eBIZ-TCF	*Harmonising eBusiness processes and data exchanges for SMEs in the textile/clothing and footwear sectors in the Single Market*

Analysis report on eBusiness adoption in Textile/Clothing and Footwear sectors

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Table of Contents

Executive Summary

The type of eBusiness analysed in this report is limited to the electronic exchange of data between businesses for supply chain related activities in the European Textile/Clothing and Footwear sectors. This is particularly relevant to the eBIZ-TCF project which has the objective of increasing adoption levels of such systems.

The information in this report has been gathered through contact with a large network of industry experts and stakeholders including large enterprises, national federations, relevant service providers and leaders of collaboration projects. The report however may not claim to be a totally comprehensive survey of all eBusiness activity in the sectors, due to the geographic coverage, number and heterogeneity of stakeholders involved some initiatives may not be yet included.

Both of the sectors have very large numbers of SMEs and have complex supply chains. Between them have a turnover of over 30 billions of euros and employ about 3 million people and have been identified as amongst the lowest adopters of ICT systems

Although it is apparent that a large number of enterprises in the sectors are involved in some form of eBusiness, in most cases, the number of transactions is very small and the business benefits are very limited. This is often because systems can only connect to a small number of trading partners or has a limited number of functions.

eBusiness systems in the sector have been developed by single enterprises (typically large retailers), by software or service providers who are often eBusiness specialists and by collaborations between networks of trading partners or industry leaders both at national and European level.

Adoption levels are broadly similar in the two sectors in the downstream part of the supply chain between producers and their customers but eBusiness is more common downstream than in the upstream chain between producers and their suppliers.

This largely results from the need for many enterprises to connect to large retailer eBusiness systems and means that the systems are most frequently found in the countries of Western Europe.

There a fewer sector specific requirements in the downstream supply chain and wider adoption and greater benefits from eBusiness would result from closer alignment with the solutions and standards in other consumer product sectors

Increasing investment is being made in eBusiness systems for the upstream chain where the value of improved information flow in the complex supply chains in such competitive sectors has been recognised. These initiatives are most common in Southern Europe where production is still relatively important. In this segment of the supply chain there is a greater need for sector specific solutions as there a number of specific manufacturing processes.

The development of many different systems, without reference to similar systems developed elsewhere, together with the constant evolution of ICT technology has led to the implementation of numerous and varied different technical and business related standards.

The emergence of the Internet as a means of data communication has had a significant impact on standards relevant to eBusiness. A number of new communications protocols have been created in addition to the non-Internet protocols already in existence. It has also led to the adoption of XML as the preferred technology for messages rather than traditional formats like EDIFACT.

At the business level in the Textile/Clothing and Footwear sectors, standards are not always used to identify products and locations or for product classification and this can inhibit the level of eBusiness adoption or cause problems for interoperation between systems.

Systems using different standards are one obstacle to a wider level of adoption because not only do they lead to greater costs, which a particular obstacle to SMEs who have limited financial and technical resources, but they also limit the benefits as they often provide connection to only a few, or even one, trading partner.

While the use of different standards can also make interoperation between systems difficult, many of the differences can frequently be overcome by the use of third party specialist eBusiness services which can, for example, accept data sent by a variety of different communications protocols and can provide translation services from one message format to another.

These services cannot, however, overcome problems at the business system level where differences in the content of data between two systems will make interoperation between them impossible

However, the biggest obstacle to increased adoption levels is the increased cost or lack of perceived benefit, particularly by SMES. These can only be overcome by ensuring that eBusiness systems are properly supported and that the impact is fully understood by all participants while, at the same time, increasing the value to be gained.

Not only is it necessary to increase the benefit by improving the quality and quantity of data exchanged in current business processes but also by introducing solutions to support new business models.

Definition of Terms

The following terms have been used to provide consistency throughout this document. They have been used in connection with various aspects of the complex supply chain in the sectors and some of the relevant terms used in eBusiness.

Textile/Clothing Sector

The Textile/Clothing sector comprises those defined in the NACE Revision 1.1 classification as Group 17 "The Manufacture of Textiles" and Group 18 "The manufacture of wearing apparel; dressing; dyeing of fur"

Footwear Sector

The Footwear sector is defined as Group 19.3 of the NACE classification "Manufacture of footwear"

TCF Sectors

The term "*TCF sectors*" is used when referring to the combined Textile/Clothing and Footwear sectors.

Producer

The term "*producer*" is used when referring to an enterprise that is transforming materials either into a finished product or by adding value in some other way. Value can be added either by transforming materials into component parts of finished products, or by performing processes applied to component parts or finished products. The actual transformation may be done by the producer or by a sub-contractor.

Customer

The term "*customer*" is used when referring to an organisation purchasing from producers.

Supplier

The term "*supplier*" is used when referring to an enterprise that supplies materials, parts, processes used in manufacturing (such as printing and dyeing) or when referring to sub-contractors who supply finished products to producers.

Downstream

The term "*Downstream*" is used when referring to that part of the supply chain between producers of finished products and their customers (normally retailers).

Upstream

The term *"Upstream*" is used when referring to that part of the supply chain between producers of a finished product and their suppliers of materials, component parts and processes used in manufacturing products. It is also used when referring to the whole of the supply chain involving the sub-contracting of finished products and the sub-contracting of materials and component parts or of processes used in manufacturing products.

It can be seen from this definition that there are both Producer-Customer relations and "Producer-Supplier" relations in the upstream chain.

eBusiness

Generally, the term "*eBusiness*" can be applied to a number of different facets of ICT ranging from integration and improving the efficiency of the supply chain to improving the efficiency of development and production processes and to innovation in marketing and sales both to business and consumers.

In this document, the term is limited to supply chain related electronic exchange of data or documents in the business to business (b2b) environment, covering both the upstream and downstream parts of the chain

Formal Standard

The term "*formal standard*" is used when referring to specifications that comply with the definition in Directive 98/34/EC:- "*a technical specification approved by a recognised standardisation body for repeated or continuous application, with which compliance is not compulsory*"

Local Standard

The term "*local standard*" is used when referring to specifications developed through collaboration and cooperation between partnerships of various sizes. These may either be local to one region or be cross-border

Proprietary Standard

The term "*proprietary standard*" is used when referring to specifications developed by a single enterprise to satisfy its own particular requirements.

Traditional EDI Messages

The term "*traditional EDI messages*" is used when referring to data in business documents or messages using any syntax other than XML. The most common of these are EDIFACT messages but the term is used to also cover EANCOM, X12 and TRADACOM and similar message formats as well as messages that are not compliant with a formal standard.

EDI/XML Messages

The term "*EDI/XML messages*" is used when referring to data in business documents created by using the eXtensible Mark up Language (XML)

Interoperable

The term "*Interoperable*" is used when referring to systems that agree on common rules with a loose coupling between objects and systems while maintaining internal representations and agree on their mapping

1 Introduction

The scope of this analysis has been limited to supply chain related electronic exchange of data or documents in the business to business (b2b) environment. The scope has been limited partly because of the amount of time and resources available for the analysis and partly because of the relevance of this aspect to the objectives of the eBIZ-TCF project.

In later stages of the project (WP4), examples of harmonised and interoperable eBusiness systems will be implemented demonstrating the key benefit of eBusiness which is to provide accurate and timely information leading to efficiency improvements in the supply chain.

These benefits enable quicker response to changing market requirements, provide more flexible and improved levels of service and introduce shorter lead times in bringing new products to market.

All of these are particularly important in the TCF sectors which have complex supply chains. Improved information also gives them the opportunity to introduce the new business models and practices needed in order to remain competitive

The information in this report has been gathered through contact with a network of industry experts and stakeholders including large enterprises, national federations, relevant service providers and leaders of eBusiness collaboration projects.

Although it is not a totally comprehensive survey of all the eBusiness activities in the sectors, it describes the type of system implemented in the sectors at both technical and business level and explains why they have not been more widely adopted. Examples of eBusiness projects and systems implemented are given in the Appendixes.

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While the scope of this analysis has largely been restricted to eBusiness within the European Union, the evidence available suggests that the level of adoption, the level of standardisation and the obstacles encountered are similar in the Rest of the World to that in Europe.

Furthermore, there is no evidence that any eBusiness system or related standards are pre-eminent in either of the sectors outside of the Europe Union.

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2 Context and Background

The Textile/Clothing sector embraces a diverse set of activities, ranging from the treatment of raw material, finishing activities such as printing, dyeing, coating etc to the transformation of fabrics into articles of clothing.

Clothing and Fashion is the largest sub-sector and is strongly driven by changes in volatile end market demand based on fast changing fashion trends and seasons. The main success drivers are constant non-technological innovation through design/creativity, high levels of flexibility and quick response to changes in demand. Levels of technology intensity and productivity are high in the textile supply chain while significantly lower in clothing manufacture.

The other two sub-sectors are Home and Interior Textiles (the second largest of the sub-sectors accounting for about one third of total industrial production) and Technical Textiles (a wide variety of textile material products today accounting for about one quarter of total industrial activity, although this share is increasing.

In 2006 the EU-27 textile and clothing sector had a turnover of 200 billion Euros, accounting for 7.6% of industrial employment and employing 2.6 million people in 160,000 organisations.

Products in the footwear sector include a variety of formal and casual styles as well as more specialised items such as sports and protective footwear. Although footwear manufacture is classed as part of the leather industry, it increasingly uses alternative materials such as textiles, plastics and rubber. This diversity leads to a number of different industrial processes and market structures.

In 2006 the EU-27 footwear sector had a turnover of around 30 billion Euros accounting for around 0.5% of industrial employment and employing about 250,000 people in more than 12,000 organisations.

In addition to issues related to trade policies or global economics, both sectors in Europe face similar major technical challenges at present:

- Strong dependency on clothing and footwear production on the labour cost element, resulting in European industry delocalisation
- Complexity of the supply chain and highly fragmented structure of the industry hampering innovation generation/adoption. With the exception of larger groups, innovations often lack continuity, strategic direction, human resources and knowledge
- Overproduction of offer with steadily increasing imports based on long lead time offshore production.
- Increasing demand for customised or personalisation of products

In both sectors, SMEs make up the majority of these organisations and it is well known that the lack of the necessary human and technical resources in small firms is an obstacle to technological advances.

3 Level of eBusiness Adoption

3.1 Scale of Adoption

While the analysis has shown that a large number of enterprises in both sectors are engaged in some sort of eBusiness, it also shows that in the majority of cases, the benefits are limited. This is because a small number of transactions are exchanged with a small number of business partners.

Often, this is because, in common with most other consumer product sectors, adoption of eBusiness is frequently as a result of an SME responding to the demands of a single large customer. Typically, they are meeting the requirement to send or receive a single type of message such as an order or sales data.

Electronic exchange of data should lead to benefits in faster processing of data and receiving more accurate information but, in the scenario where this occurs with only one or two trading partners these benefits are small.

n comparing 10 different sectors in 2005, the eBusiness Watch report found that ICT adoption in the European Textile/Clothing sector was below average. In a similar report in 2006, eBusiness Watch found the level of adoption in European Footwear sector to be the lowest of the 10 sectors studied. Surprisingly, in both of these studies approximately half of the companies interviewed thought eBusiness important to the way they run their business.

The studies used the level of electronic ordering as one measure of comparison between all the sectors studied. While around half of the companies in both sectors received or sent some of their orders electronically, only 3% of companies in Textile/Clothing placed more than 25% of their orders on-line and only 6% of small companies (less than fifty employees) in Footwear sent more than 10% of their orders electronically.

Orders are, of course, only one of a number of documents that can be exchanged and, in isolation these figures cannot be used as a benchmark of the overall level of eBusiness adoption.

The current analysis has indicated that adoption levels have not changed significantly since the eBusiness Watch reports and has indicated that the reasons why companies adopt or do not adopt eBusiness remain the same.

In both sectors, the level of adoption is significantly greater in the downstream part of the supply chain than in the upstream part. This is consistent with eBusiness activity in other consumer product sectors where systems are often retailer driven.

It is also true that there has been greater availability of suitable software for the downstream supply chain and that the retail sector has been quicker to adopt technology than manufacturing industry.

In the downstream supply chain levels of adoption in the two sectors are broadly similar. This is to be expected given that the sectors often have common customers, including the large multi-sectorial retailers and more specialist retailers stocking both clothing and footwear.

For the same reason, the distribution of downstream eBusiness systems through the Member States of the EU is also broadly similar in the two sectors. The highest level of adoption is probably in Central Europe, notably Germany, where there are a number of large retailers as well as big brand producers and distributors connected to their own shops, franchisees and customers. Similar systems exist in Scandanavia, France, Italy, Spain and the UK.

Systems developed for SME retailers can be found to some degree in most of the countries of Western, Central and Northern Europe but very few downstream eBusiness systems of any sort have been implemented in Eastern Europe.

In the upstream supply chain, the level of adoption of eBusiness is greater in the Textile/Clothing sector than in the Footwear sector, probably prompted by the complexity of the supply chain and of the manufacturing processes in that sector and the need for European producers to change their working practices to remain competitive.

Examples can be found of collaboration projects, between producers and suppliers and of internal systems of large producers with a high degree of product sourcing from outside the EU. Typically, both types of system have been designed to exchange design information, manufacturing data and specifications or track the status of orders.

Examples of such collaboration projects are TxtChain and Textille Business in Textile/Clothing and Shoenet and EFNET-3 in Footwear (these are outlined in the Appendixes),

Few eBusiness systems in the sectors have large scale cross-border connections although some, especially those owned by a single producer or retailer, connect to partners outside of the Member State of the system “owner” while a small number of the collaborative systems have partners in different Member States.

There are also few examples of eBusiness systems operating across both the Textile/Clothing and Footwear sectors. The most common examples are the systems of multi-sectorial retailers and of vertical organisations trading in both clothing and footwear.

In common with most other sectors, eBusiness systems have generally been introduced by:-

- Large enterprises
- Third parties
- Collaborative projects.

3.2 Large Enterprise Systems

Several large multi-sectorial retailers as well as sector specialist producers and customers have introduced eBusiness systems into the TCF sectors. As virtually all of these systems have been designed to meet the individual needs of the system owner, they seldom fully address the greater need for standards. While they may conform to certain technical formal standards, they invariably employ proprietary standards at the business level and are not designed to be adopted elsewhere.

In some cases, particularly in multi-sectorial retailer systems, the proprietary nature of the specifications make interoperation difficult and large enterprises are often reluctant to change to more open systems. Sometimes this is to protect their investment in the systems and sometimes to try to retain a perceived competitive advantage given by the systems

Systems specific to the TCF sectors have been implemented by big producers to connect to their customers, by big retail chains to connect to their producers and by vertical organisations who are both producers and retailers.

It is generally recognised that vertical organisations, such as the Spanish brand Zara have gained competitive advantage through speedy information exchange between head office and their shops. Access to up to date sales data enables them to respond quickly to changes in market trends.

3.3 Third Party Systems

Third parties introducing eBusiness systems include both software vendors and specialist eBusiness service providers.

Software vendors sometimes create eBusiness systems by adding functions to Enterprise Resource Planning (ERP), Retail Management Systems (RMS) and Electronic Point of Sale Systems (EPOS) at the request of single client.

Having invested in the modifications, the software vendor integrates them into the standard product, anticipating that the enhancement will lead to increased sales. There is evidence to suggest that such enhancements, notably to low cost EPOS systems, does sometimes lead to increased eBusiness adoption

However solutions provided by specialist eBusiness service providers have been more effective in raising the level of adoption, often because they provide services that make systems interoperable and thus extend the number of connected business partners.

Many of these systems use the Application Service Provider (ASP) model which greatly simplifies installation and operation for SMEs. Nearly all of the services run at a centralised host and users often need only a standard Internet browser to access the system.

However, to use even these systems, some level of investment by is required by the users as it is usually necessary to create interfaces to or even modify their internal ERP system. While these systems are usually designed for ease of operation within that ASP community it serves, they are not always motivated by the need for open formal standards.

Buying Groups, who are particularly strong in the Footwear sector especially in Northern and Central Europe, are another example of a third party organisation that has developed eBusiness systems for use by their members.

Their systems exchange product availability and sales data with many thousands of members (retailers) and receive sales data from them. However, the systems only permit data exchange between producers and the Buying Group or between

members and the Buying Group and cannot be used to communicate directly between business partners

As with the systems of large enterprises, systems introduced by third parties have often been developed to address the needs of a single organisation and, like them often do fully address the needs for standardisation. The specifications at the business level in these systems can usually considered to be proprietary or local standards

3.4 Systems from Collaborative Projects

Collaboration projects often bring together a network of business partners or industry leaders working together, often in projects initiated by a regional cluster or by a National Federation or European Federation. These include the Texspin, Texweave, Moda-ML and Prato initiatives in the Textile/Clothing sector and the EFNET, SHOENET and CECMadeShoe projects in Footwear.

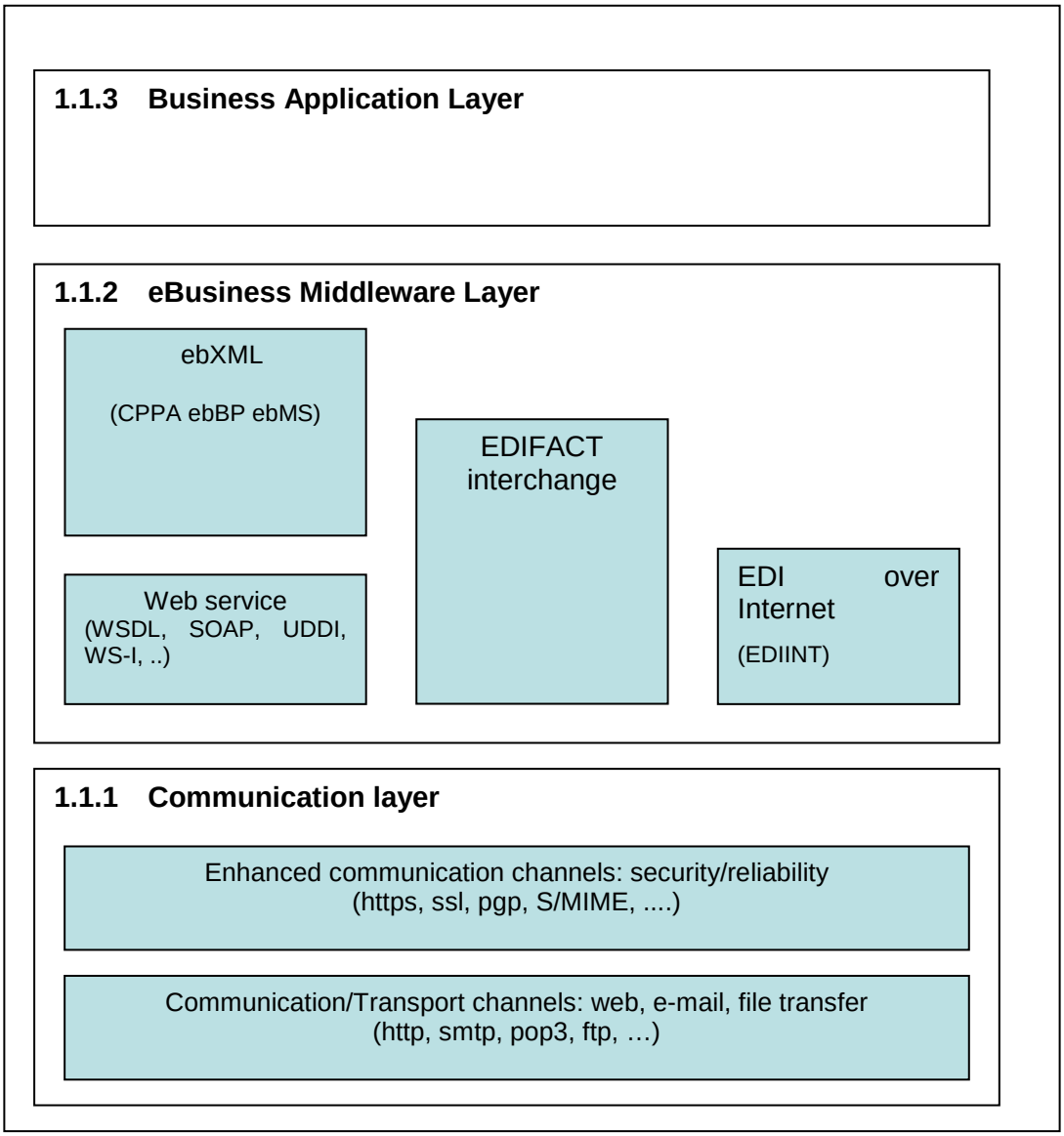
The wider consultation stemming from the involvement of several parties in these projects usually means that more attention is paid to the need for standardisation. The projects also often involve recognised standards organisations and, as result, most of their specifications at the business level can be considered as formal standards or local standards

Unfortunately, despite this level of collaboration, a number of markedly different specifications have been proposed to address the same business processes. Sometimes this has been caused by a lack of awareness of the earlier work but, more often it is because the previous standards were in some way inappropriate, possibly because newer technology is being employed.

Thankfully, “multiple” standards for the same processes have become less frequent recently because of greater awareness through dissemination, a greater willingness to collaborate and the involvement of the European Federations of both sectors in co-ordinating projects.

4 Existing Standards

eBusiness standards can be divided into three categories aligned to the layers frequently used to describe Internet communications protocols as shown in the figure below:-



- The Communication layer describes the Internet communication services suach as mail, web and ftp
- The eBusiness middleware layer describes the processes that enable smoother transfer of application data through communication channels
- The Business application layer describes issues relevant to specific business needs

Several formal standards exist in both the Communications and eBusiness middleware layers. These are not sector specific but standards in the Business Application layer normally are sector specific. In this layer in the TCF sectors, there are existing formal standards as well as local and proprietary standards covering the same business processes

4.1 Communication Layer

Although communication layer standards are not sector specific, it can been shown that the use of different data communication methods by different systems often contributes to interoperability problems.

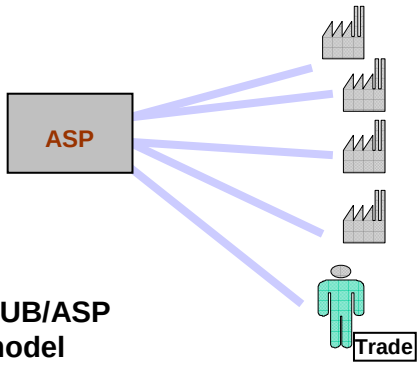
Traditionally, Value Added Network (VAN) services were used for transporting traditional EDI messages. VANs use dedicated lines and are store and forward networks and providing additional features such as error detection, reliability of message transmission and security features (data protection, party authentication, non-repudiation).

In some cases, they provide translation services between traditional EDI messages, EDI/XML messages and proprietary message specifications. The EDICOM service described in Appendix B and used by a number of large retailers is a good example of an enhanced VAN.

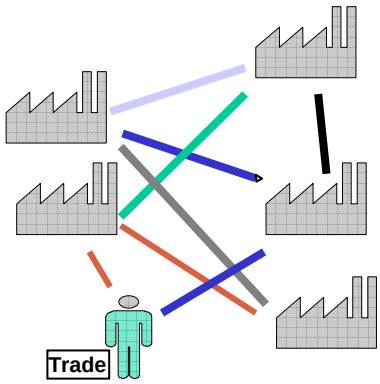
A variety of solutions have been developed to take advantage of the lower costs and great convenience offered by Internet based data exchange. This has led to a large number of Traditional EDI messages being transported over the Internet even in the absence of a standard reference architecture and often leading to the replacement of VANs by third party communication hubs. These hub services normally also provide the necessary data integrity, security and partner authentication services.

As an alternative to hubs, methods such as web portals, web services and electronic mail are used for communications each offer differing levels of security and reliability. For example, systems based on electronic mail (SMTP) often lack even minimal security and reliability features, while Web Services are still not widely used and have similar security problems. Even ebXML solutions are still not very widely used.

Internet communication can therefore, be either directly peer to peer (P2P) or through a third party service (ASP) using the HUB-Spoke model (as shown in the figure below). However, no form of P2P communication, whether using Internet communication or not, can be considered as a formal standard.



HUB/ASP model



P2P model

Regardless of the sector, P2P communication is used only when the trading partners are well known to each other and there are a relatively small number of partners involved. This is a scenario which is quite common in the upstream supply chain of the TCF industry.

It is clearly essential that future versions of formal Internet communications standards include the missing necessary security and reliability mechanisms. They could be implemented at the transport level (https, pgp, S/MIME, etc.) or at the lower Internet layers (Virtual Private Networks on IP level, etc.) or at application level (XML Cryptography, XML Signature).

4.2 eBusiness Middleware Layer

Middleware standards are designed to facilitate the interoperability in the transmission of eBusiness documents but the use of different standards in this layer can also cause interoperability problems. Middleware standards include:

- EDIINT (EDI for the Internet) standards (AS1, AS2, AS3) which specify how Traditional EDI messages should be transmitted over Internet;
- The ebXML framework which specifies the collaboration process model between the parties and how XML documents should be transmitted.
- Web Services, which specify how to overcome interoperability problems in distributed applications.

4.2.1 EDIINT standards

EDIINT standards were created to address the problems caused by the number of different communications channels used to transmit traditional EDI messages over the Internet. They were developed by the EDIINT Working Group set up by IETF (the body responsible for Internet standards) and consist of three main standards:-.

- AS1 (Applicability Statement 1 for SMTP protocol, asynchronous – “Batch Mode”) using email attachments with S/MIME (Secure/Multipurpose Internet Mail Extensions) encryption and security over SMTP (Simple Mail Transfer Protocol)

- AS2 (Applicability Statement 2 for HTTP protocol, synchronous – "Peer-to-Peer, Real Time") using S/MIME encryption over HTTP (Hyper Text Transfer Protocol)
- AS3 (Applicability Statement 3 for FTP protocol, synchronous – "Client/Server") using S/MIME encryption over FTP (File Transfer Protocol) in a client/server model.

These standards define a full range of security services, such as encryption of digital signatures, or digitally signed receipts of return. Additionally, EDIINT enables real-time peer-to-peer communication which is preferable to the traditional batch driven process associated with VANs which involved a wait time between submission and confirmation of receipt of a message..

However, adoption of EDIINT standards presents some new technical challenges particularly for SMEs with their limited resources. At the very least, they demand competence in network administration and create an additional burden in the management of digital certificates.

4.2.2 ebXML

ebXML (Electronic Business using eXtensible Markup Language) (www.ebxml.org) is a family of XML based standards sponsored by OASIS and UN/CEFACT, whose mission is to provide an open, XML-based infrastructure enabling global use of electronic business information in an interoperable, secure, and consistent manner by all trading partners. Achievement of this goal is particularly beneficial to SMEs.

The original project covered five layers of data specification, including XML standards for:

- Business process modelling (ebBP)
- Collaboration protocol profiles and agreements (CPPA),
- Core data components (CCTS)
- Message service specification (ebMS)
- Reegistries and repositories – these specifications are now

Of these, ebMS and CPPA are particularly relevant to interoperability. ebMS aims to facilitate the exchange of electronic business messages within an XML framework and is logically positioned between one or more business applications and a communications service. The specification caters for the transport of both XML and traditional EDI messages.

CPPA aims to formalise the process of collaboration between business partners and its specification is intended to reduce ambiguity when defining inter-organisational collaboration and to link the technical specification to the organisational issues.

4.2.3 Web Services

Web Service technologies were developed to support interoperable Machine to Machine interactions over a network. The standards in Web Services most relevant to eBusiness are:

- SOAP (Simple Object Access Protocol) - to codify the data
- WSDL (Web Services Definition Language) - to describe the service
- UDDI (Universal Description Discovery and Integration) - to create centralised registers of all the Web Services available on the Internet

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In addition, there is a complete set of standards that deal with al aspects of the communication over the web, including security, reliability and addressing. These are usually referred to as WS-* Profiles,.

Of on these, the guidelines for Interoperable Web Services known as WS-I profiles are important for achieving interoperability between systems and as such are considered as an emerging middleware standard for eBusiness.. They were created by the WS-I consortium (an open industry organisation http://www.ws-i.org/).

Each profile refers to well defined set of specifications although it should be noted that compliance to a WS-I profile does not ensure that the Web Service is fully interoperable, only that it achieves a minimum compatibility level.

4.3 Business Application Layer

The standards applicable to the Business Application layer have been sub-divided into those:

- applicable to the content of the data to be exchanged including data models as well as specific sector related issues such as product numbering and classification
- applicable to the syntactical formats of messages such as EDIFACT and XML

Generally the standards related to data content are specific to the requirements of the TCF sectors while the syntactical formats are not.

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4.3.1 Data Content

Different specifications relating to data content have been developed for both sectors which can be classed as formal standards, local standards or proprietary standards. The formal standards commonly result from the collaboration of business partners working together, often in conjunction with a regional association or a National or European Federation.

Appendix A contains a brief history of the developments of many of the most important of these collaboration projects in both sectors.

4.3.1.1 Message Formats

Message formats have to address three different types of scenario in the TCF sectors:

- specific products or manufacturing processes that require very specialised content of the data conveyed
- specific sector activities, particularly in the production process which still require some specialisation in the content of the data
- general business activities that are not sector specific

Several different sector specific message formats have been developed that cover virtually all of the business processes in the downstream supply chain such as Orders, Order Responses, Product Catalogues, Despatch Advices and Invoices.

A smaller number of different formats have been also developed to address many of the upstream processes but few of these are suitable when referring to specific products or manufacturing processes.

While activities of the two parts of the chain include common transactions such as orders and order responses, the message formats used necessarily differ because of the different types of information required regarding finished products and component parts

The Texweave+ specifications (improvements to the original Texweave specifications made by Moda-ML) in the Textile/Clothing sector and the Shoenet specifications in the Footwear sector are good examples of standards that meet sector specific requirements in the upstream chain.

4.3.1.2 Identification and Numbering

A common or standard method of identifying products is very desirable, particularly in the downstream supply chain as the lack of such a standard potentially adds to the complexity of systems.

Without one, retail systems for example, might need to understand the individual identification and numbering systems of several manufacturers and to deal with the resulting potential for number duplication.

The numbering and identification system known as Global Trade Identification Numbering (GTIN) developed for consumer products in conjunction with the standards organisation GS/1, is widely used for many types of consumer product. While it provides for the unique identification of products of the same specification; for example, the same style or model, colour and size, it does not facilitate the unique identification of individual products

Largely driven by the demands of the large retailer organisations, GTIN has now been widely adopted in downstream chain of the TCF sectors being used to identify products both in eBusiness data exchange and at the point of sale through bar coding using EAN/UPC symbology.

A unique product numbering system has existed in the UK footwear sector since the early 1980s and was adopted by all the leading branded producers. The system consisted of a unique number for each UK producer and a structured product code which included an internal colour code, width fitting and size. These numbers were represented on shoe box labels using Interleaved Two of Five (ITF) bar code symbology

Demands from specialist retailers who stocked non-UK brands using GTIN numbering and EAN/UPC bar codes meant that EPOS and RMS systems in the UK footwear sector had to support both UK and GTIN product numbering systems. Demands from non UK customers stocking UK brands and from multi-sectorial retailers meant that many UK producers have either had to change to GTIN/EAN or to operate parallel systems and stocks using GTIN/EAN and the UK system.

In some cases, in the TCF sectors, a unique, universally known number is not considered essential. Examples are fashion products with very short life cycle, and customised products.

Furthermore, the need for a standard numbering system not so clearly recognised in the upstream chains of the TCF sectors either for finished products or for materials or component parts.

In the case of complete products, use of GTIN is often deemed unnecessary when exchanging data in the development process because a significant proportion of the various combinations of models, colours and materials in development do not become “real” products and because the communication is often restricted to a very small number of partners.

In the case of materials or component parts no suitable standard system for standard numbering and identification exists. Most businesses therefore use the internal, proprietary identification systems of one or other partner in day to day business transactions and this potentially represents a considerable obstacle to interoperation between different systems.

A common method of uniquely identifying business locations is also desirable in eBusiness and a system closely aligned to and compatible with GTIN known as the Global Location Number (GLN) was developed for this purpose. This has not been widely adopted in either the Textile/Clothing or Footwear sectors, one reason being the resistance to the cost of registration with GS/1, particularly by SME retailers.

For many supply chain activities, it is essential that any location numbering system is able to allocate a unique location number to all premises belonging to a single enterprise; for example where a retailer owns many shops or a producer has several manufacturing plants.

GLN facilitates this whereas existing, commonly used company identifications that are sometimes proposed as alternatives, such as the VAT number or the company registration number, offer only one identifier per organisation.

Future, more sophisticated eBusiness systems will require tracking of individual products, particularly as the use of Radio Frequency Identification (RFID) technology

becomes more widespread and a small number of systems have already been implemented. These are generally used internally within large retail organisations or in logistics to track shipments of containers.

In preparation for this, Electronic Product Code (EPC) standards, managed by EPCGlobal Inc, have been developed including a Tag Data Standard (TDS) has been published for identification of items within the overall EPC technical standards which specifies how existing GTINs and GLNs should be encoded on RFID tags

4.3.1.3 Product Classification

A standard method of classifying products in a consistent manner is desirable to group together data concerning similar products from different manufacturers. This can be used to provide producers and retailers with valuable information about sales trends as well as providing statistical and trend information at both national and international level.

Such a classification system requires manufacturers to use an agreed coding system describing many of the characteristics of each product. However, it has proved extremely difficult to achieve consensus on the content of a classification system for either sector.

As part of the Global Data Synchronisation Network (GDSN) programme, which has thousands of members world-wide [1], a product classification system has been developed by GS/1 in conjunction with the user community. This was largely in response to the demands of a group of very large retailers, many of them in the USA

It is known as the Global Product Classification (GPC), a complex system with four tiers or classification levels plus a variable number of attributes to describe each product. Use of the GPC is mandatory for organisations using GDSN to publish product data electronically.

As interoperability is one of the design aims of GPC, it can be cross-referenced to existing proprietary classification systems and is aligned with another classification system managed by GS1, the United Nations Standard Products and Services Code (UNSPSC). UNSPSC is a global, multi-sector classification system supporting primarily spend analysis and procurement.

GPC has been developed for more than thirty sectors [2] including a classification for footwear that has been endorsed by the European Footwear Confederation (CEC). One of the criticisms of this GPC is that, the number of levels and attributes, make it much more detailed than is necessary for most requirements and is therefore, too difficult and too time consuming to implement.

As a result, there is little evidence that GPC codes are being applied by producers in the European footwear sector or that they are supported in the message formats of eBusiness systems. A notable exception to this being the formats of theERP platform of the CECMadeShoe project (Appendix A)

[1] Current list at http://www.gs1.org/docs/gdsn/gdsn_trading_partners.pdf includes a number of partners in the TCF sectors, many of whom are based outside the EU.
[2] http://www.gs1.org/services/gsmp/kc/gpc/101207.html)

While a similar GPC classification has been published by GS/1 for the Textile and Clothing sector, it did not involve any European clothing manufacturers or federations and has not been accepted by the European industry.

Of course, many larger manufacturers and retailers have their own internal classification systems which are often incompatible with each other although, in Central Europe local collaboration has resulted in the development of the DTB (Dialog Textil Bekleidung) classification system for clothing and the similar EAS (einheitliches Artikle System) system for footwear.

DTB is an informal collaboration of about 170 companies in Germany, Austria and Switzerland, including many of the most important ones in the sector whereas EAS was jointly developed by the Buying Groups in conjunction with many of the most important footwear producers.

These classifications are much less complex than those of GPC and have been widely adopted in their sectors in Germany while in the CECMadeShoe project, the EAS classifications have been successfully mapped to their equivalent GPC classifications.

The need for interoperation of electronic catalogues and harmonisation of product classification has also been recognised by the CEN/ISSS Workshop (eCAT). A number of Comon Workshop Agreements (CWAs) have published but these, such as the "Description of References and Data Models for Classification"[3] address the need for standards in creating classifications, rather than defining actual classifications

4.3.2 Syntax of Message Formats.

Most message formats transmitted in eBusiness system conform either to the syntax requirements of traditional EDI message formats or of XML although there are examples of networks exchanging messages that are totally proprietary and do not conform to any of these international standards. There is such an example in the footwear network in the UK (Appendix B) where the messages are in a format originally developed for use in Clarks' internal systems.

Traditional EDI messages in the European footwear sector are most commonly in EDIFACT or EANCOM format. EDIFACT messages were the first structured formats for EDI whereas EANCOM messages are a subset of them developed by EAN (GS1) specifically for exchanging commercial documents. In this analysis, a number of similar but different structures have been classed as traditional EDI messages such as those developed by ANSI ASC X12 (American National Standards Institute Accreditation Standards Committee X12) in the US and the Tradacoms messages developed by the ANA (Article Numbering Association now GS/1 UK) in the UK

Although traditional EDI messages were originally designed for non-Internet communication, these formats are now frequently transmitted over the Internet.

More recently developed systems designed for Internet communications normally contain business documents created in XML (eXtensible Mark Up Language), an

[3] ftp://ftp.cenorm.be/PUBLIC/CWAs/e-Europe/eCat/cwa15295-00-2005-Aug.pdf

open standard for describing data defined by the World Wide Web Consortium (W3C). In this analysis, XML documents used are referred to as EDI/XML messages.

5 Interoperability problems

Clearly the numerous variations of different specifications and standards present a major problem for interoperability between eBusiness systems. Variations can be found in all standards layers described in Section 4 and interoperation difficulties can result from differences in all of them, for example, the communications channel used, the content or syntax of message formats or the product numbering system used.

The existence of so many different standards could mean that theoretically a single organisation would have to implement different solutions to communicate with every business partner. Such a situation is obviously prohibitive in terms of cost and the requirement for technical skills and resources, especially for SMEs.

Given the current number of diverse standards and the continuing evolution of ICT technology, it is totally unrealistic to expect that the problem will be solved by the implementation of a single, globally accepted solution or that any particular system will be so widely adopted that it will achieve critical mass and thus become a de facto standard.

Agreement on such a global system requiring consultation with so many interested stakeholders would be virtually impossible and, as it is also totally unrealistic to expect all organisations to adopt new technologies simultaneously, interoperability problems cannot be resolved by using a single set of standards

Even if it could be achieved, implementation of such a system would take many years and, as the systems of large enterprises are often multi-sectorial, it could be argued that a global solution would need to cover all sectors. In any case, large organisations would be reluctant to expedite changes to very expensively developed systems which are often also seen to give competitive advantage.

A further complication is that standards themselves are always subject to change, particularly with regard to those associated with the Communications and Middleware layers as the technology used is constantly evolving and is not unique to the TCF sectors.

The sheer reluctance of many businesses to invest further in eBusiness systems creates another problem that is common in the TCF sectors. Many of them feel that they have gained little or no benefit from systems already implemented and do not feel inclined to use valuable resources that merely widen the number of partners with whom they can connect, preferring to invest, for example in product innovations that help them remain competitive.

6 Need for additional standards

The needs identified in this section have been restricted to standards at the Business Application layer (see Section 4.3). Whilst new or improved standards may be needed in other areas, for example relating to the use of the Internet for eBusiness communications (see in Section 4), these requirements are not unique to the TCF sectors and should be resolved by specialist standards bodies.

6.1 Additional standards needed for eBIZ-TCF

The eBIZ-TCF project will need to complete a set of specifications for guidance to Pilot Projects implementing new systems or enhancing old ones. This will be published in the Technical Architecture (WP3) and this architecture will also facilitate interoperation with other specifications or standards wherever possible.

While the message formats developed in the Texweave project, and further enhanced as “Texweave+” specifications by the Moda-ML Working Group, will be the basis for the message formats recommended for the upstream supply chain in the Textile/ Clothing sector, further analysis have shown that additional work will be required to make these specifications usable throughout the Textile/Clothing sector.

This is because the original project did not fully cover all the scenarios in the sectors, for example the specific requirements for knitwear in the clothing sector and for technical fabrics in the textile sector were omitted.

Very few additional enhancements are foreseen as necessary for the message formats originally developed in the Shoenet project and further enhanced in the CECMadeShoe project for the upstream supply chain in the Footwear sector

Some re-engineering will be required of existing messages to be used in the downstream supply chain of both sectors. Enhanced messages will be developed re-using a combination of messages developed for Texweave, the IERP platform in the of the CECMadeShoe project which adapted the Texweave standard for footwear and combined them with the exiting EFNET formats and standard components of the UBL library that are not sector specific.

All re-engineering of messages in eBIZ-TCF will be done using UBL (see Appendix A) as re-using and customising the existing UBL library, wherever possible. It will be the most effective way of carrying out this process and has the additional benefits of more closely aligning the standards with other sectors and through the “use profile” feature, produce specifications correctly defining the various business scenarios

6.2 Other Standards Required in TCF Sectors

In the upstream supply chain new or improved standards are required in both sectors where, for example, existing specifications do not cover technical data used in production networks or cross-sectorial networks exchanging information with suppliers of machinery or chemical products.

Fully usable specifications are also lacking for the design and prototyping processes as the specifications developed in the EFNET3 project in the Footwear need further enhancement while the work being done in the FP7 NMP integrated project LeapFrog IP for clothing can only be considered as a starting point.

Most importantly, in both sectors standards are needed to address changes in business practices, including:-

- the growth in customised and made to measure products,
- the increasing importance of niche (for example, protective, safety and medical) products
- more sophisticated efforts of producers to manage stocks.

Standards for customised and made to measure products are needed to specify additional product data required when the end customer is directly involved in the product design. Within the Textile/Clothing sector, the newly started FP7 NMP OpenGarments project focuses on problems of customised orders both upstream and downstream.

Standards are needed to cover not only the special characteristics of niche products but also the different distribution networks for them. For example no standard specifications are available for the public procurement of protective clothing although public procurement of protective clothing has been identified as a priority by the Textile/Clothing Technology Platform within the Lead Market Initiative launched by the European Commission.

Increasingly producers understand the possibilities arising from the speed of Internet communications to manage their inventories better and to thus increase profits. An example of such as initiative is the Stockflow project outlined in Appendix B.

7 Obstacles to eBusiness Adoption

At the business level, the structure of the TCF sectors is, in itself, an obstacle to eBusiness adoption as the high proportion of SMEs means that there are very few leaders who are developing and promoting systems other than those designed to mainly benefit a single enterprise. In fact, any companies feel they are too small for eBusiness systems

This means that investments are often made only because of pressure from larger business partners to implement systems where, for example, a large customer may demand that their orders can be received electronically or a large producer may demand that all customers return all their sales data electronically.

In fact, the low adoption level of most systems implemented means that only small benefits are achieved by most companies as only a relatively small number of users are willing to implement any one system.

This represents a poor return on investment and often means that the cost of eBusiness sometimes outweighs the benefits, particularly to SMEs. This can be the case in small companies where a new set of business processes has to be introduced to communicate with electronic trading partners that have to run in parallel with the traditional manual systems

Small companies in both sectors are only able to devote small amounts of time, personnel and money to eBusiness even under pressure from important customers and, in many cases, they do not have the level of know-how or technical resources to implement the systems. They feel the technology is too costly and too complex.

In these highly competitive sectors, organisations regard investments in product innovation and manufacturing processes, particularly in the Textile/Clothing sector, as a greater priority because they yield greater and quicker returns.

Often SMEs who lack technical expertise and experience in implementing ICT systems have been persuaded to adopt eBusiness either by large trading partners or software providers without fully understanding the impact on their business or without the necessary level of support, leading to disappointment in the results and reluctance to extend eBusiness adoption.

For example, if a large customer informs an SME that, in future, all orders will be sent electronically, it may be necessary to modify the internal manual and ICT systems and to establish appropriate support for the occasions when things go wrong.

To overcome this obstacle, networks of trading partners should have formal agreements covering all procedures and technical information and ensure that technical support is available at appropriate times.

In fact, the resistance to implementation by SMEs sometimes mean that large enterprises are unable to achieve the aims of electronic communication with all partners and they are left with both electronic and a traditional business procedures, gaining little overall benefit from its eBusiness system

Some of the resistance could be overcome if eBusiness systems were designed to share information between partners with business agreements designed to improve the efficiency of the supply chain.

For example, partners could agree on a re-ordering policy based on sales forecasts rather than simple replenishment or introduce agreements ensuring adequate stocks are held by the supplier or share information on product faults and attributes.

At the system level, the number of different existing standards and the difficulties in interoperating between systems presents a further obstacle to adoption as costs obviously increase further when having to establish connections with multiple systems.

These problems can occur at both the technical (communication and eBusiness middleware levels) and the Business Application levels. Solutions to technical interoperability problems can often be found, most commonly and most cost effectively by using third party services although problems caused by differences at the Business Application level are not always easily solved.

For example, differences of a technical nature in messages such as the syntax used can be solved by translating messages between formats. This practice, usually by a third party service such as a VAN or a hub, has been commonplace for many years.

However, translations are not effective if the data content of the messages is not aligned, often the case in the different eBusiness systems in existence in the TCF sectors, and sometimes systems with proprietary standards lacking open interfaces make interoperation very difficult or even impossible.

The lack of common product numbering and location identification systems is a particular issue in the TCF sectors, notably in the downstream supply chain where the commitment of the large retailers to the GTIN/GLN is at odds with the reluctance of the producers and small retailers to adopt them.

Similarly, the difficulty in establishing a common numbering and identification system, particularly for materials and component parts, is also likely to present an obstacle to interoperation and, therefore wider adoption, in the upstream supply chain in the sectors.

8 Benefits of Adopting Standards

Adoption of standards in any sector, or at least those defined as formal or local standards, leads to improvements in terms of both the effectiveness and cost of participating in eBusiness systems.

Effectiveness improves because the consultation and collaboration involved usually means that the specification more closely matches the business need. This is particularly true of formal standards benefiting from input by a recognised standards organisation.

While in the classical business models the benefit of eBusiness adoption is of limited value, the situation changes when the implementation of new business models are considered.

Certain processes, such as VMI, CRP or consignment/concessions are only possible with a solid backbone of information exchange. Therefore the ability to participate in certain parts of the consumer market is one of the biggest if not the biggest benefit.

Standardised systems are also more effective in increasing the number of eBusiness partners. This is not only because the system is equally attractive to other companies but also because it is more likely that efforts will be made to interoperate with systems using different standards

It can be seen that eBusiness costs can be lowered by the use of common systems and standards, thereby reducing the investment needed to implement many different solutions.

Costs can be lowered further by the integration of interfaces for widely adopted standards into popular software packages which in turn, can reduce the support costs which are seen as obstacle of adoption by SMEs.

Several case studies in Appendix A demonstrate how levels of eBusiness adoption have increased through the creation of formal and local standards

9 Conclusions

The conclusions to be drawn from this analysis include:-

1. That, that businesses in the TCF sectors are not always deriving sufficient benefit from adopting eBusiness systems to justify the investment made and this persuades many organisations, particularly SMEs, to invest their resources in innovations which yield greater and quicker returns.

2. That the level of eBusiness adoption is broadly similar in both sectors and they business reasons inhibiting increased adoption are also broadly similar in both sectors.

3. That, whilst some of the requirements in the downstream supply chain are sector specific, both sectors would benefit from aligning themselves more closely with the distribution and related eBusiness activities in all consumer product sectors

4. That collaboration between the Textile/Clothing sector and Footwear sector would be beneficial particularly in the downstream chain where the same application software is often used, the customers are often common to both sectors and systems need to support common product attributes such as colour and size variants of models.

5. That, while there are similarities in the nature of the upstream supply chains which are complex in both sector, many of the production processes are sector specific require sector specific solutions

6. That, in common with most other sectors, there are numerous existing standards and solutions but this situation is not going to change and it does not present the biggest single obstacle to eBusiness adoption.

7. That, particularly at the technical level, different standards do not necessarily prevent interoperation between different systems. With the emergence of Internet based technology, solutions enabling organisations to connect with systems using technologies are becoming more readily available, are simpler to install and lower in cost

8. That differences at the business level, including not only the content of data messages but also the business processes, are a bigger obstacle to interoperation and therefore to increased adoption and that this problem cannot be solved by technology

9. That increasing the value of the benefit gained from eBusiness is also likely to increase the level of adoption especially when the information exchanged assists the implementation of new business models.

10. That it is essential that a key function in establishing the Pilot Projects (WP4) is to make the participants full aware of the impact of the eBusiness on their business and that the best practices are described in the Dissemination activities of the project.

Appendixes

Appendix A – Standards Initiatives

European Textile/Clothing Sectors

EDITEX

The original attempt at e-Business standardisation in the European Textile/Clothing sector was the specification of EDIFACT standard messages by EDITEX EUROPE, an international group of experts, endorsed by COMITEXTIL and ECLA to represent the sector at the EDIFACT Board.

EDITEX used the relevant documents defined by the UN/ECE high-level Group of experts for Commerce and Administration (EDIFACT UNSM) and fine-tuned them to the requirements of the Textile/Clothing sector.

The following EDI documents were published:

- Purchase Order
- Purchase Order Response
- Purchase Order Change
- Invoice
- Dye Instruction
- Price Catalogue
- Delivery Schedule
- Despatch Advice
- Sales report
- Inventory report
- Quality data (fabric)

MODA-ML

Started as an EU project, Moda-ML (www.moda-ml.org) was one of several initiatives that sought to use superior internet technology, particularly the mark-up language, to improve interoperability in eBusiness.

It became a permanent Working Group in 2003, it is Italian based and coordinated by ENEA. It aims to promote the adoption and technical improvement of specifications, by maintaining and publishing XML schemas and their associated Dictionary of Business Information Entities

It operates in parallel with standardisation initiatives in order to provide analysis and technical support for them and to maintain Moda-ML versions aligned to these standardisation activities. While its XML Schemas can accept GTIN codes, Moda-ML is not restricted to a unique identification standard for products and locations

The focus of ModaML is on the upstream supply chain and concentrates on manufacturing integration. It preserved the know-how in the earlier EDITEX messages when translating them into XML formats and has since developed additional messages required to suit industry needs.

Moda-ML is compliant to ebXML specifications, its communication software (MSH) is compliant to ebMS 3.0 and to the security requirements of WS-Security 1.1

The group has created and released a set of messages (Moda-ML 2006-1) defined in the Texweave project which are fully compliant to the Texweave specifications. These specifications have been enhanced by the development of a further set of messages for eBusiness in the Textile/Clothing sector.

eTeXML

eTexML started in France independently from and in parallel to the ModaML initiative with the focus was on the downstream producer-customer relationship. This did not cause a conflict as the up-stream and the down-stream segments of the Textile/Clothing supply-chain had different requirements in terms of e-business solutions .

This project, in particular, took into account the parallel work of large multi-sector and was very much based on the work of GS/1 (or EAN as it was then known) including the adoption of GTIN and GLN identification standards.

eTxtML developed new messages for use in the downstream supply chain in addition to the work of translating the original EDITEX messages into XML although, in common with the Moda-ML group, it discovered that was not a unique way to translate EDITEX messages into XML Schemas.

The data models and message formats were later abandoned by the eTexML group and replaced by those proposed in the Texweave downstream specifications.

TEXSPIN

An original approach to standardisation was adopted through the Texspin project in the Textile/Clothing sector[4] where the domination of SMEs has caused particular difficulties in creating standard specifications[5].

Rather than the process that usually sees a few stakeholders drive (and, sometimes, fight in) the standardisation process, the approach was to mix standardisation initiatives in collaboration with ESOs (notably CEN/ISSS) with specific national or European initiatives led by 'willing' organisations.

The objective was to exploit existing standardisation efforts while trying to improve them in order to meet real industry needs. While this resulted in a large common

[4] Gessa N., Cucchiara G., De Sabbata P., Brutti A., "A bottom-up approach to build a B2B sectorial standard: the case of Moda-ML/TexSpin", pp 249-260, in "Interoperability of Enterprise Software Applications", workshops of the INTEROP- ESA International Conference, Geneve 22 February 2005, edited by Hervé Panetto, Hermes Science Publishing, ISBN-1-905209-45-5, 2005, Paris.

[5] Soderstrom E., "Formulating a General Standards Life Cycle", Proceedings of 16th International Conference of Advanced Information Systems Engineering - CaiSE 2004, June 2004, Riga, Latvia.
Jakobs, K., "Standardisation and SME Users Mutually Exclusive?", Proc. Multi-Conference on Business Information Systems, Cuvillier Verlag, 2004

background of analysis, the results were not completely harmonised and have only partially been recognised as standards.

TexSpin (Textile Supply Chain Integrated Network [6]) was a CEN/ISSS Workshop [7]running in 2002-2003. Its aims were to provide a standard for the integration of the Textile/Clothing/Distribution chain in a "Quick Response" vision

The work of both the Moda-ML and eTeXML formed the basis of the TexSpin and the later TexWeave projects and their associated Common Workshop Agreements (CWAs). It was the first effort to put the results of Moda-ML and of eTeXML into a single framework of standardisation

The rationale behind TexSpin was to improve the performance of the "chain" by accelerating the information exchange through the various actors. Enabling of a "reactive strategy" was seen as fundamental not only in reducing stocks and depreciations but also in increasing customer satisfaction.

In addition to the work of Moda-ML and eTexML, TEXSPIN also considered some specifications for both XML/EDI messages and traditional EDI messages to support a communication and collaboration platform.

In the event the project was unable to overcome the technology constraints of the textile industry which lacked the flexibility to transmit and share information in order to optimise supply chain process. In addition, analysis of these processes showed that the upstream and downstream processes of the industry had different requirements regarding the effective use of the information.

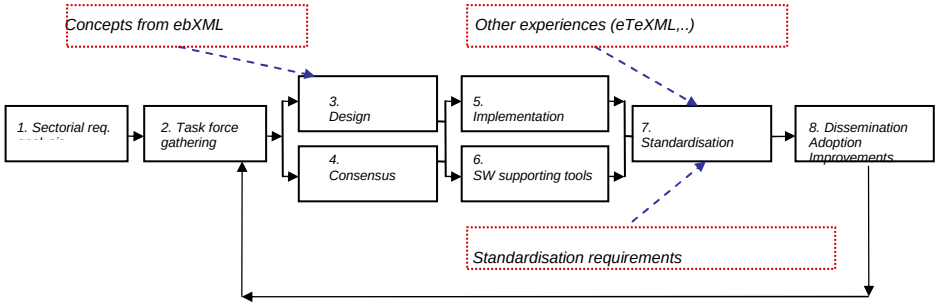
In the upstream chain, the highly specialised networks of enterprises where the producers of finished products rely on complex networks of large and small suppliers using highly specialised processes require strong integration between the partners.

These relationships have to be correctly modelled and specific languages (and data models) have to be provided. The collaborations usually involve a limited number of partners that know and trust each other with a strong relationship and are extremely 'customised' to fit the organisation of the partners. This calls for detailed and customised data.

While TexSpin and its successor the TexWeave published specifications for use in the upstream supply chain of the Textile/Clothing sector they only became effective when they were further developed and improved by a number of initiatives (principally Moda-ML) in order to conform to industry needs. In fact, the current specifications of Moda-ML can be considered as a sort of 'TexWeave +' set of technical specifications.

[6] "TexSpin, Guidelines for XML/EDI messages in the Textile/clothing sector", CWA 14948:2004, CEN/ISSS, March 2004, Bruxelles

[7] "Guidelines for XML/Editex messages in the textile/clothing sector" CWA 14948 published March 2004



Life Cycle of Moda-ML combined with the TexSpin and TexWeave standardisation initiatives.

In the downstream chain the requirement is for normalisation in process and product description, compact messages and universal coding. eBusiness activity is dominated by large enterprises and the focus is on product and company identification through the adoption of GS1 global coding (GLN and GTN) systems rather than on sector specific issues.

The retail channels include both large organisations as well as small shops and because of the size of some distribution networks, partners often do not know each other well and have an '*anonymous'* partnership, based only on obligation deriving from purchase contracts that expire with the delivery of the goods.

The following documents were published as Texspin standards. While recognising the need for separate approaches in the different segments of the supply chain, they also tried to preserve the greatest degree of "commonality". :

BUSINESS SCENARIO	PARTIES	MESSAGE
UPSTREAM		
Fabric purchase	Fabric Manufacturer Clothing Manufacturer	Textile Catalogue Textile Technical Sheet Textile Collection Forecast Textile Production Forecast Textile Purchase Order Textile Order Response Textile Order Change Textile Order Status Report Textile Despatch Request Textile Despatch Advice Textile Quality Report Textile Invoice
Fabric check	Fabric Manufacturer Clothing Manufacturer Quality Checker	Textile Despatch Advice Textile Quality Report
Fabric darning	Fabric Manufacturer Fabric Darner	Textile Darn Order Textile Darn Return
DOWNSTREAM		
Master data	Retailer Department store HyperMarket Mail Order House Shop Apparel Manufacturer	Party Info Product Catalogue Price Catalogue
Commercial transaction	Retailer Department store HyperMarket Mail Order House Shop Apparel Manufacturer Clothing Subcontractors	Order Order Response Order Change Blanket Order Despatch Request Despatch Advice Invoice
Technical specification	Apparel Manufacturer Clothing Subcontractors	Apparel Technical Sheet
Report and Planning	Retailer Department store HyperMarket Mail Order House Shop Apparel Manufacturer Clothing Subcontractors	Order Status Report Sales Report

eChain

Embedded in the eChain system, which ran in parallel to TexSpin, was 'event based' Supply Chain Management platform. This was developed by MSO GmBH in the framework of the VISIT Project coordinated by DITF (Deutsche Institute for Textile und Faserforschung)
MSO GmBH was later bought by bought by TXT and the platform became the TXTChain system (see Appendix B**)**

TEXWEAVE

The TexWeave CEN/ISSS Workshop[8] (2005-2006), was the second effort to improve the supply chain coverage of the Textile/Clothing/Distribution chain and promote the normalisation of the business scenarios. The project involved collaboration between partners from the earlier Texspin project but also from the eChain project.

The rationale behind TexWeave was to recognise the need for new collaboration scenarios both in the upstream and in the downstream areas. In the upstream supply chain, Texweave addressed the main deficiencies of TexSpin. One was that, in the earlier project, precedence had been given to a set of document types which probably account only for the 20% of the "data interchange traffic", while document types which probably account for the 80% of the "data interchange traffic" was omitted.

The other was that most document types needed for communication with sub-contractors were also left out, the exception being those related to the darning process. Relations with sub-contractors form a significant part of the added value of the chain.

Texweave introduced new scenarios to address the processes in yarn/fabric production, include yarn manufacturing (stock and yarn dyed), fabric manufacturing (piece and yarn dyed). The suppliers involved include producers who add some value in the production cycle to sub-contractors.

In the downstream supply chain, the main deficiency of TexSpin was that it only addressed a single that did not take into account new market/process evolutions and SMEs integration, although this integration had been considered by another standardisation initiative, promoted by a Group of Retail Software Providers, called WWS Profil. The objective of WWS Profil was a re-adaptation of the EDI standards delivered published EAN to the simple-EDI philosophy.

TexWeave brought the work of TexSpin and the WWS Profil together, defining specific scenarios for the business processes and for all messages and publishing two different sets of message templates.

One being a simple, easily implemented version consisting only of the elements absolutely necessary for mainstream use. The other being complete template including all the components used in more complex collaborations.

[8] "TexWeave: Scenarios and XML templates for B2B in the textile clothing manufacturing and retail", CWA (CEN Workshop Agreement) 15557:2006, CEN/ISSS, 2006, Bruxelles; http://www.texweave.org

The business processes taken into consideration were:

- Classic seasonal preorder
- VMI – vendor managed inventory
- CRP – cyclic replenishment program
- Concession
- LSP – logistic service provider

Altogether, the following electronic documents were published in a CWA

BUSINESS SCENARIO	**PARTIES**	**MESSAGE**
UPSTREAM		
Subcontracted fabric manufacturing	Fabric manufacturer Warper Weaver Fabric Dyer-Finisher Printer	Warping commission Order Yarn Despatch Advice Receiving Advice Weaving commission Order Textile in work Inventory Dye-finishing commission Order Printing commission Order
Subcontracted yarn manufacturing	Yarn manufacturer Twister Yarn dyer	Twisting commission Order Yarn Order Status report Yarn in work inventory Yarn dying commission Order
Yarn supply	Fabric Manufacturer Yarn Manufacturer	Yarn Purchase Order
DOWNSTREAM		
Classic seasonal pre-order	Retailer Apparel manufacturer	Product Catalogue Initial Order Response Change Order Response Final Order Response Despatch Advice
Vendor managed inventory	Retailer Apparel manufacturer	Product Catalogue Despatch Advice Sales report Inventory report
Cyclic replenishment program	Retailer Apparel manufacturer	Product Catalogue Despatch Advice Order
Concession	Retailer Apparel manufacturer	Sales report Inventory report
Logistic service provider	Retailer Apparel manufacturer	Receiving Advice Instruction to Despatch Despatch Advice Inventory report

European Footwear Sector

EDISHOE

The EDIShoe project was an initiative started in the mid 1990s by a small collaboration of producers in Northern Europe led by the ECCO brand in Denmark and working in conjunction with EAN Denmark

In parallel a Working Group of industry experts from a number of European countries had been established by the CEC to look at the need for EDI standards in the footwear sector.

Soon afterwards the two groups came together under the leadership of EAN International leading to the publication of "The Application of EANCOM for the Trade of Shoe Products"[9]. This contained a set of message formats to be used in the downstream part of the supply chain:-

- Product Catalogue (PRICAT)
- Purchase Order (ORDERS)
- Purchase Order (ORDRSP)
- Despatch Advice (DESADV)
- Invoice (INVOIC)
- Sales Report (SLSRPT)

EFNET PROJECTS

The EFNET (European Footwear Network for Electronic Trading) projects all operated under the leadership of the CEC and were partly funded by the European Commission.

EFNET1

EFNET-1 started in 1999 with the objective of building an infrastructure for electronic information distribution in the downstream supply chain. The Working Group comprised a number a industry experts nominated by National Federations, representation from CEDDEC (the Footwear Retailers Federations) and the ISOs CEN/ISS and EAN International

Specifically the aims of EFNET1 were to develop :-

- The standards for EDI messages and product coding building on the work already published in the EDISHOE project
- A "Business Practices and Implementation Guidelines" document providing practical information and advice for implementing eBusiness with organisation and aimed particularly at SMEs
- A set of low cost applications conforming to the standards that would simply eBusiness adoption for SMEs

[9] Published by EAN International with the co-operation of the European Confederation of the Footwear Industry (CEC) and the European Confederation of the Shoe Retailers Association (CEDDEC) November 1998

Although the specifications created some interest in the footwear sector, the lack of any demonstration or implementation element in the project was a major contributory factor in the subsequent low level of adoption.

EFNET-2

EFNET2- which was part of the ECOM-IS initiative, was a continuation of EFNET-1 and an implementation of the proposals it made.

The principle objectives were to:

- Develop the XML specifications to transport extended information and to add more message types
- Create an architecture compliant to emerging international standards both for the XML specifications and communications protocols
- Implement pilot projects to demonstrate cross-border interoperation by bridging between existing national legacy systems through the EFNET-2 architecture.

The project encountered considerable difficulties in satisfying the requirement to align the specifications to international XML standards, which at the time were in the early development.

In particular, the published specifications did not comply to the rules of EAN-UCC (GS/1), a situation not acceptable to the European shoe trade which understood the importance of EAN-UCC in creating a harmonised environment for eBusiness in the downstream supply chain.

The delays meant that the demonstration projects were limited in number and the scope was reduced to exchanging a sub-set of the product catalogue message and the sales report message.

EFNET-2 ran in parallel with the CEN/ISSS Workshop FINEC (Footwear Industry Electronic Commerce) and the results were published in a CEN Workshop Agreement[10]

The EFNET-2 messages were adopted by the German footwear network and are still used in their original form. The work to make the specifications compliant to GS/1 standards has never been carried out because of the lack of available resources.

[10] "Electronic Commerce: A case study of the footwear industry in Europe" CWA 14746:200E CEN/ISSS Bruxelles June 2003

EFNET3

The objective of EFNET-3 was to create data formats for exchanging data containing design data for the Footwear sectori in the form of XML schemas and known as "ShoeML". The data covered that found in CAD (Computer Aided Design) systems, which are widely used in the sector, covering all phases from the early ideas for footwear products to detailed data required for actual production.

The project, co-ordinated by CESECA an Italian Service Centre for SMEs in the footwear sector, involved the developers of 5 different footwear systems from different Member States as well as industry experts.

The existing diverse formats made exchanging documents in the design process extremely difficult and were an obstacle to speeding up the design process and reducing time to market.

Addressing the needs of the complete cycle from design to manufacture is a huge task given the amount of data and the complexity of the task but EFNET-3 succeeded in defining core XML schemas for "geometry" and "measurement" data specific to the Footwear sector. It also defined "container" schemas to assemble specific solutions for specific designs which are re-usable in a recursive manner.

During the project, documents were exchanged and correctly understood between the CAD systems participating in the projects. These systems have all since implemented a SHOEML interface in the production versions of their software.

The results of EFNET-3 were also submitted to the FINEC Workshop which also resulted in the adoption of a CEN Workshop Agreement.[11]

SHOENET

Shoenet (Shoe Information Network) was a FP5 IST project (2002-2004) co-ordinated by INESCOP (instituto Technologico del Calzado y Conexas) a footwear organisations in Spain with over 600 member companies.

A standard message template containing over 600 different data fields describing footwear components were created in XML for use in the upstream supply chain. They cover all the business processes involved from order processing to invoicing,

Messages are exchanged using email protocols but before receipt a server at Inescop carries out verification and authentication procedures. As well as ensuring that the information sent conforms to the standard template, the server ensures authenticity by checking a digital signature.

At the client end, a set of tools known as the Mercure platform enables to user to connect through a web interface and also enables integration with internal ERP systems.

[11] "Proposal for an XML based format for storage and exchange of design data in the footwear industry" CWA 15043:2004(E) CEN/ISSS Bruxelles July 2004

CECMADESHOE

CECMadeShoe (Custom, Evironment and Comfort made shoe) is a FP6 framework integrated project which is due for completion in September 2008. It contains an ICT Work Package to develop systems known as the Integrated European Retail Platform (IERP) for the downstream supply chain and the Supplier Collaborative Network (SCN) for upstream.

A small element of this Work Package is devoted to standardisation which included the development of the GPC footwear classification, the identification of footwear product specific attributes to be added to the GS/1 component known as the Trade Item model and guidance on the messages to be used in the implementation of SCN and IERP.

The objective of the SCN task is the development of a platform for business process integration and coordination between shoe manufacturers and suppliers, capable of:

- Optimising the process of order management, with all associated information, namely planning and engineering information
- Supporting to the negotiation process prior to order acceptance (prices and dates) and following up the order status during its life cycle, from acceptance by the supplier to the delivery to the client.
- Implement a truly collaborative environment, capable to assure that relevant supplier's business processes can be seen as "internal" processes by the shoe producers and vice-versa. offering a level of business coordination, not existing presently in the shoe industry

The Shoenet message formats have been further enhanced and adapted to achieve these goals a process facilitated by the involvement of INESCOP as a project partner.

This IERP task has three objectives:

- Create a direct connection between production and the end-market in order to identify market trends more quickly, enabling quicker response to changes in consumer behaviour and tastes.

- Increase speed and reduce costs for offers, orders, distribution etc by optimizing and integrating all business-processes between producers and customers.

- Replace the traditional sources of information (fairs, sales representatives and printed catalogues) which are slow and costly, to quicker and cheaper electronic forms by connecting the ERP systems of producers with the EPOS-systems of customers to make a sort of virtual business

The message formats used in IERP are enhancements and adaptations to a combination of messages originally developed in Texweave and EFNET-2. These content of these formats includes provision for the transmission of GTIN, GLN and GPC codes.

A Common Communications Platform (CCP) architecture has been developed within the project to facilitate interoperation between various systems in the implementation phase. The architecture enables communications within the platform using AS/2 communications both synchronously and asynchronously as well as the smtp/pop protocol and allows connection outside the platform using these protocols or by using X400 or proprietary communications.

Horizontal Initiatives

Some non sector specific initiatives are particularly relevant to future standardisation in the TCF sectors

Universal Business Language (UBL)

UBL is a valuable tool for achieving interoperability between eBusiness systems. It is a library of business documents based on ebXML Core Components resulting from 9 years of continuous research and development. The current version V2.0 represents the state-of-art universal electronic format designed for document exchange and is the result of co-ordination by OASIS OPEN (an International Consortium with major members like IBM, SUN, Microsoft) that has been recently recognised by UN/CEFACT.

UBL has the advantage of being a horizontal standard, not developed for a specific sector but extensible to meet the requirements of particular industries and suitable for cross-sectorial data-exchange drawing on previous EDI and XML experiences to give greater emphasis to reusable components and dictionaries rather than on rigid document templates, allowing rules to be customized while maintaining conformance and compatibility with the basic specifications.

It is a primary reference for the ICT solutions targeted for all size of businesses, supply-chains and Governments and many initiatives adopting UBL in Europe, especially on the e-Procurement area. It provides the following:

- a library of XML schemas for reusable data components such as “Address,” “Item,” and “Payment” — the common data elements of everyday business documents based on the implementation of ebXML core components Technical Specification 2.01 and known as Business Information Entities (BIES)

- a set of XML schemas for common business documents such as “Order,” “Despatch Advice,” and “Invoice” that are constructed from the UBL library components with UBL Naming and Design Rules into WC3 XSD schema syntax and can be used in a generic trading context.

- guidelines for the customisation of UBL in trading relationships in a specific user community by defining the use profile. The definition of the use profile can produce specifications for geographic or sectorial communities

GCI

The Global Commerce Initiative (GCI) called Called “Global Value Chain Collaboration is a sort of re-visitation of the old “Trade Simplification” project, that actually stemmed from the EDIFACT initiative at the UN/ECE (United Nations / Economic Committee for Europe)

It aims to bring together all the actors of the value chain in order to “simplify global business” through the implementation of global best practices and of GS1 standards.

The focus appears to be on the universality of commerce procedures rather than on the specificity of the industry. Clearly, this concept is carried “downstream” in the value chain, and as mentioned above has been incorporated in the downstream scenarios of the CEN/ISSS standardisation initiatives for the textile-clothing sectors.

Appendix B – Case Studies

This briefly outlines a number of examples of eBusiness systems in the European TCF sectors. The list of business cases below is by no means comprehensive but shows examples of the many types of solutions and standards that can be found.

System	1	2	3	4	5	6	7	8	9
TXT Chain	T/C	U	DE/IT/ FR/ ES/UK / Other	ASP/EM	XML EDI	PRP TW+	ORD/ ACK/ DESP/ STAT	400+	100k+
Textile Business	T/C	U	IT	ASP/WS	XML	PRP	22 types	30	2000
Stock Flow	T/C	D	IT/UK	ASP/WS	XML	TW+	STK	4000+	?
DDTA Italia	T/C	U	IT	ASP/WS/ ebXML	XML	TW+	CAT/ ORD/ ACK/ DESP	0	0
TQR	T/C	U	IT	P2P/EM	XML	TW+	ORD/ ACK/ DESP/ STAT/ OTH	70	?
ShirtsDotNet	T/C	D/U	BE/ Other	P2P/EM	N/S	PRP	ORD/ DESP/ OTH	?	?
Prato	T/C	U	IT	ASP/WEB	N/S	PRP	OTH	7	?
Buying Groups	F	D	DE/ Other	PN	XML	EFN PRP	PRD/ ORD/ SLS	000s	?
German Footwear	F	D	DE/ AT/ CH	VAN/EM	XML EDI	EFN PRP	ACK/ ORD/ PRD/ SLS	00s	?
Shoenet	F	U	ES/ Other	ASP/EM	XML	SHN	ORD/ ACK/ INV OTH	100	10k+
French Footwear	F	D	FR	ASP	XML	PRP	PRD/ ORD/ ACK/ SLS OTH	?	?
UK Footwear	F	D	UK	ASP/ P2P/ EM	WEB/ N/S	PRP	PRD/ SLS	00s	000s
ShoeBiz	F	D/U	PT	ASP/ ebXML	XML	SHN	ORD/ ACK/ STAT/ DESP/ OTH	0	?

Key:

Col 1 Sector
- M = Multi-Sector
- T/C = Textile/Clothing
- F = Footwear

Col 2 Segment of Supply Chain
- D = Downstream
- U = Upstream

Col 3 Member State
Country Code(s)
"Other" connections in other EU Member States or outside EU

Col 4 Communication Model/Transport Channel Used
- EM = Electronic Mail
- P2P = Peer to Peer Communication
- VAN = Value Added Network
- ASP = Application Service Provider or Hub/spoke
- WS = Web Services
- PN = Private Network

Col 5 Message Syntax Used
- XML = XML
- EDI = Traditional EDI – EDIFACT, EANCOM etc
- WEB = Web interfaces only
- N/S = Non Standard

Col 6 Message Formats Used
- TW+ = Texweave+ based on MODA/ML
- EFN = EFNET
- SHN = Shoenet
- PRP = Proprietary

Col 7 Document Types
- ORD = Order
- ACK = Order Response
- STAT = Order Status
- DESP = Despatch Advice
- INV = Invoice
- CAT = Product Catalogue
- SLS = Sales Data
- STK = Inventory Report or Stock Availability
- OTH = Other

Col 8 Approximate Number of Users if known

Col 9 Approximate Number of monthly transactions if known

In addition to the business cases, this Appendix also includes details of the EDICOM and eGate services. These are examples of third party services, using both Internet and non-Internet communications, used to increase the level of interoperability and adoption of eBusiness in the sectors.

EDICOM

This is a VAN based service provided by EDICOM Spain to support eBusiness transactions. In addition to document delivery and security, EDICOM provides translation facilities between different formats – EANCOM and its variants as well as others like X12, VDA, TRADACOM, XBRL, ODETTE.

The service is targeted at all consumer sectors and large distribution organisations and its users include El Corte Ingles, Metro, Carrefour and Toys R Us. For example, El Corte Ingles is connected to around 3000 of its suppliers through EDICOM.

In total there are several thousand users, the biggest concentration being in Spain, France and Italy although there are users throughout Europe as well as in Mexico and Argentina. The service is shortly to be introduced to the USA.

The users are mainly in the downstream supply chain and processes include Orders, Order Responses, Invoices, Despatch Advices, Sales Report and Inventory Report.

A key feature is the inter-connection with a number of other “hub” operators extending the reach of the network and providing some of the translation services, for example Intesa, eGate, IBM, Sterling, Telefonica Data, ICCNet etc

EGATE

eGate is an Internet based service provided by Pranke Germany to support eBusiness transactions. In addition to document delivery and security, Pranke provides distributed translation facilities to and from a variety of both EDI/XML and traditional EDI formats. These include EANCOM and its variants as well as others like X12, TRADACOM, EDITEX, general EDIFACT, XML variants, Texweave+ and Shoenet.

The service is targeted at the LifeStyle sector which includes not only the TCF sectors but also sports, cosmetics and related areas and is very suitable for SMEs. The service features close cooperation with many Retail Management Systems (RMS) providers and connections to all large retailers.

In total there are several thousand users, the biggest concentration being in Germany, Switzerland, Netherlands, Denmark and Austria although there are users throughout Europe as well as in the Near East.

The users are mainly in the downstream supply chain (90 %) and processes include Product Catalogues, Orders, Order Responses, Invoices, Despatch Advices, Sales Report and Inventory Report.

A key feature is the inter-connection with a number of other "hub" operators extending the reach of the network and providing some of the translation services. These include Intesa, EDICOM, IBM, Swisscom, Telebox400 etc

TXT CHAIN

Txt Germany are a service supplier to Textile/Clothing, and other sectors, based in Germany www.txt.it.

TxtChain is an ASP system, using the Event Based Supply Chain Management model, and has been in operation since 2003. It provides the facility for manufacturers to exchange order, order responses, despatch advice documents with suppliers of fabric and accessories and with sub-contractors in the clothing sector.

Most documents are in a proprietary XML format although there also messages in EANCOM formats and others using the Moda-ML specifications. Over 100,000 orders and 30,00 despatch advices per month can be transported by a number of internet communication methods including email, ftp and https. TxtChain has inbuilt security features to protect communication and used PGP (Pretty Good Privacy) levels to secure web based communication.

There are over 400 companies using the system from Germany, Italy, France, Spain and the UK as well as sub-contractors from outside the EU. Principle manufacturers involved include Gucci, Gerry Weber, Mustang and Van Laack and a key feature of the systems is the integration capability with internal ERP systems.

TEXTILE BUSINESS

Textile Business (www.textilebusiness.it) is provided by Metasoft Business, an Italian company. It has been in operation since 2005 and is an ASP system allowing textile producers to exchange documents with their sub-contractors e.g. fabric finishers and fabric dyers. The documents are exchanged through Web Service clients and, in parallel, a web interface allows users to access the system through a simple Internet browser.

There is security at the transport level using HTTPS and an authorisation method, based on certificates from a central ASP provider ensuring only authenticity and identity of the community. The security of the system lacks any form of signature or encryption and the actual business documents are exchanged directly between the partners.

There are a comprehensive set of 22 documents that can be used in the system covering all aspects of the order and delivery process. It is used by around 30 companies in Northern Italy and around 2000 documents per month are transmitted

STOCK FLOW

eStockflow (www.e-stockflow.com) is a web based service aimed at managing stock of clothes and footwear out of season.

This service is also provided by Stocflow, a UK based eBusiness company, and has been in operation since 2004. It allows the manufacturer to offer stock for sale and for negotiation between manufacturer and retailer. The users of the system are in Italy and the UK.

DDTA ITALIA

DDTA (Digital Districts for Textile and Clothing) is a project sponsored by the Italian Ministry of Innovation to create supply chain integration services in the Textile & Clothing sectors in the Puglia and Campania regions of Southern Italy.

The software has been recently developed and is due for implementation in the summer of 2008. It will offer a web portal integrated with catalogue and order management, as well as some design capability to clothing manufacturers with their suppliers in the upstream supply chain.

The data is based on the Texweave specifications with some extensions and communications are based on Web Services and ebXML.

CONSORTIUM TQR

The system of the Textile Quick Response (TQR) consortium was implemented in 2005. The consortium is a cluster of more than 70 Textile & Clothing companies mainly in the Biella district of Northern Italy.

The companies are cloth producers, fabric producers and their sub-contractors and include Zegna, Loro Piana and Piacenza who exchange business documents relating to supply, orders, delivery and sub-contracting. The messages conform to the Moda-ML specifications and are transmitted using the SMTP and POP3 mail protocols.

Transport of messages has very limited security features but will probably be enhanced in a future release to conform to ebXML specifications.

SHIRTSDOTNET

This project (www.shirtsdotnet.com) is an integration platform designed to connect internet B2C clients directly with cloth suppliers enabling the production of customised and made-to-measure items.

The system was first set up by the Belgian made to measure shirt manufacturer Byvoet NV (www.bivolino.com) in 1999 and has now been adopted by Marks and Spencer for made to measure shirts. Currently email is used for communication of messages between producers and suppliers.

The customised order micro factory supply chain integration is being further developed within the FP7 project OpenGarment to include automatic cutting through CAD/CAM integration with customer orders.

PLATFORM FOR EDI ADOPTION IN NL

Platform Ketendigitalisering Mode, Schoenen en Sport (Platform for digitising Fashion, Shoes and Sport) is an organisation which provides information and sets up pilot projects aimed at increasing the eBusiness adoption in the sectors (www.mssketendigital.nl)

There is a reference model recommending use of standards based on those of GS/1 in the downstream supply chain. The platform started in mid 2007 with the goal of involving 200 companies in pilot projects in the first year.

It is managed by a partnership including the fashion brands Modint and Mitex, the footwear brands FNLS, Vimagro and the sportswear brand FGHS as well as the Retail Partners group in NL. Other partners include GS1, retail service organisations and IT partners

PRATO

The project known as “Sandardizzazione” within the industrial district of Prato (www.ui.prato.it) in Cental Italy was a collaboration between the Industrial Association of Prato (UNINDUSTRIA – PRATO) and IBM Italia. The goal was to identify new operational methods based on internet technology to optimise some commercial and industrial processes in the textile sector (mainly subcontracting for finishing textile pieces). It was based on web interfaces without using any kind of automatic data integration.

However, the project ended after the experimental phase as while supply chain integration was considered important, the local industries and their supplier did not want to invest in integration of pre-existing information systems with the new web-based platform.

It would also have been necessary to redesign their business processes to achieve supply-chain integration. No financial resources were available for this.

FOOTWEAR BUYING GROUPS

Footwear Buying Groups such as ANWR and Garant have developed systems that enable exchange of data with their members (retailers) as an interface to a form of their own RMS software installed at the shops.

All of the groups are based in Germany have hundreds or even thousands of members located not only in Germany but also in other countries of Central Europe, Northern Europe, Benelux and France

Messages are exchanged through their own private networks in proprietary EDI/XML or in EFNET formats (depending on the Buying Group) primarily to send product catalogue information to members and to receive order and sales data.

The systems also receive product catalogue messages from a large number of branded producers, located in Germany and elsewhere in Europe.

In the past, these Buying Groups have been reluctant to interoperate with other systems as they sought to protect their investments but more recently, they have been become more open to the idea.

GERMAN FOOTWEAR NETWORK

In Germany, a system to send order responses, in a proprietary EEDFACT format, from producers to their customers has existed for many years. It was originally developed so that initial orders placed at Fairs or through Sales Representatives could easily be integrated into customers RMS systems, including those supplied by the Buying Groups.

Not only did this eliminate the need for data entry it also meant that the orders in the RMS systems reflected any modifications resulting from lack of availability or delivery changes.

The system has now been further developed as the European Clearing Centre (ECC) and has users in Austria and Switzerland as well as Germany. It is used by several hundred retailers and more than 30 manufacturers including the leading ones in Germany and a number from elsewhere.

ECC enables the exchange of additional message formats such as Orders, Product Catalogues and Sales Report both in traditional EDI and EDIU/XML formats using either a VAN or email.

It has been developed through co-operation between the Buying Group ANWR and ETOS an RMSA vendor and in partnership with the Garant-Schuh Buying Group and other RMS vendors.

SHOENET

The SHOENET system outlined in Appendix A has been implemented by around 100 companies in the upstream supply chain in the Footwear sector. The system is used primarily by manufacturers in Spain but there are also users in Portugal. In some cases, the manufacturers have connections to suppliers cross-border.

The functionality of SHOENET has been continually enhanced since the end of the original project:

- Integration with internal software systems
- Inclusion of new messages relating to customer services
- Additional tools to simply the interface and usability for users.

FRENCH FOOTWEAR

The ixBiz solution provided by the eBusiness specialist software company SRCI is used notably to provide information to a number of SME retailers in the French

footwear sector. The ixBiz solution is widely used in other sectors, for example aeronautics and toys and games.

A full set of messages for use in the downstream supply chain are available and the system is commonly used for receiving product catalogue data from French brands for integration into retail EPOS systems. The system is based on ebXML giving it a high level of security, integrity and reliability.

UK NETWORK

The UK network is built upon the one originally started by Clarks to collect sales data from retail shops that are not in their ownership. Sales information is key to driving an automatic stock replenishment system that Clarks have been operated for many years

The network runs on an ASP type model operated by Retail Technology Ltd (RTL), who are also the leading suppliers of EPOS systems in the UK footwear market, although transmission of messages is by a combination of email and P2P communications

About 10 years ago the system was enhanced to add the transmission of a product catalogue data to several hundred footwear retailers. This data is received from over 30 producers, including some leading non UK brands, and translated by RTL into a proprietary format that has become a de facto local standard in the UK.

The RTL EPOS system generates sales data in a similar proprietary format which has also become a local standard in the UK. RTL also receive sales data from the systems of a number of other different EPOS systems, translating them to the local UK format and transmitting it to a number of the footwear producers.

Using the same principle, the network has recently been extended to receive sales data from a number of Clarks customers in Germany, Netherlands and Spain

SHOEBIZ

The Shoebiz platform has been developed by Inesc Porto and CCTP using software developed by Oficina de Solucoes Informatica a specialist ICT solutions provider for the Portuguese footwear sector.

Business documents for both the upstream and downstream, complying to the SHOENET standard and further enhanced in the SCN task of the CECMadeShoe project can be exchanged using the standard ebXML messaging service.

The system has been designed so that it can easily be used for eBusiness in the Textile/Clothing sector and can be used across the two sectors.