
BASDA represents the 95% of the world that does not use EDI. These organisations use paper based orders and invoices sent by surface mail. It is **BASDA's** main objective to replace these paper invoices with electronic invoices in such a manner that it can be taken up by all of its customers - not just those in the supply chain. **BASDA** is therefore not trying to compete with EDI, it is trying work alongside existing EDI implementations to broaden the use of electronic business.

The XML data-interchange language

XML is the eXtensible Mark up Language. It is a language that has been developed over the last few years by the World-Wide Web Consortium (W3C) as a means of transmitting data electronically. XML itself is not new; it has been available for over ten years and was originally designed as a mark-up language to submit information like the front page of the Financial Times from London to New York in a few minutes, in order that the New York office could reproduce it exactly as it appeared in London. It is only in recent years that its use, as a means of identifying data elements, was established. Since then it has had significant growth and acceptability.

The beauty of XML is that it is compatible with the Internet language HTML. In fact they both came from the same parent, SGML, and it is highly likely that the more powerful XML will replace HTML as a means of transmitting data and displaying information in a web browser.

The big advantage of XML is that it is easily understood by programmers and analysts anywhere in the world. It is an open standard - not owned by any one corporation. It is a standard that is being maintained by a consortium of organisations for international use - members of W3C.



HTML is widely used as the means of displaying information in a web browser but it has severe limitations in that the data it is displaying cannot be identified. Therefore it is not possible to use HTML as a means of transmitting electronic transactions that can be understood by the receiving computer.

Another method of electronic transmission is EDI which uses a fixed file format. It employs a field de-limiter to separate the individual data elements, which are identified by their position in the file structure. The file structure is therefore rigid and the information contained cannot be displayed, it can only be read into a computer's database. This is fine if both sender and receiver have matching systems but very limiting otherwise.

XML on the other hand can be displayed in a web browser as a document. The data transmitted can be identified and retrieved into a database application. Furthermore, it is extensible. This means that, because each element of data is separately identified, then all of the elements do not have to be present in the message, only the elements that are required by the message definition - the XML Schema.

Customer Requirement

Research shows that 95% of documents that are used for data entry are computer generated. Look at data entry clerks in your own organisation and you will see them re-keying data from orders, invoices, and bank statements. All of these have been generated by a computer but that digital information has been transcribed on to paper requiring the operator to re-key the data. This is a huge waste of everyone's time and gross inefficiency.

On the web, fewer than 5% of website shopping carts are linked to the back office systems. Websites are a glitzy front to an organisation's means of selling its products but they do not necessarily mean electronic commerce. Even the most famous websites do not link their websites to their back office systems so an order entry clerk must still rekey the data into the ordering system.

Customers want to eliminate the duplication of data entry. They want to improve the efficiency of their organisations and save on the elapsed time from receiving an order to its fulfilment and subsequent payment. But they also want a simple out-of-the-box solution - not a solution requiring middleware developers and expensive value added networks. Thus any application they have should be able to output orders and invoices on paper or on fax and also in an electronic format.

BASDA recognised that the solution must use the existing internet as a delivery channel and be supplied free with an upgrade to their Members' existing business applications - just like adding an interface for a new model of laser printer to the operating system. Users would not expect to pay for something that should be standard in the application. To this end, **BASDA** members have ensured that the **BASDA eBIS-XML** Standard is not only open but freely available to anyone who wants to use it.

BASDA eBIS-XML initiative

In May 1999 the Microsoft Office 2000 team in Seattle contacted **BASDA** and suggested that it set up a working party to consider how orders and invoices could be exchanged electronically using e-mail. If they were sent as an attachment to an e-mail message they could be rendered in a web browser to show the invoice as a document that subsequently could be printed out.

BASDA members thought this was an excellent idea and set up a working party of its leading members.

The main objectives for the development were as follows:

1. Simple enhancement to an existing application.
2. An open standard based on XML schemas.
3. A many to many business to business interface.
4. A superset of the most common business application requirements
5. Delivery by SMTP
6. An electronic message with the capability of being rendered as a document
7. The ability to cope with less than 100% interoperability

Within four months, they were able to demonstrate a working methodology in which four different packages were able to undertake a live exchange of orders and invoices directly between their systems. This was the forerunner to the **BASDA eBIS-XML** (electronic Business Interchange Standard in XML) suite of applications, which has now been developed.

Key Benefits of eBIS-XML

The key benefits of the eBIS-XML Standard are:

- ◆ Elimination of duplicated data entry
- ◆ Elimination of specialist stationery and postage charges
- ◆ Improved office efficiency and reduction in elapsed time
- ◆ The electronic message can be rendered as a document retaining both data and information
- ◆ It is provided as an upgrade to an existing accounting system
- ◆ Provides a link between website and legacy order processing systems
- ◆ An open standard developed by the software industry

The Technology

BASDA uses the W3C XML Standard as the basis for its message structure. It uses the W3C XML Schema, rather than DTD (Data Type Definition), as the means of defining the specification for the message and the validation. Email is the common delivery mechanism.

Whilst the early versions of **eBIS-XML** were able to link to an XSL Style Sheet and render the XML message as a document, this technology has been dropped by Microsoft because of the misuse by purveyors of viruses by e-mail. **BASDA** no longer uses client side rendering of the XML message using a Style Sheet. The message can be rendered using a Style Sheet before it is sent i.e. server side, and that rendering can generate an HTML version or a postscript PDF file as well as an XML file. In order to send a document that can be viewed, many of the early implementations are using either a PDF format or an HTML format to accompany the XML message

Organisations receiving the XML messages may wish to render that message for posting and approval purposes and many have written their own Style Sheet for rendering it in a standard way for internal approval. Again, this is rendering to an HTML document which is then circulated as an attachment to the e-mail message.



Interoperability



One of the reasons why EDI is not in universal use is because it requires a very tight agreement between the consenting parties, the supplier and the buyer, on the interoperability of the message they send to each other. Both have to understand the entirety of the message in order to make the system work without human intervention.

We believe this is the fundamental flaw with the EDI concept. It is unthinkable to try to agree an invoice message standard that could be compatible with every situation, for any industry, from any size of organisation, anywhere in the world. **BASDA** has therefore taken a different approach.

At the moment some of our corporate members' software like SAP and Geac can produce very sophisticated and complex purchase orders. These can be sent to similarly large organisations but also to very small organisations with very basic business systems. If one of these small companies receives a complex purchase order and wants to enter the details into its entry-level software there is no way it can capture all of the information on that purchase order. So, in reality, the operator keying in the information, selects the appropriate fields from the purchase order and enters only those into the sales order processing system. Although some of the data and information cannot be captured it is still retained on the paper copy.

BASDA replicates this method by making it possible to send a complex purchase order to entry level software and let that software select the fields that it can handle but be able to print out the original order as a document so that it retains the other data and information. This is the fundamental premise of the **BASDA eBIS-XML** Standard.

A key requirement then in making the **BASDA eBIS-XML** suite interoperable has been to enable a user to edit the information before it is posted into the receiving system. This is the process that is normally used for paper-based orders and invoices. They are processed manually and, when the order or the invoice looks acceptable, it is then posted into the accounting software. Similarly when the **BASDA eBIS-XML** order or invoice message is received, the receiving system will read as much information as it can into the order entry screen and then allow the operator to edit or enter key information like part numbers, customer account numbers, etc before finally posting the order and invoice.

eBIS-XML Suite of Messages

- ◆ Web content order (punch-out)
- ◆ Web sales order
- ◆ eCatalogues*
 - Account information*
 - Product information*
 - Pricing information*
 - Stock availability*
- ◆ Purchase order
- ◆ Order acknowledgement
- ◆ Delivery note
- ◆ Pro-forma invoice
- ◆ Invoice
- ◆ Batch file trailer
- ◆ Customer statement*
- ◆ Remittance Advice
- ◆ VAT Form 100*
- ◆ VAT Intrastat*
- ◆ Payment*

The items marked with an () have been developed but are not in use.*

These formats are available for anyone wishing to use them. BASDA members have concentrated on using the documents for transaction processing in the first implementations of the BASDA eBIS-XML Standard.

Logistics

There is no major investment required to incorporate the **BASDA eBIS-XML** suite of messages. For an organisation to send an electronic order or invoice to its suppliers or customers it just needs an upgrade to its existing business application which, subject to maintenance agreements, may be free of charge. Using traditional e-mail delivery mechanisms the message can then be sent to all organisations, customers or suppliers. If the receiving organisations' software is **eBIS-XML** compliant then it can be read directly into the software, edited and posted. If the receiving organisation does not have software that is **eBIS-XML** compliant, then the message can be read into an ordinary e-mail system by Outlook or Outlook Express and then rendered in the web browser as a document for printing off. At least, if all else fails, the message has been sent electronically.

Security

The level of security for exchanging eBIS-XML messages is optional. E-mail delivery can have an automatic response mechanism, messages can be sent digitally encrypted, and **BASDA** has incorporated a checksum in the message to make sure none of the key elements like quantities, values etc have been altered. Full features of security are therefore available but, in practice, only the checksum is being used. Customers using the eBIS-XML Standard do not see this as a major problem at the moment. The e-mail messages are replacing existing paper based orders and invoices which are not generally sent by recorded delivery or with certified authenticity.

The work that **BASDA** has been undertaking with HM Government and the Government Gateway has used a different method of transportation of XML message. It uses a HTTP upload in a secure session with 128-bit encryption. This configuration uses an intelligent hub to receive the message. That hub sets the standard for security and acknowledges the message and verifies that it is readable.

In closed industry groups this hub concept is available but in an open many-to-many environment it is not available currently. We would like to move to a hub based technology because it would allow the sender of the message to receive an immediate acknowledgement that the message has been transmitted. The receiver can download the message from a hub at a convenient time, acknowledge that they can read and understand it, and the hub can subsequently relay that receipt on to the sender.

As eBusiness starts to become established, we see the rise of this hub-type technology becoming the key to the future advancement. However, to be successful, these hubs must have a realistic commercial offering. The dot.com revolution created a number of opportunistic hub enterprises - organisations that were hoping to charge members for the setting up of the hub, charge for each message going through it and, in some cases, for the value of the message. This of course is totally unacceptable and is one of the reasons that hub technology has not taken off. It is not a technology problem, it is a commercial problem. Once a commercial venture can be established that is acceptable to all parties, then we believe that hub technology will start to establish itself.



eBIS-XML Take Up

When the original eBIS-XML Standard was introduced, **BASDA** realised that XML was an emerging standard and very few of its members had knowledge of XML or the developing Schema specification. It therefore started to run its own XML workshops to train programmers from its member organisations. It has now dozens of workshops with more than 250 programmers attending from 100 different organisations. All of these organisations are involved in adapting their systems to implement the **BASDA eBIS-XML** Standard.

BASDA set up a testing and certification service to ensure that the **eBIS-XML** messages were compatible with each other. Many packages in production have now been certified -these are listed on the **BASDA** website www.basda.org and a large number of others are in use without certification.

Organisations like the leading international office stationers, Viking and Spicers have been using the **BASDA eBIS-XML** Standard for several years. More recently members of the House Building Industry like Redrow, Moore's Furniture and Travis Perkins have gone live with the standard.

Today, more organisations are recognising the potential benefits of e-Business and many industry groups have begun working together to create open eBusiness marketplaces.



Vertical Focus Groups – e-Collaboration



BUSINESSES

In order to give trading groups confidence to move ahead with eBusiness, **BASDA** has been entering into collaborative ventures to bring buyers, suppliers and the appropriate software vendors together to agree the introduction of 'open-standards'.

BOSSFED, the Business and Office Stationery Suppliers Association is working with **BASDA** to promote the wide adoption of their opXML Schema based on the **BASDA eBIS-XML** Standard for the stationery industry - from manufacturer to distributor, to dealer, and, in some cases, to customer. Both Spicers and Viking, who are members, already use the **BASDA** Standard to communicate with their suppliers.

BASDA has also been working with the House Building Industry in the UK. The early adopters of the eBUILD-XML standard in that industry are now reporting some very impressive benefits, particularly in reducing the cost of processing orders and invoices. The electronic versions are more accurate and quicker to process and have eliminated re-keying errors. Electronic copies of the documents can be sent by e-mail to site managers for authorisation and, instead of this process taking weeks and invoice copies being lost and left in drawers, the new process takes just a few minutes.

LOCAL & NATIONAL GOVERNMENT

The eBIS-XML Standard is also widely used by Schools, Colleges and Universities and now in Local Government.

BASDA was approached by the Universities Purchasing Organisation based in the north of England with an initiative that it was undertaking with Salford University to establish an eProcurement hub. The university group known as HEeP (Higher Education eProcurement initiative) adopted the **BASDA eBIS-XML** messages for the order and invoice and also, after a small change, the web-content message as well.

Salford's Higher Education eProcurement initiative utilises a novel method of eProcurement. Since eProcurement, using eCatalogues, had not established itself, it was agreed that the way to move forward was to accept that the majority of suppliers already had web-site shops and to create a means of linking the web-site shop to the buyers' purchasing systems. The Salford concept allows approved members of the university to visit specified web-site shops and select goods they wish to obtain. Since they do not have the authority to purchase those goods directly, the web-site shop collates the requirements and sends them back to the university's buying department as an electronic web-content message that is read directly into the University's order processing system as a requisition. These requisitions are then collated,

authorised and allocated against budgets and a confirmation order sent electronically by the university to the supplier. The supplier delivers the goods and, in turn, sends an electronic invoice back to the university. The scheme now has many live sites and more than 40 universities have already signed up or are planning to do so.

This particular project at Salford won the Accountancy Age Award for Electronic Innovation chosen by a team of judges which included the Government's eEnvoy.

This web-site 'punch-out' concept is now being utilised by several other groups including the stationery industry which supplies all types of organisations including government bodies. Retailers and dealers provide a simple electronic interface for their customers to select the products they wish to purchase from their web-sites and feeds that information into their customer's purchasing systems electronically for the onward exchange of electronic orders and invoices. The benefits - low cost order processing and the chance for early adopters to take significant market share without increased administration costs.

The Consortium, a major supplier to local councils and schools is another organisation which has worked with **BASDA** on an open web-content 'punch-out' standard. The Consortium is now live with Bristol City Council. Several other councils are also planning to implement the website eProcurement concept. In a similar initiative, Capita and Sage, together with the many other leading software providers to Local Education Authorities and Schools, are piloting the **BASDA eBIS-XML** suite as a means of linking the schools and LEAs with suppliers offering the web-based eProcurement approach.

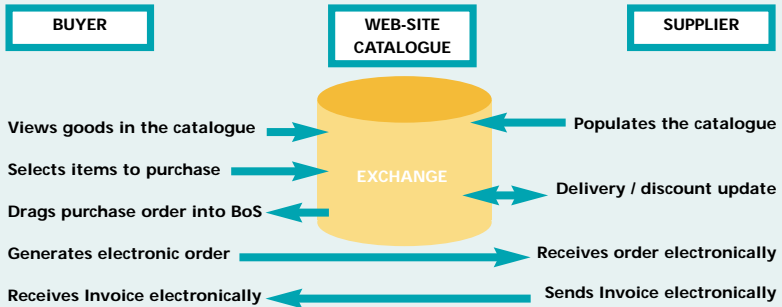
These various groups have now come together under the **BASDA** eProcurement Working Party and have jointly established a method of operation for eProcurement between buyers and sellers using established buyers' web-site shops.

Representatives from the Government's Office of Government Commerce (OGC) are working with **BASDA** members to pilot the **BASDA eBIS-XML** suite of messages as a possible method of eProcurement for all Government departments.



eProcurement - an explanation

The theory of eProcurement has been developed around a hub-based web catalogue concept.



A web catalogue is set up using a hub exchange. The supplier populates that catalogue with details of its products and services using a proprietary XML message. The buyer compares products in the catalogue and then selects the items to be purchased. A message is sent to the supplier requesting the expected delivery date and price of the goods after discount etc.

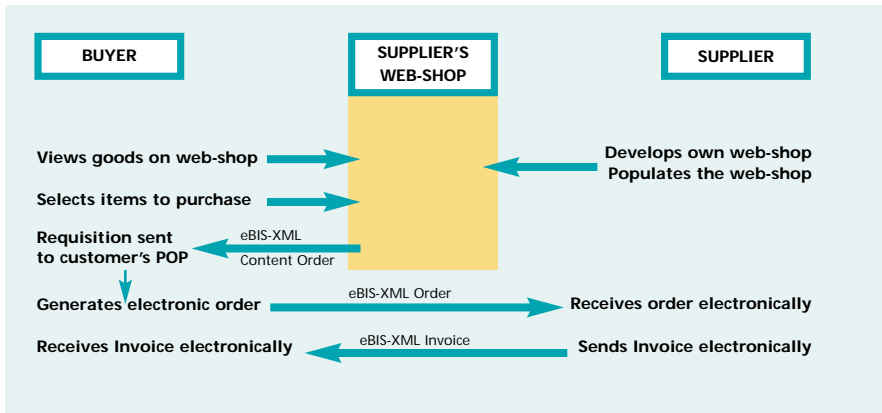
The buyer then confirms the goods to be purchased. The catalogue hub-exchange then punches out an order content message to the buyer's purchase order processing system for approval authorisation, and allocation of budget. The buyer's purchase order processing system then generates an approved purchase order which is sent electronically to the supplier who delivers the goods and, in turn, sends an invoice electronically to the buyer.

This is the theory of eProcurement - an apparently simple concept but with few examples of live operation.

The truth is that it is far from simple or inexpensive. Setting up such web-based catalogues based on exchange hubs and the proprietary nature of the messages they use is complex and costly. The majority of the work has to be undertaken by the suppliers in adapting their systems to provide the information and respond quickly to the delivery discount enquiry. Without message standards, suppliers are being asked to provide information in different formats to different hubs which makes the whole process expensive and unworkable.

eProcurement - an explanation

The **BASDA** eProcurement methodology based on the concepts developed by Salford University and The Consortium is shown in the diagram below.



The difference with this concept is that there is no catalogue or costly hub-exchange to set up. The intermediary is the supplier's own web-site shop. The supplier maintains its web-site shop as a matter of course and therefore has no significant commitment in establishing this means of eProcurement. Most buyers know which supplier they need to order goods from. The buyer accesses the web-site shop, selects the items to be purchased but they may not have the authority to purchase those goods directly. Therefore the web-site shop generates a 'web-content' order which is sent directly to the buyer's purchase order processing system. This is received as a requisition which can be consolidated with other requisitions or can be processed individually. The requisitions are approved and allocated against a specific budget. The resultant purchase order is then sent to the supplier electronically who in-turn delivers the goods and sends an invoice back electronically to the buyer.

This approach is very simple and straightforward and only requires the supplier to send a 'web-content' order to the buyer. Most web-site shops currently send an e-mail message to the supplier's sales order processing system and this can be adapted easily to be an XML message sent directly to the buyer. In the trials that have been undertaken it takes approximately 3 man days for a website developer to create such a message so it is not onerous on either the buyer or the supplier and provides a very simple and effective means of eProcurement. The buyer has only to upgrade its back office system in order to receive the XML message as a requisition.

A Case Study

BUILDERS AND SUPPLIERS SAVE MILLIONS OF POUNDS WITH ELECTRONIC TRADING

For a company processing and mailing in excess of 10 million invoices and 1 Million orders per year, the prospect of being able to transmit them electronically offers a huge financial bonus - almost a quarter of a million pounds in postage alone. If, in return, they can receive a similar number of orders and invoices in the same way and read them directly into their back office systems without having to re-key, the potential is enormous.

This was the prize held out to **Travis Perkins**, the UK's second largest timber and builders merchant. The company, which has some 450 outlets around the country and a turnover of £1,181 Million is a member of UK House-building eBusiness Forum which was formed when 17 of the UK's leading House-builders decided to work together to find a better way to communicate between House-builders, their suppliers and subcontractors.

Travis Perkins was one of the earliest adopters of **eBUILD-XML**, the B2B eBusiness programme which the Forum devised, acting as a pilot with Redrow and Baggeridge Brick in a project which has now gone live and is already reaping substantial financial and efficiency rewards for all the participants.

The House-builders eBusiness project began in 2000 when it became clear that the industry needed to move towards electronic trading. The House-Building Industry did not embrace EDI - the industry was too fragmented and the requirements perceived as too complex for most of the small suppliers and sub-contractors. So, whilst everyone agreed that they wanted to trade electronically, no-one was quite sure how. They consulted the various interested groups and came up with a series of requirements:

- ◆ It must be a simple and open standard solution
- ◆ Low start-up cost
- ◆ Free to the suppliers
- ◆ No transaction fees
- ◆ Neutral ownership
- ◆ Risk free

This was a tall order but they began examining the options available which came down to one of two types of trading hub; a bespoke system developed by a specialist software house or an existing open standard such as **eBIS-XML** developed by **BASDA**, which is the standards body for the application software industry and whose members supply most of the back office systems used by the House-builders.

"The decision was pretty straightforward" explained Gareth Braithwaite, Group IT Director of Wilson Bowden plc, one of the UK's leading house-builders, and Chairman of the Forum, "We had concerns about the future with all the third party suppliers; once we had committed to them, we were entirely dependent on them and we would no longer have control. On the other hand the BASDA solution was politically neutral so no-one would have competitive concerns; it was very low cost; the Forum would hold the copyright to the messages we developed so there were no ownership or equity concerns; it is an open standard backed by the software industry so most of the back

office software for big and small members would be compliant and because the Internet is free, there are no ongoing trading costs."

"Having made the choice we widened the Forum to include the software vendors, the suppliers and the subcontractors and set about enhancing the standard eBIS-XML message to meet the specialist requirements of the building industry. Altogether there were 25 companies involved at this stage with each company putting £2000 into the kitty to cover costs."

The **eBIS XML** message suite developed by **BASDA** allows for the electronic interchange of web orders, purchase orders, invoices and statements between different accounting packages. It is unique in that the message can be viewed as a document in a web browser and printed out to hard copy as well as received electronically by eBIS XML enabled systems. The eBUILD-XML orders and invoices were based on this standard schema but were extended to handle information specifically for house builders, such as site location, plot numbers and house types etc. Once work was complete the house builders' business systems would be able to output purchase orders in the eBUILD-XML format directly to their suppliers via email. When the e mail order is received by the supplier's system it can be automatically validated against the standard and then imported directly into its Sales Order Processing software or, if necessary, viewed in a web browser and printed out as a hard copy.

After the goods have been delivered, the supplier can generate an invoice and output it in the **eBUILD-XML** format by email to the house builder whose system, in turn, validates the message and captures the invoice data electronically using its own invoice entry criteria. It will match the invoice with the original order using the 'preserve' fields inserted into the message for this purpose, and, once the invoice has been reconciled with the order and approved for payment, electronically, direct payment can be made to the supplier via BACS. Using this method, the whole process is computer generated thus reducing the overhead and transaction costs of processing these large volumes of low value invoices and improving efficiency and accuracy. Furthermore, there are no transactional fees for exchanging documents, unlike those charged by EDI or Internet 'hub based' ventures.

"Once development of the message was completed we set up the first test programme between ourselves and Redrow, Baggeridge Brick and Hanson Brick," explained John Smith, Development Manager who heads up Internet based developments for Travis Perkins. "We had no real technical problems with developing the interface to read the messages and costs were negligible. Each participant was responsible for making changes to their SOP or POP software, if that software was written in-house, and Travis Perkins invested some 60 man days in set up and testing. In the future most participants won't even have those costs since the software suppliers, who have embedded the technology into their applications, will supply that software free of charge to existing customers."

"Apart from the cost savings, there are many other benefits in such things as document storage (a scanned document is typically 10 times the size of its XML equivalent) and by not re-keying transactions, we get 100% document accuracy which results in a higher order fulfilment percentage."

According to John Miller from Redrow another of the top house-builders with operations throughout the UK, moving to **eBUILD-XML** was easy to justify.

"It required relatively little change to the Company's existing systems - just adding the interface to read the XML messages. With only 3 suppliers responsible for 10% of the invoices we receive; 10 suppliers for 25% and 35 suppliers for 50%, we do not have to persuade many suppliers to join the scheme before we begin to reap substantial benefits. At Redrow, we process some 170,000 paper invoices per year and generate a similar number of orders. This project is significantly reducing the overhead and transaction costs of processing these large volumes of low value invoices by enabling automatic reconciliation of order to invoice and saving on re-keying."

The Forum has appointed **BASDA (the Business Application Software Developers Association)** as overall manager of **eBUILD** to provide education and testing services, as well as to maintain the **eBUILD-XML** Standard in the future. Future updates to the eBUILD-XML message and schema will always maintain backward compatibility to version 1.0. This is easily accomplished with XML messages as long as it is managed correctly. eBUILD-XML is linked to the **BASDA eBIS-XML** open-standard which will also be maintained for backward compatibility. This means that organisations or for that matter individual contractors can reliably implement these message standards and not have to worry about keeping up with the latest version.

The existing eBUILD-XML orders and invoice messages will be extended to cover the complex requirements of the plant-hire industry and the simplistic requirements of the contractors with their self-billing invoices - all of which can be sent electronically - the lowest common denominator being a PC with Internet access.

"Although a house builders initiative, there is no reason why the rest of the construction industry and others cannot use these standards to trade electronically. The potential is huge," said Gareth Braithwaite. *"The operation is based around message standards and not hardware or software standards, this allows large and small organisations to participate, and ensures scalability. What is more, there are no transactional fees for exchanging documents unlike EDI or Internet "hub based" ventures."*

"The eBUILD-XML initiative is already reducing processing time and cost at Travis Perkins," concluded John Smith. *"We estimate that the number of transactions generated between the major house-builders and their key suppliers is in excess of three million invoices and purchase orders per year so the eBUILD XML project will produce dramatic savings in paper, distribution and labour costs while improving accuracy and efficiency. The set up cost for the whole project was only £50,000, which was shared between the Forum members, so it is providing a very high return on investment for the participants. When we began this project it seemed to good to be true but it is both!"*

BASDA Overview

BASDA (the Business Application Software Developers' Association) is the international software standards body for the software industry. A UK-based, not-for-profit organisation with over half of its members based outside of the UK, **BASDA** has been running successfully for ten years. Today it has more than 300 members ranging from organisations like SAP at the corporate end of the market and SAGE Software at the entry level. Providing business and market intelligence, as well as making representation on key industry standard forums, **BASDA** offers a unique service to the global software industry and to its customers.

BASDA members develop a wide range of application software from accounting, human resources, logistics and manufacturing systems, to taxation and web based applications. Whilst its primary Members are Software Developers, the membership also encompasses Associate Members - organisations that are associated with the software industry but not software developers in their own right; - and, more recently, Affiliate Members: - organisations which are participating in the various vertical eBusiness forums that **BASDA** has established for the development of eBusiness.

As an international standards body BASDA has been involved in a number of initiatives to develop and support national and international agreements on:

- ◆ BSI Accounting Kite Mark (1993)
- ◆ VAT Standard (1995) establishing an accreditation standard for business and accounting software in conjunction with HM Customs & Excise.
- ◆ EDI Standard (1996) - a common standard for orders and invoices in co-operation with the EDI Association.
- ◆ FEDI Standard (1996) - a suite of messages for financial EDI in association with APACS representing the Banks.
- ◆ EMU Standard (1997) - EMU Accreditation Standard which was widely used in the Euro-Zone during the conversion to the Euro. It was the most popular Accreditation Standard in the Euro-Zone with over 40 packages achieving BASDA Accreditation.
- ◆ eBIS-XML Standard (1999) - the eBIS-XML suite of messages and certification Standard to ensure interoperability.
- ◆ Inland Revenue Self Assessment (1999) - first GovTalk initiative developing the original standards for filing of the self assessment over the Internet which went live in 2000.
- ◆ Inland Revenue PAYE (2000) - the PAYE Standards for year end employer submissions and monthly PAYE submissions.
- ◆ eBUILD-XML (2001) - a specialist vertical market forum for the House Building Industry which has developed an add-on, eBUILD-XML, to the BASDA eBIS-XML Standard that is now in live operation.
- ◆ SPERA Pensions (2001) - a Standard Pensions Electronic Remittance Advice (SPERA) message for the pensions industry linking payroll systems to the pension providers via the Government Gateway.
- ◆ eProcurement (2002) - a simple and effective means of eProcurement using 'suppliers' existing websites rather than e-catalogues, in conjunction with local councils, universities, colleges and schools.
- ◆ OGC, Office of Government Commerce (2002), is considering the use of the eBIS-XML suite throughout Government as the standard eProcurement interface for Government purchasing departments.

The work that **BASDA** has undertaken in developing these standards has been recognised by the European Commission, FEE (Federation of European Accounting Bodies), the Bank of England, the Department of Trade and Industry, the Inland Revenue, HM Customs and Excise, HM Treasury, the Office of National Statistics, the Office of the e-Envoy, and the Office of Government Commerce. **BASDA** members are active participants on the UN CEFAC, ebXML and XBRL Working Parties.

BASDA is now involved with several collaborative initiatives to promote the wider adoption of its eBIS-XML Standard:-

GOVERNMENT INITIATIVES

- ◆ OECD - eInvoicing
- ◆ OGC - eProcurement
- ◆ DfES - eProcurement for schools
- ◆ Inland Revenue
 - Self Assessment - Citizen & Agent filing
 - Payroll / PAYE - year-end & monthly returns
 - Corporation Tax - XBRL
- ◆ HM Customs & Excise
 - VAT 100, EC SL, Intrastat
 - Audit File
- ◆ National Statistics

PRIVATE SECTOR INITIATIVES

- ◆ SPERA - Stakeholder Pensions
- ◆ eBUILD-XML - House Building Industry
- ◆ BOSS Federation - Office & Stationery Supplies
- ◆ HEeP - Colleges & Universities
- ◆ eProcurement - Local Government and key suppliers
- ◆ PIDX - Oil & Gas Industry

The Way Forward for eBusiness

BASDA members are totally committed to moving toward an electronic means of transaction processing using open standards and moving eBusiness forward as fast as possible

At the simplest level, the electronic transmission of business documents offers savings in paper and postage. By going a step further, businesses can make major strides in communicating with their partners, at relatively low cost, through direct links between their computers. This provides an opportunity to create real eBusiness links and thus gain extraordinary benefits.

IF YOU WANT YOUR COMPANY TO BENEFIT FROM eBUSINESS AND NEED ADVICE OR IF YOU WOULD LIKE TO GET AN eBUSINESS FORUM GOING IN YOUR INDUSTRY, COME AND TALK TO US OR VISIT THE **BASDA WEBSITE AT www.basda.org. THERE YOU CAN DOWNLOAD THE eBIS-XML MESSAGES FREE OF CHARGE.**

WE ARE HAPPY TO HELP!

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