The Moda-ML and TexSpin Experiences: Results and Ways Forwards

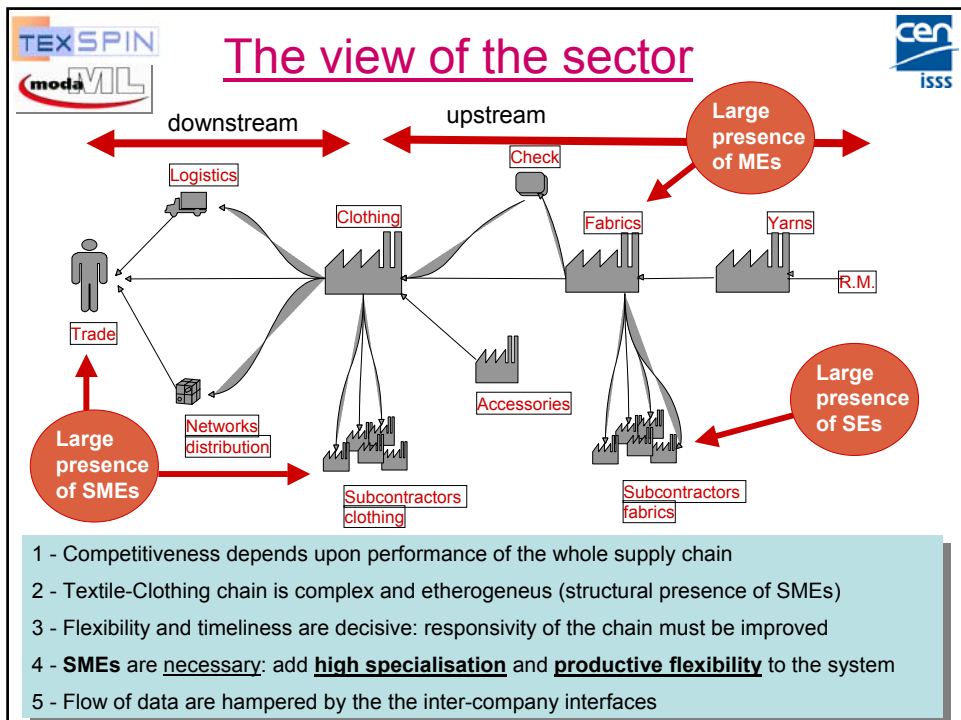Piero De Sabbata – *piero.desabbata@bologna.enea.it*

(Coordinator of the IST project MODA-ML and
chairman of the CEN/ISSS TexSpin Workshop)

Last update October 26th 2003

Summary

1. Do we need standardisation initiatives?

2. What is The MODA-ML approach?

3. What is TexSpin?

4. Is TexSpin trustworthy?

1. Do we need standardisation initiatives?

The view of the sector

downstream   upstream

Large presence of MEs

Logistics

Check

Clothing

Fabrics

Yarns

R.M.

Trade

Accessories

Large presence of SEs

Large presence of SMEs

Networks distribution

Subcontractors clothing

Subcontractors fabrics

1 - Competitiveness depends upon performance of the whole supply chain

2 - Textile-Clothing chain is complex and etherogeneus (structural presence of SMEs)

3 - Flexibility and timeliness are decisive: responsivity of the chain must be improved

4 - **SMEs** are necessary: add **high specialisation** and **productive flexibility** to the system

5 - Flow of data are hampered by the the inter-company interfaces

Role of SMEs in the T/C
(*SME: Small and Medium Enterprises)*

- Relationships in the supply chain involving SMEs:
  - network pattern (not hub-spoke: many customers, many suppliers)
  - fabric suppliers and subcontractors (often) have higher specific know-how than the assigners
  - subcontracting ("*terzismo*")
  - competition and delocalisation of activities (extra EU)

- Traditional local clusterisation (Industrial districts) is going virtual

- Absence of oligopoly (nobody can impose a solution)

- Low tech skills, ICT innovation driven by their ICT consultant or suppliers (SMEs in turn) → risk of exclusion!

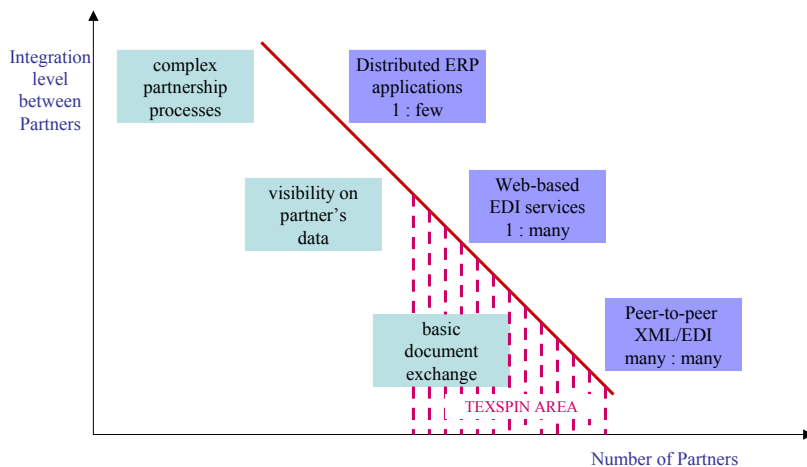# Expected benefits from data flow automation

- <u>Data of the purchase orders</u> are available on digital systems without manual inputing

- Fabric supplier receives <u>collection booking note</u> from the clothing manufacturers and can improve its planning

- Clothing manufacturer <u>receives the order status report</u> and a digital <u>defect map</u> from the fabric supplier

- <u>Sell-out data</u> flow back along the supply chain

Then
- Reduction of costs and error per transaction
- Better services to the customers
- More information available for planning
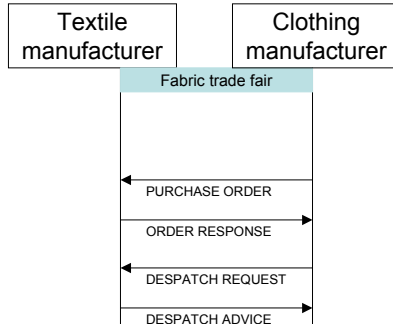
- Interoperability requires
  public, free, common languages and interfaces
  (<u>standards</u>)

- SMEs require
  easy to use, free, modules to <u>enhance</u> their <u>independent</u>
  legacy systems (XML and related standards and tools)

- Intercompany relationships are
  many to many relationships and un-rulable by a single
  firm (consensus is needed)

- Confidentiality requires
  architectures without commercial data on third party
  databases (peer-to-peer as well as ASP models)

E-business view (B2B)

Integration level between Partners

complex partnership processes

Distributed ERP applications
1 : few

visibility on partner's data

Web-based EDI services
1 : many

Peer-to-peer XML/EDI
many : many

basic document exchange

TEXSPIN AREA

Number of Partners

XML/EDI approach:

Intercompanyy collaboration based on exchanges of messages.

A different template of message for each different transaction.

Textile manufacturer	Clothing manufacturer

Fabric trade fair

PURCHASE ORDER

ORDER RESPONSE

DESPATCH REQUEST

DESPATCH ADVICE

Using XML and XSL

CONSIGNEE	INVOICEE	IMPORTER
CODETEX SRL via dei tribunali 44 33333 Collaudopoli ITALY IT34567890123	**FINBIANCHI SPA** via dei Finanzieri 99 44444 Dollaropoli ITALY IT45678901234	**EXPORT SP** via Indipende 00000 Topoli ITALY UK23459871
	Dept.: FORNITORI Person: Ulisse	Person: Roge

Note: THIS IS A DEMONSTRATIVE DOCUMENT AND EVERY REFERENCE TO FEATUR COMMERCIALLY AVAILABLE PRODUCTS IS MEANINGLESS
Note: prima della consegna contattare Sig. Omero

Payment options:

Pay term:	PAYMENT 60 DD AFTER END MONTH RECEIPT INVOICE	**Mode:**	bank transfer
Pay term:	Pochi ma subito...		
Pay term:	PAYMENT AT END MONTH RECEIPT INVOICE	**Mode:**	bank transfer
Return:	CARRIAGE PAID (named place of destination) - to CODETEX		

Use:	test cut	Illustrated confirm:	Yes	Technical pa
Season:	S/S 2002	Delivery:	30/10/2001	Disposal:
Piece height:	170CMT	Piece length:	100MTR	

XML viewed in ausual Browser
with the help of a style sheet XSL

```
<?xml-stylesheet type="text/xsl"
    href="taor02B.xsl"?>

<fabricOrder tipOrd="standard">
 <header>
    <msgNumber>AB001</msgNumber >
    <msgData>20010726</msgData>
    <reference>
       <order>AA047</order >
       <ourRif>fax-12-7-2001</ourRif>
    </reference>
    <supplier>
       <id>IT12345678901</id>
       <company>Textil Rossi</company>
       <street>via verdi 13</street >
       <town>Tessutopoli</town>
       <country>IT</ country >
       <zip>11111</zip>
    </supplier>
    …
```
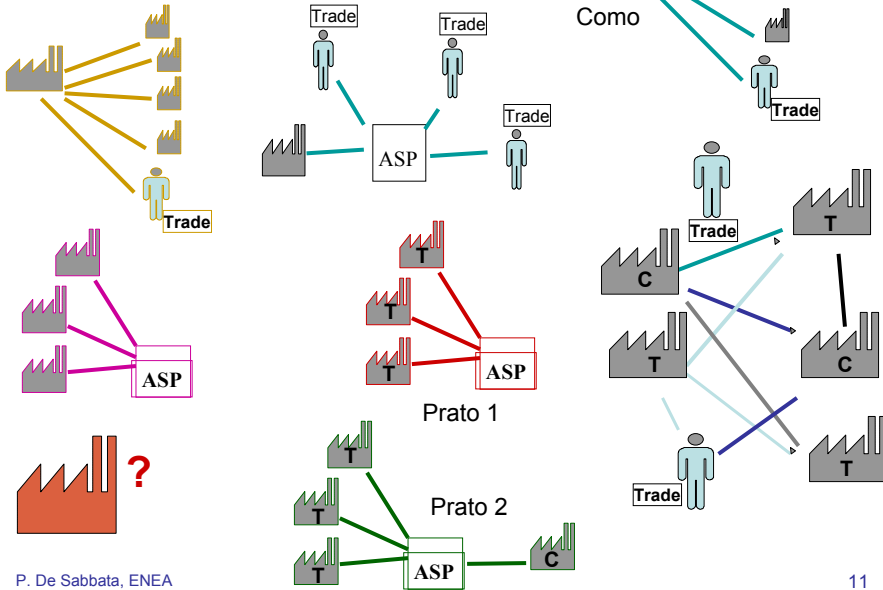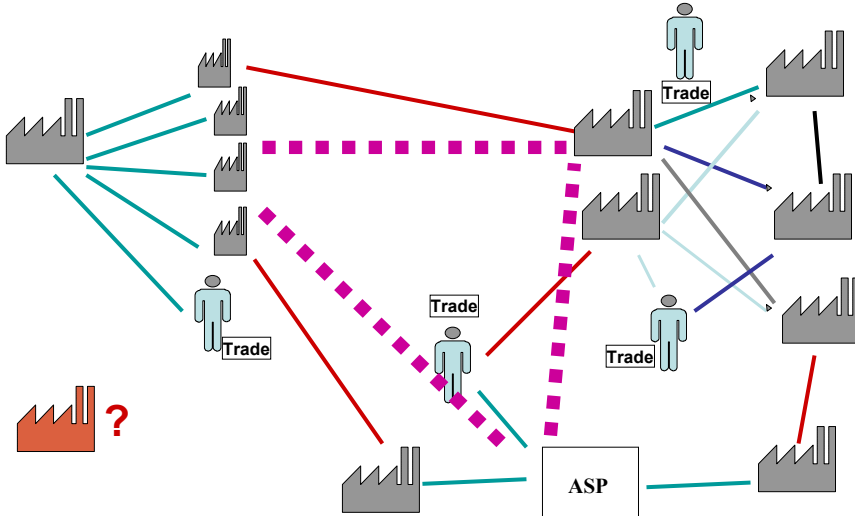
What is happening?

Trade

Trade

Como

Trade

Trade

ASP

Trade

T

C

Trade

T

ASP

Prato 1

C

T

ASP

Trade

T

?

T

Prato 2

T

ASP

C

Enterprises Networking

Many models, many communities, but at the end, they must inter-operate

Trade

Trade
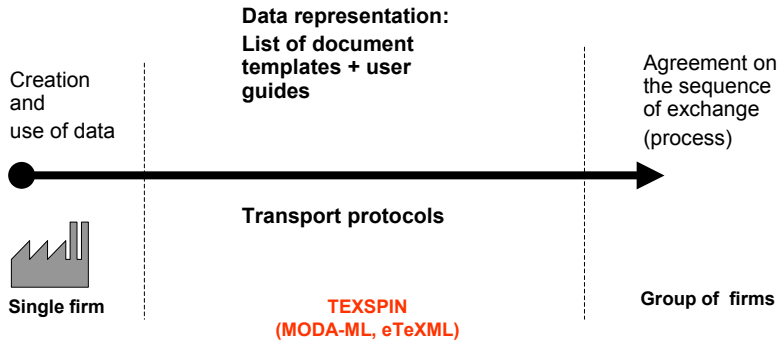
Trade

Trade

Trade

?

ASP

We need standards

- **B2B is performed by means of**
    - Closed communities
        - (i.e. marketplaces, technology supplier driven)

    - Hub-spoke models around a large scale enterprise
        - (extension of the Company Information System; a sort of colonisation)

    - Direct peer-to-peer
        - (self managed; is cost effective only using a common standard)

- **Risk of exclusion of SMEs** (lack of resources and skills)

- Request for technologies to keep together ERPs and small systems!

- **A common standard** is required to join many communities and many single enterprises

- A standard requires formal **specifications** and a real **consensus**

Costs of proprietary choices

ASP

or…

?

Trade
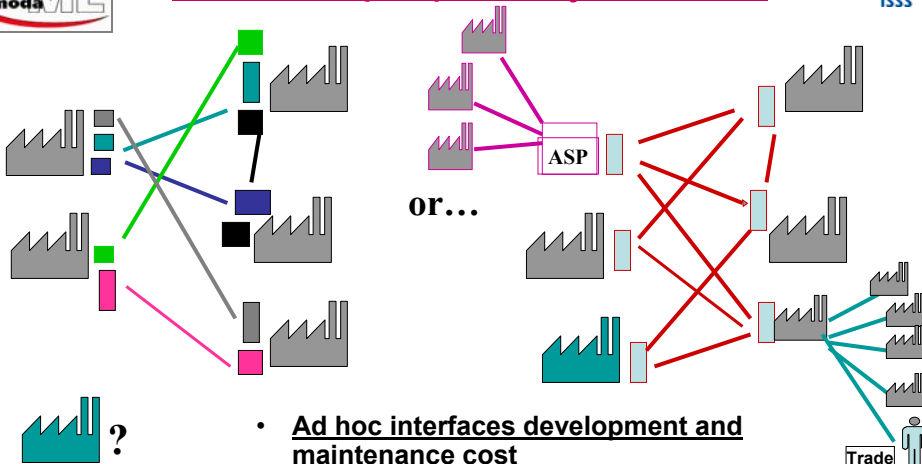
- **Ad hoc interfaces development and maintenance cost**

- **Lack of shared and consolidated software and tools**

- **High cost for new partners to join**

The role of a B2B standard
service to co-operation processes

Data representation:
List of document
templates + user
guides

Creation
and
use of data

Agreement on
the sequence
of exchange
(process)

Transport protocols

Single firm

TEXSPIN
(MODA-ML, eTeXML)

Group of firms

1 - **Definition of a set of type of <u>XML documents</u> and related dictionary of terms**

2 - **Definition of a transport protocol and development of demo software**

3- **Creation of awareness and consensus**

---

2. The approach of MODA-ML

(www.moda-ml.org)

Introduction to Moda-ML

- European project in the IST framework

• Take-Up Actions, programm IST, Action Line IV.2.5 "Computing, communications and networks take-up measures"

• Clustered in EUTIST-AMI (Middleware and Agents technology), www.eutist-ami.org

- Industrial Partners

- Corneliani
- Loro Piana
- Piacenza
- Successori Reda
- Vitale Barberis Canonico

- Technological Partners

- ENEA (coordination)
- Domina
- Politecnico di Milano
- Progema Gruppo SOI
- IFTH (France)

- External Partnership: Sistema Moda Italia, FTI, UNIV. Bologna and Lecce

- Scheduling

Kick-off: July 2001
End: April 2003

The results of MODA-ML

<u>To exchange data with XML documents and public Internet protocols</u>

- 1 - Modellisation of collaborative processes

- 2 - A set of <u>types of XML documents</u> described with XML Schema, User Guides, Dictionary of terms

  by means of: Document Factory Tools and Methods

- 3 - A <u>Software based on the transport specifications of ebXML</u> to send, receive, monitor and validate the data exchange

- 4 - Participate the creation of an European Standard

Results 1: process Fabric supplying

Fabric choice

FABRIC SUPPLIER — CLOTHING MANUFACTURER

- Textile Catalogue
- Textile Technical sheet
- Advance Notice
- (production) Advance Notice

Fabric purchase

FABRIC SUPPLIER — CLOTHING MANUFACTURER

- Textile Purchase order
- Order response
- Order change
- Order status report

Fabric dispatch

FABRIC SUPPLIER — CLOTHING MANUFACTURER

- (ready to) Despatch advice
- Despatch request
- Despatch advice
- Defects map

Resume

YARN · FABRIC · CLOTHING

Applicative Scenario

present —

potential —

wool

Subcontr.

Quality Chk

Subcontr

cotton flax

Subcontr.

silk, others

Subcontr.

Textile Catalogue	The (price) list of products offered for sale	Textile→Clothing
Fabric Technical Sheet	The technical characteristics and properties of the fabric article	Textile→Clothing
Textile Advance Notice	The anticipation of articles included in the Clothing Manufacturer's collection and of foreseen volumes of production that clothing manufacturers will request (no details on colours and variants)	Textile←Clothing
Textile purchase order	The order placed by the Clothing Manufacturer	Textile←Clothing
Textile Order response	The response provided by the Fabric Supplier	Textile→Clothing
Textile Order change	The order change initiated by the Clothing Manufacturer	Textile←Clothing
Textile Order status report	The status of the fabric order reported by the Supplier	Textile→Clothing
Textile Dispatch request	The request/scheduling of the dispatch of parcels made by the Clothing Manufacturer	Textile←Clothing
Textile Dispatch advice	The anticipation of the dispatch of the parcels by the Supplier	Textile→Clothing
Textile Quality Report	The report of the defaults and other non-conformities of the goods, as provided by the Supplier or by an independent Quality Controller	Textile→Clothing
Invoice	Invoice for the supplied material	Textile→Clothing
Textile darn order	The specifications of the darning operation required for each piece; includes allowed worktime, position and type of faults; it could contain or refer to a despatch advice	Textile → Darning
Textile darn return	The returning information about the darning operations; include the worktime spent, the position and type of faults and the associated information about the position, the initial status, the worktime and the final status	Textile ← Darning

Results /3:Document factory architecture

Modelling and analysis

DICTIONARY

Structure (syntax)
Representation (format)
Mark up (semantic)
Multilanguage
Process (model)
Classification

GUIDE → User

SCHEMA → MSH, Parser

XSL → Browser, MSH

Families of XML documents with shared and resuable elements

Categorised Views
For Maintenance, comparison
and mapping with other framework

TEXSPIN / modaML

Guides and dictionary

P. De Sabbata, ENEA
Moda-ML and TexSpin, Oct-2003

TEXSPIN / modaML

DOCUMENTs FACTORY results

(thanks to the features of the dictionary)

Principia and Tools to create/maintain families of XML documents

- Dictionary of terms (simple or complex) shared between docs
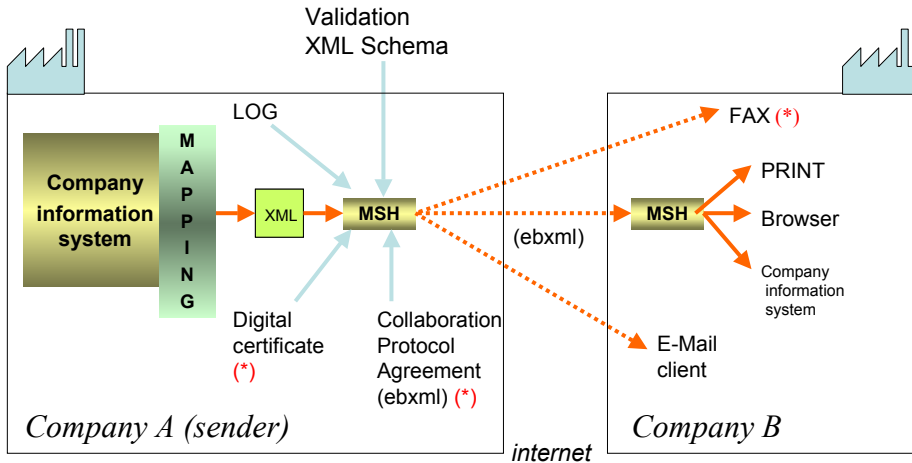
- Automatic support to Guidelines creation and management

- Automatic support to Schema creation and management

- Reference to the ebXML process of vocabulary building

Creation of many specific documents to fit and strictly validate different data exchanges

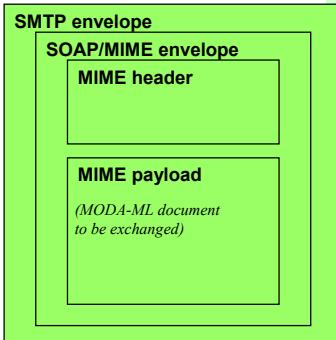P. De Sabbata, ENEA
Moda-ML and TexSpin, Oct-2003   24

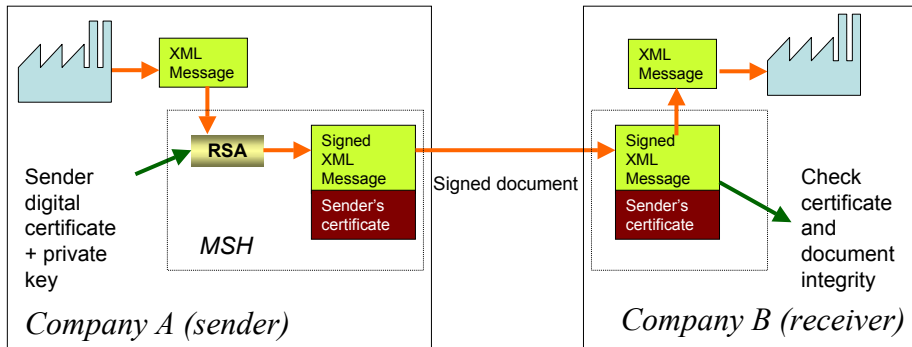# Results/4: Message Service (MSH)
(peer-to-peer approach)

Validation
XML Schema

LOG

M A P P I N G

Company information system

XML → **MSH**

(ebxml)

MSH → FAX (*)

PRINT

Browser

Company information system

Digital certificate (*)

Collaboration Protocol Agreement (ebxml) (*)

E-Mail client

Company A (sender)

internet

Company B

(*) optional

Message Service Handler 1.1.8

CIS ↔ XML ↔ MSH ↔ ebXML envelope ······ Internet ······→

SMTP envelope
> **SOAP/MIME envelope**
> > **MIME header**
> >
> > **MIME payload**
> > *(MODA-ML document to be exchanged)*

– Generalised 'manager' of ebXML messages (message independent) via eMail server

– Manual/automatic loop; the FAX paradigm to send/receive;

– Check messages with XML Schema (mandatory)

– Handles Acknowledgements and Errors; uses SOAP and SMTP or SMTP;

– Log of messages (ODBC data base), view through XSL, electronic signature

– Transmission configuration via ebXML CPA

– FAX channel,

– Connection with MCM via TCP-IPsocket

Security

- Signatures are compliant with W3C's **XML Signature** standard.

- Signing algorithm (**RSA**) and certificate encoding (**X.509**) satisfy European laws on digital signatures.

- In the near future it will be supported **cryptography** and **S/MIME** signatures, in order to provide different security levels that address companies' **security** and **flexibility** needs.

Industrial benefits

- ## Savings:
  - 80% cost per operation
  - 40.000 €/year SW maintenance (*)

- ## Easy setup/use:
  - Royalty free
  - Easy deployment

- ## System Integration:
  - No architectural constraints
  - One day per document (only with workflow support and XML Mapper)

- ## New services:
  - Status of order/Despatc advice
  - Defect map
  - Collection forecast

(*) calculated on a middle Fabric Manufacturer

3. The TexSpin initiative

TEXSPIN (www.cenorm.be/isss, www.atc.gr/texspin)

The TexSpin initiative

- TEXSPIN is a **CEN/ISSS** Workshop (www.cenorm.be/isss), funded by CEN/ISSS
  (European Committee for Normalisation/Information Society Standardisation System)

- A sectorial standardisation initiative aiming to provide a framework for the (B2B) integration of the european **Textile/Clothing/Distribution** chain

- Starting point was EDITEX (EDIFACT)

- Technological objective has been to establish a pre-normative -low cost but scalable- platform for the B2B exchanges in the T/C sector based on **XML** and **Internet** technologies

> Co-ordinated by **EURATEX** (European Apparel and Textile Organisation)
>
> Partners: Euratex, ATC (GR), IFTH (F), NYC(F), ENEA(I)
>
> Discussion: Three public plenary sessions with about 150 participants
>
> Final Results: **June 2003**; Final **CWA** published in autumn **2003**

TexSpin activities

- TEXSPIN started from two experiences:
  - eTeXML (focused in France on link *manufacturing - retailing*)
  - MODA-ML (focused in Italy on *manufacturing integration*)

- TEXSPIN managed public discussion via CEN/ISSS WS
  (and since the beginning about 200 firms have been directly contacted; web sites; many magazines and newspaper articles)

- Future planned actions: awareness actions and pilots with <u>technology providers</u> as well as <u>industry</u>

TexSpin results

- <u>Set of 19 templates of XML messages:</u>
  - Retailer- Clothing manufacturers (5)
  - Fabric manufacturer – Clothing manufacturer (12)
  - Fabric manufacturer – (Fabric) Subcontractors (2)
  - Others in the future… (yarn supplying, clothing subcontractors…)

- <u>Experienced two models of exchanges:</u>
  - A Web Service application to receive/send XML docs and convert them to EDIFACT messages
    (+ human interface; www.nyc.fr/texspin);
    downstream with eTeXML
  - Direct peer-to-peer without third party services, based on free SW module (MSH) compliant with ebXML transport specifications (including e-signature);
    upstream with MODA-ML

- <u>New EDITEX/EANCOM compatible EDIFACT messages</u>

Standardisation scenario

- TC Sectorial initiatives: eTeXML, MODA-ML
- Horizontal frameworks: ebXML, EAN-UCC, ...

ebXML

EAN-UCC

Tex-SPIN

eTeXML   MODA-ML

Retail organisation   Clothing   Fabrics
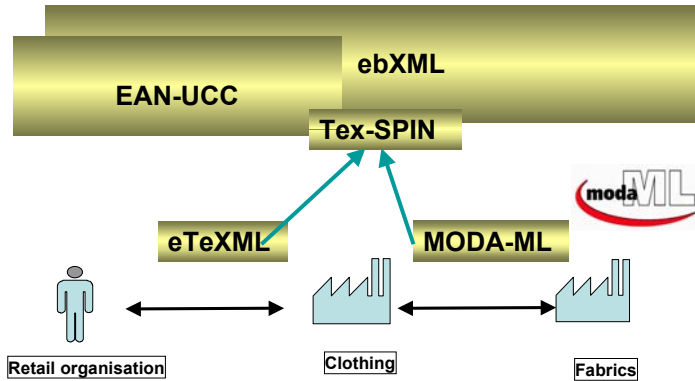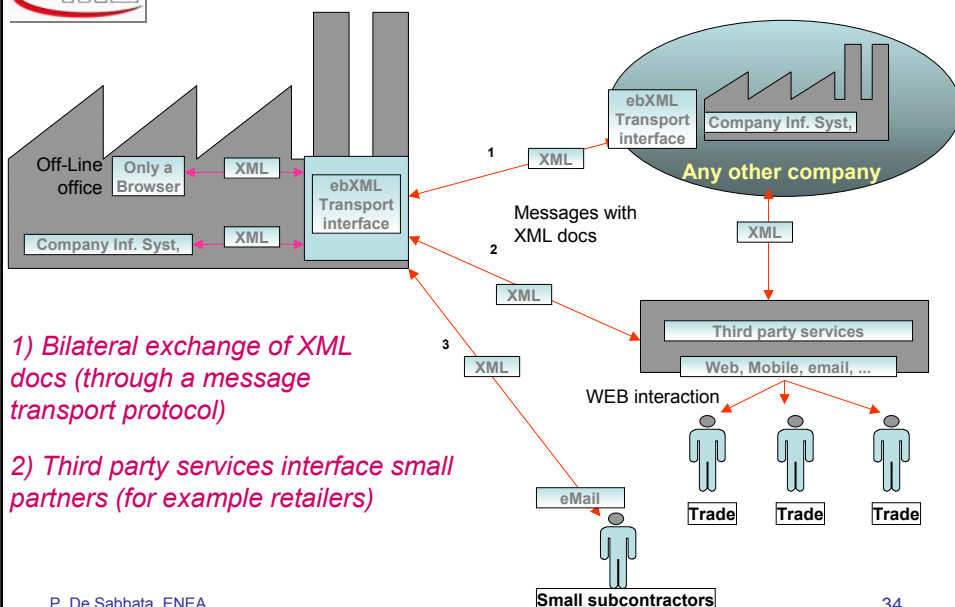
The DOWNSTREAM priorities are
- efficiency of data exchange
- normalisation of product description
- compact messages and universal coding

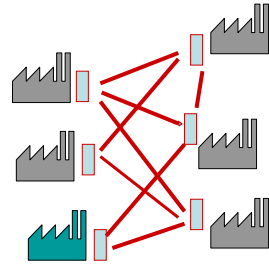The UPSTREAM priorities are
- efficacy and richness of data
- flexibility of product description

Scenarios of data exchange

Off-Line office   Only a Browser   XML   ebXML Transport interface

Company Inf. Syst,   XML

ebXML Transport interface   Company Inf. Syst,

Any other company

1   XML

Messages with XML docs

XML

2   XML

Third party services

Web, Mobile, email, ...

WEB interaction

1) Bilateral exchange of XML docs (through a message transport protocol)

2) Third party services interface small partners (for example retailers)

3   XML

eMail

Trade   Trade   Trade

Small subcontractors
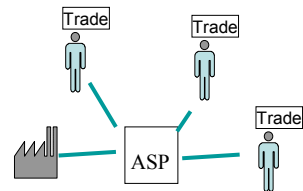
Upstream pilot

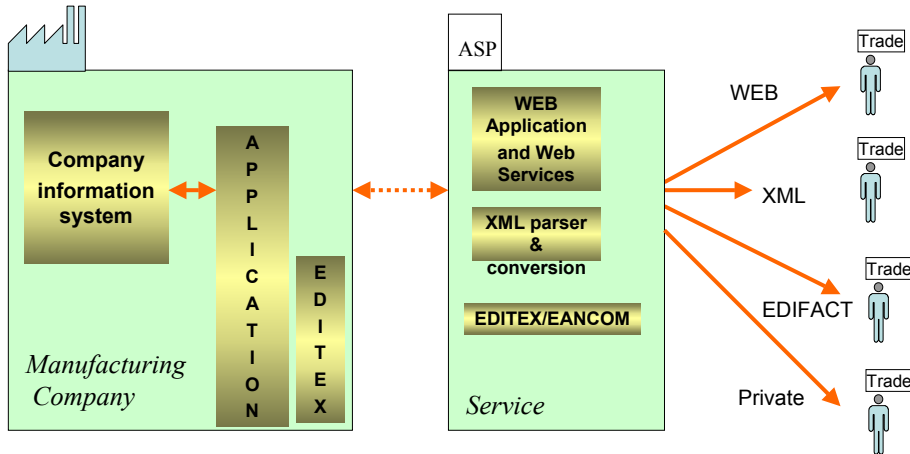MODA-ML, direct peer-to-peer exchanges

www.moda-ml.org

fabric suppliers / clothing manufacturers

Downstream pilot

ETEXML, Web services based exchanges

www.nyc.fr/texspin

clothing manufacturer / retail

Web EDI Architecture

List of XML messages (downstream)

Product Catalogue	The product catalogue (characterisation of the product)	Clothing →Retail
Pricelist	The (price) list of products offered for sale	Clothing →Retail
Purchase order	The order placed TO the Clothing Manufacturer	Clothing ←Retail
Dispatch advice	The anticipation of the dispatch by the Supplier	Clothing →Retail
Invoice	The invoice	Clothing →Retail
Sales report	Report of sales to the supplier	Clothing ←Retail

and the EDITEX / Eancom MESSAGES (EDIFACT technologies)

Downstream:
the 7 advantages of TexSpin

- **1. Propose a customised offer to clients :**
  by knowing sale position better, firms get a better traceability of the clients' purchase profiles, which allows firms to give them appropriate pieces of advice

- **2. Update product offer quickly, at a low cost,**
  through dedicated XML tools.

- **3. Improve commercial effectiveness**
  through targetted commercial actions to the clients.

Downstream:
the 7 advantages of TexSpin/2

- **4. Make the information integration easier**
  through the management of XMLEDITEX messages.

- **5. Establish a secure dialogue**

- **6. Enable clients to discover exclusive products**
  by making them test and react upon new models.

- **7. Facilitate clients' order taking**
  thanks to forms on-line by XML. Clients can also control their order position whenever they want.

4. Is TexSpin trustworthy?

Industrial partnership

- **Leader of TexSpin is Euratex** (European T/C industry association); further national industry trading associations: SMI and ATI involved in Moda-ML

- **Directly involved industries in pilots and TexSpin related activities:**
Chantelle (F), Fratelli Corneliani (I), Lanifici Piacenza, Loro Piana, Vitale Barberis Canonico, Successori Reda (I), other 45 industries in the Moda-ML **focus group** in Italy (*it is open…*) and many others in the EDITEX user group in France

- **TexSpin2 in the future:**
- Improvements (new rings of the chain, intersectorial exchanges, public dictionary, certification methods …)
- Involvement of further solution suppliers in Italy, Spain, Germany, Romania

- **Capacity of attraction:**
results released in June 2003,
- 110 Firms in three consortia in Biella and Prato adopt the results of TexSpin/Moda-ML upstream (as well as their technology suppliers: Domina, Multidata Group).
- In France (downstream): Simone Perele, Barbara, Triumph, Aubade, LDB, Rousseau
- Link with EANnet.fr (downstream) (hub for company searching products)
- Other initiatives and contacts are running (Como with TextileBusiness and TextileItaly, MSO-Concept in Germany, others…)

Technology and methodology

- Reference to ebXML initiatives and CEN/ISSS activities

- Close co-operation with **EAN-UCC** about interfaces/coding towards Retail organisations

- Public specifications available for Software Developers

- A Methodology has been developed to fastly support the development of new messages out of the common dictionary

- Many research initiatives will continue the activities towards:
  - Improvement of the supply chain coverage (raw materials, dyeing,..)
  - Support to extended enterprises paradigm and new organisational concepts
  - Support to small communities
  - Cross – sectoral exchanges
  - Compliancy certification methods

Some conclusion

- Integration of SMEs is a KEY factor for the T/C sector

- Proprietary formats hamper the B2B implementation and intercompany collaboration

- Common Standards are a mean to create a common European e-market

- An architecture has been established to offer a reference for the intercompany collaborations, it is simple but powerful and scalable

- Public specifications allow every actor of the T/C sector to implement its own compatible solution

References:

•TEXSPIN (www.cenorm.be/isss, www.atc.gr/texspin)

•MODA-ML (www.moda-ml.org) subscribe the newsletter!

•ETEXML (www.nyc.fr/texspin)

•CEN/ISSS Report on eBusiness standards for eEurope 2005 (http://www.cenorm.be/sh/eBiz)

Thanks for your attention!