

Port  Net

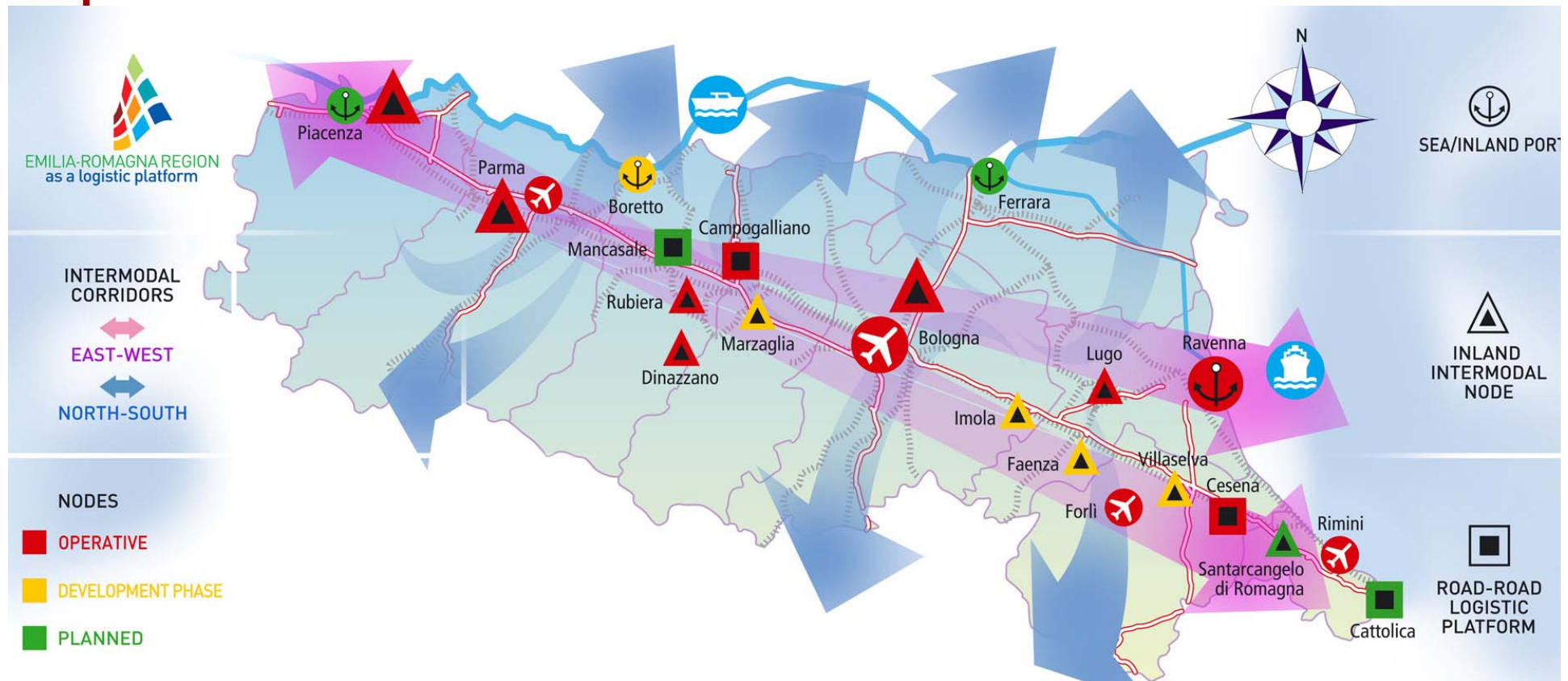
# Introduction to EDI and ICT Standards

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Ravenna, April 2006

# Regione Emilia Romagna

## □ A natural Logistic Platform



# The role of ICT

## ❑ Information and Communication Technologies

- ✓ Infrastructure for communication (Internet, Cables, WIFI, Satellite, SMS, UMTS, etc )
- ✓ Infrastructure in a company or among companies (operating systems, users identification, etc)
- ✓ Application layer (accounting, invoicing, planning, monitoring, etc)
- ✓ INTEROPERABILITY level: when we want 2 or more potential partners can use the same technology to speak with a clear understanding of costs

## Who has to communicate

### ❑ Information, electronic documents can be used for

- ✓ B2A Communication (a Company to an Administration)
- ✓ A2A Communication (Admin to Admin)
- ✓ B2B (Company to Company Communication)
- ✓ B2C (Company to Citizen Communication)
  - E\_commerce

# ACTORS in Multimodal Transport

- ☐ Harbour master
- ☐ Shipping agent
- ☐ Forwarder
- ☐ Port service supplier
- ☐ Terminal operator
- ☐ Warehouses
- ☐ Port Authority
- ☐ Customs
- ☐ Security
- ☐ Railway operator
- ☐ Multimodal transport operator
- ☐ Receiver
- ☐ Sender
- ☐ Train operator
- ☐ Trucker
- ☐ Vessels
- ☐ Freight villages
- ☐ .....

## Just examples

### ❑ **ETA/ETB – Expected Time for Arrival / Departure**

- ✓ Can the departure time from a port be considered as expected arrival time for another port ?

### ❑ **List of Goods**

- ✓ (both in a port or in a Freight Village)
- ✓ Technology ????
  - RFID already in use

## **GILDA Projet (2000-2002)**

- ❑ The design of an infrastructure among ports for:**
  - ✓ Internet communications
  - ✓ Security in terms of Information Technology
  - ✓ Identification of the costs .....
  
- ❑ The infrastructure and a WEB approach**
  - ✓ Is a centralised WEB application usable for all the operators of a chain ?
    - Yes (theory)
    - NO in the real world

## **(2003) GILDANET: The Objectives**

- ❑ **To enhance existing ICT-solutions with capabilities to cooperatively support transnational transport chains.**
  - ✓ Specifically, efforts will be made to build upon the recommendations of international standardization bodies such as UN/CEFACT, OASIS and ebXML;
- ❑ To build pilot systems, interconnecting ICT-solutions among themselves and with legacy applications of other public/private actors to support specific transport chains, such as perishable goods, automotive and reversed logistics of container;
- ❑ To define appropriate business models;
- ❑ To establish a level playing field for SME's and global players;



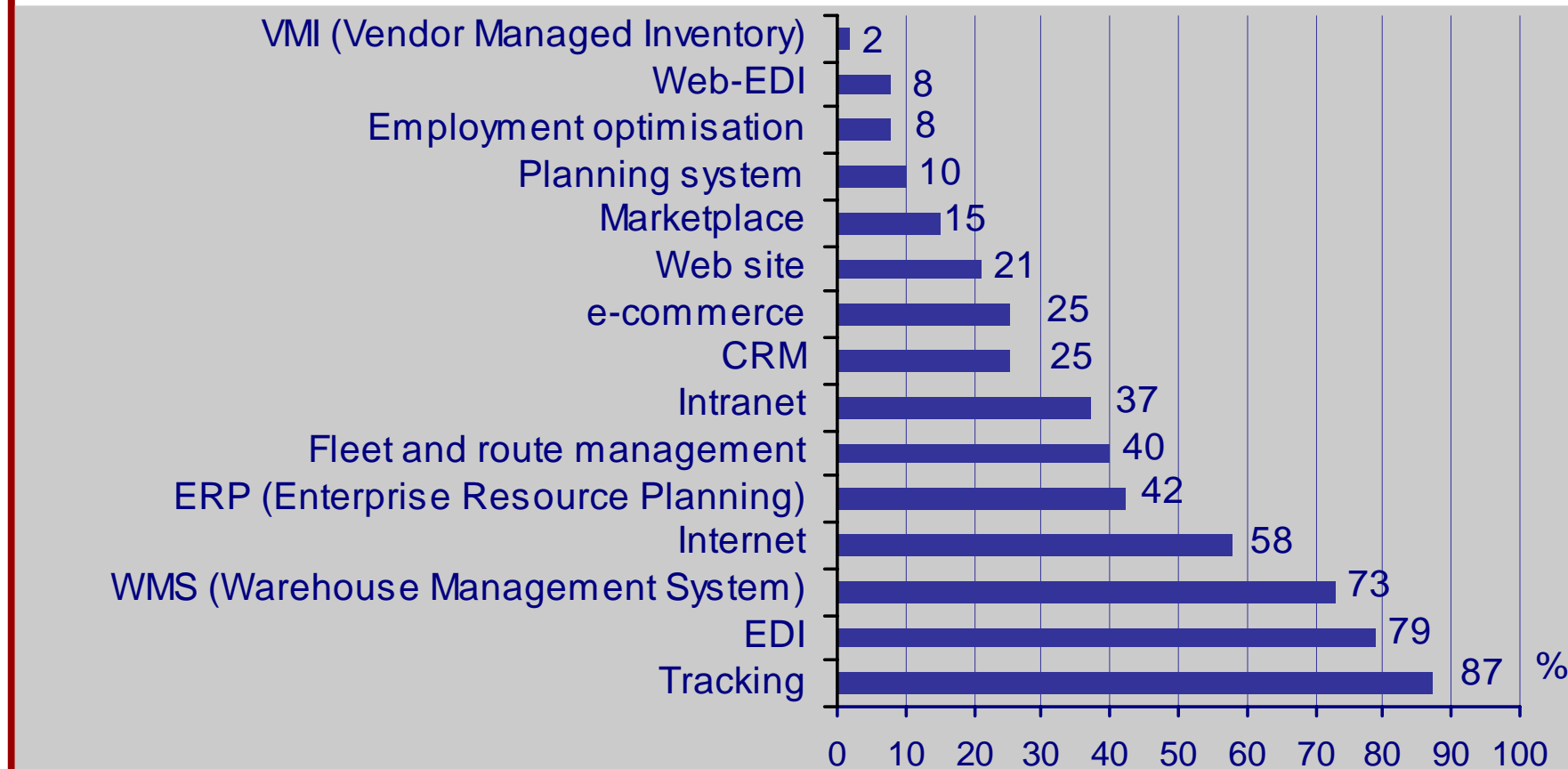
## (2003) GILDANET: Thinking in the European Context

- ❑ The Sevilla submit in June 2002 endorsed two important political initiatives:
  - ✓ “*e-Europe 2005*” aims at providing a favourable environment to boost productivity, modernise public services, create jobs, in order to make Europe the most competitive and dynamic knowledge based economy. Some of the key targets of this initiative are:
    - interactive public services (**e-government**),
    - accessible for all, and
    - offered on multiple platforms.
  - ✓ “*Better regulation*”: a review of legislation affecting e-business both at European level, as well as at international level. Efforts are being made and initiatives taken to facilitate legitimate trade by using IT and by improving and simplifying European legislation in order to reduce the cost of doing business and increase legal certainty for citizens and companies.

## ***THE RESULTS OF GILDANET***

- ❑ **A proven method for defining new business process collaboration agreement, based on standard approaches such as ebXML**
- ❑ **An ICT platform enabling transnational chains to adopt e\_documents (GIPO)**
- ❑ **An application platform providing services to transnational chains (GIAP)**
- ❑ **Pilot applications: chain planning, chain monitoring, fleet management, tracking and tracing modules, e\_document applications.**
- ❑ **A validation of the Gildanet approach in real transnational chains.**

## Operators involved in logistics chains need electronic infrastructures to share information to enable effective and efficient e-business processes



Source: "DG Tren-Eurostat: transport in figures", Europe, 2002

## The project outcome

- ❑ Improve the overall efficiency of the international, intermodal transport systems.-
- ❑ Target the main factors limiting the efficiency of modal exchange operations, and hindering the development of combined transport.-
- ❑ Implement the created ICT systems in order to support all the flows and the exchange of information and documents related to the intermodal and transnational transport chains.-
- ❑ Reach a large number of users

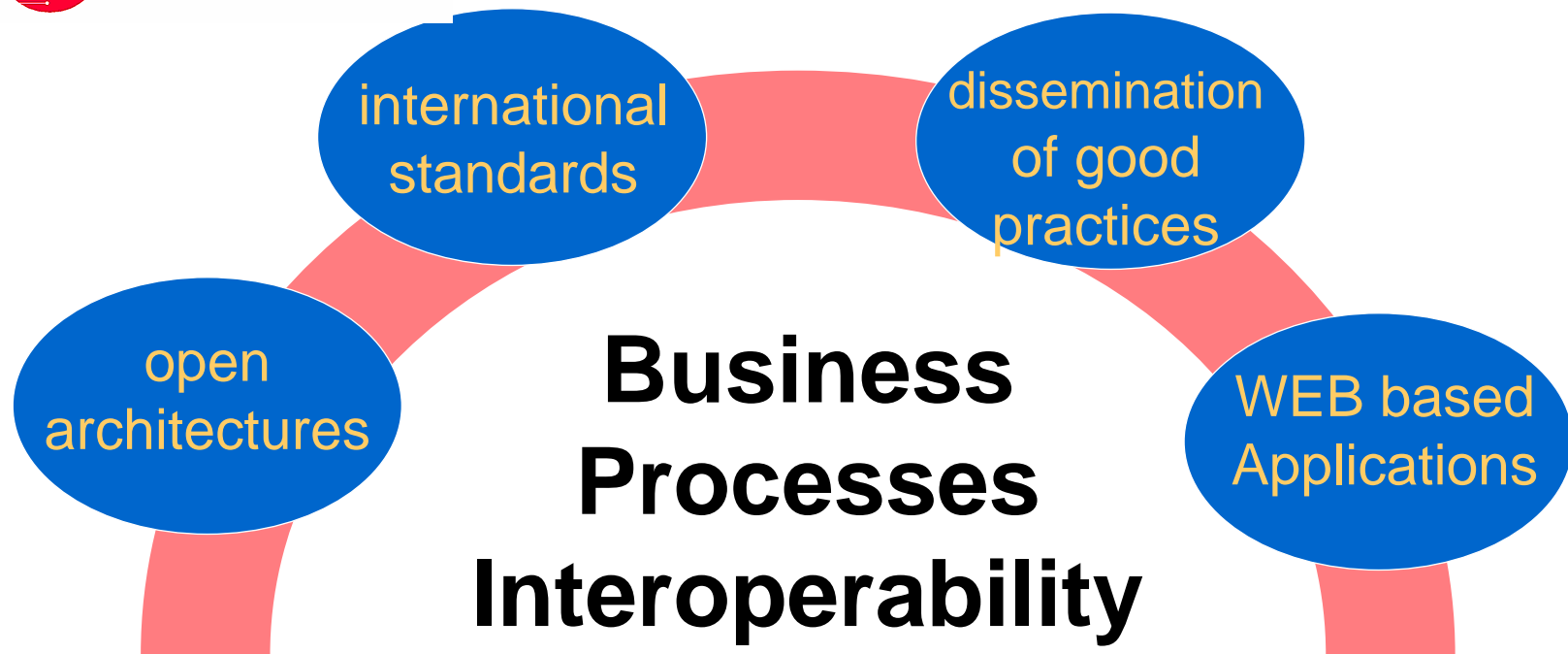
## The IT Context in GILDANET

- ❑ Information Management and Electronic Data Transmission systems in freight transport is an outstanding issue for the efficiency of transport intermodality at transnational level.
- ❑ Technology innovation enables new opportunities, BUT the logistic chains should define and adopt new efficient business models
- ❑ The **e\_logistics** is the silver bullet for companies and public administration
  - ✓ **e\_logistics** offers key advantages if it is the result of an integration of business processes
  - ✓ The companies should be ready to change the organisation and follow the growth of IT capabilities
  - ✓ e\_business applications could have a positive impact on SMEs adopting the new EDI technologies

# Effective e-logistics and e-government at a pan-European level require interoperability

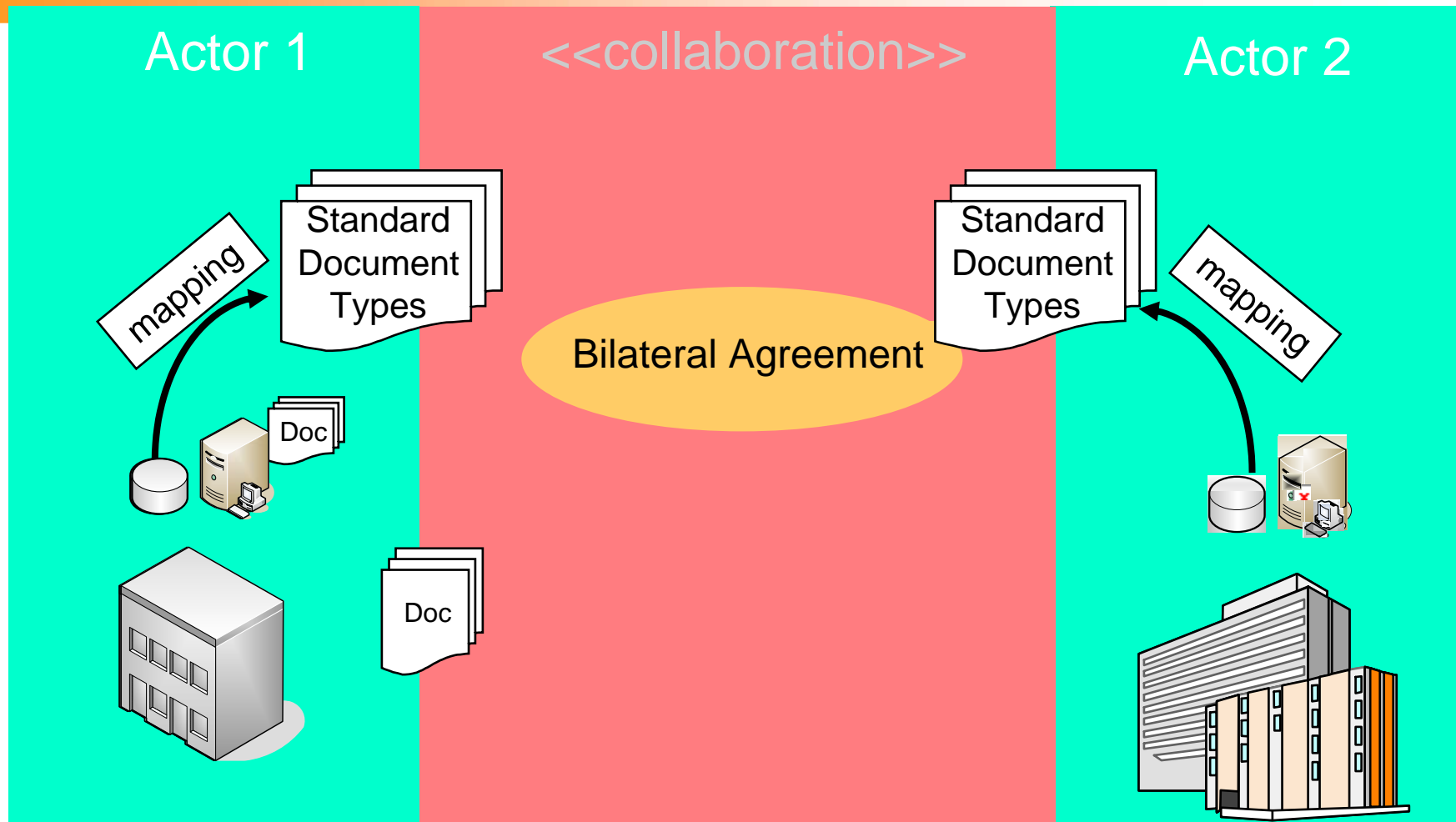


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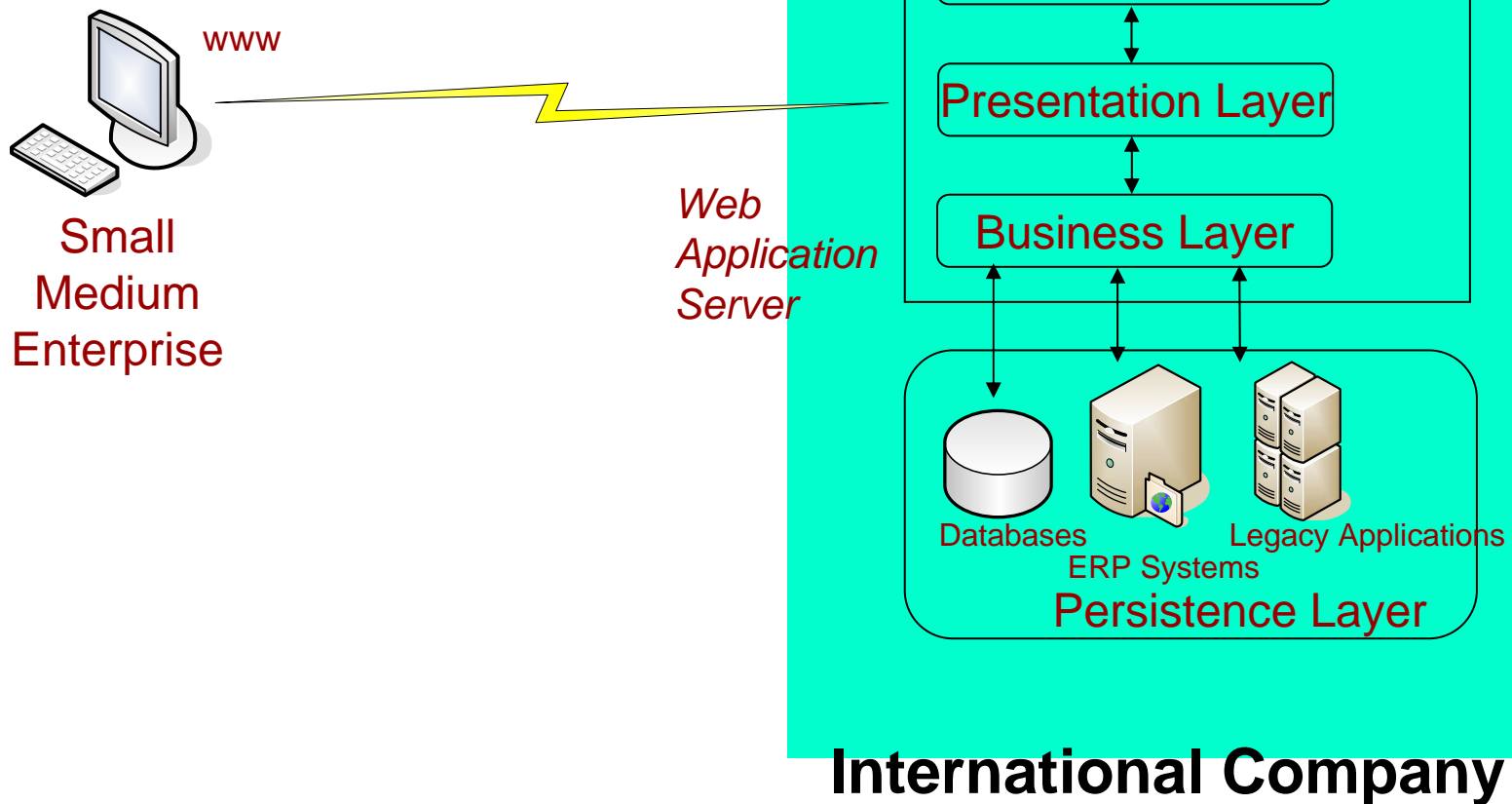


Effective e-logistics and e-government

# Bilateral Agreements

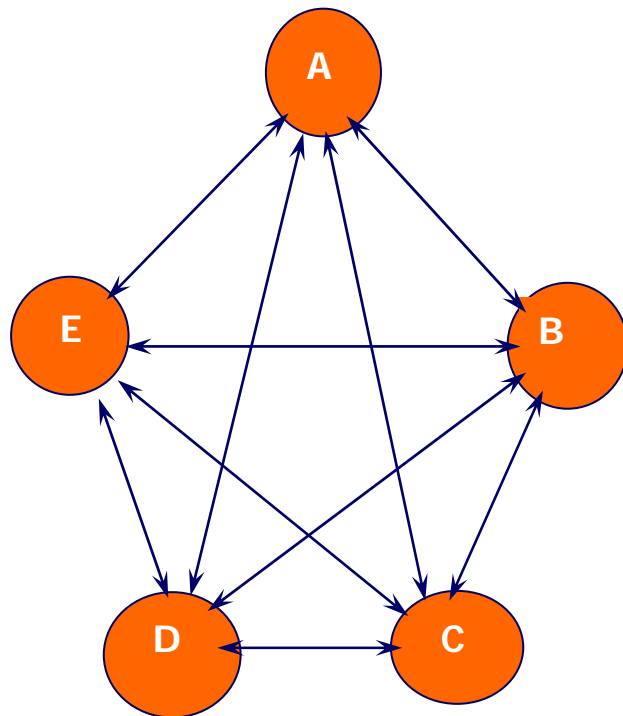


# Client-Server for Web Applications



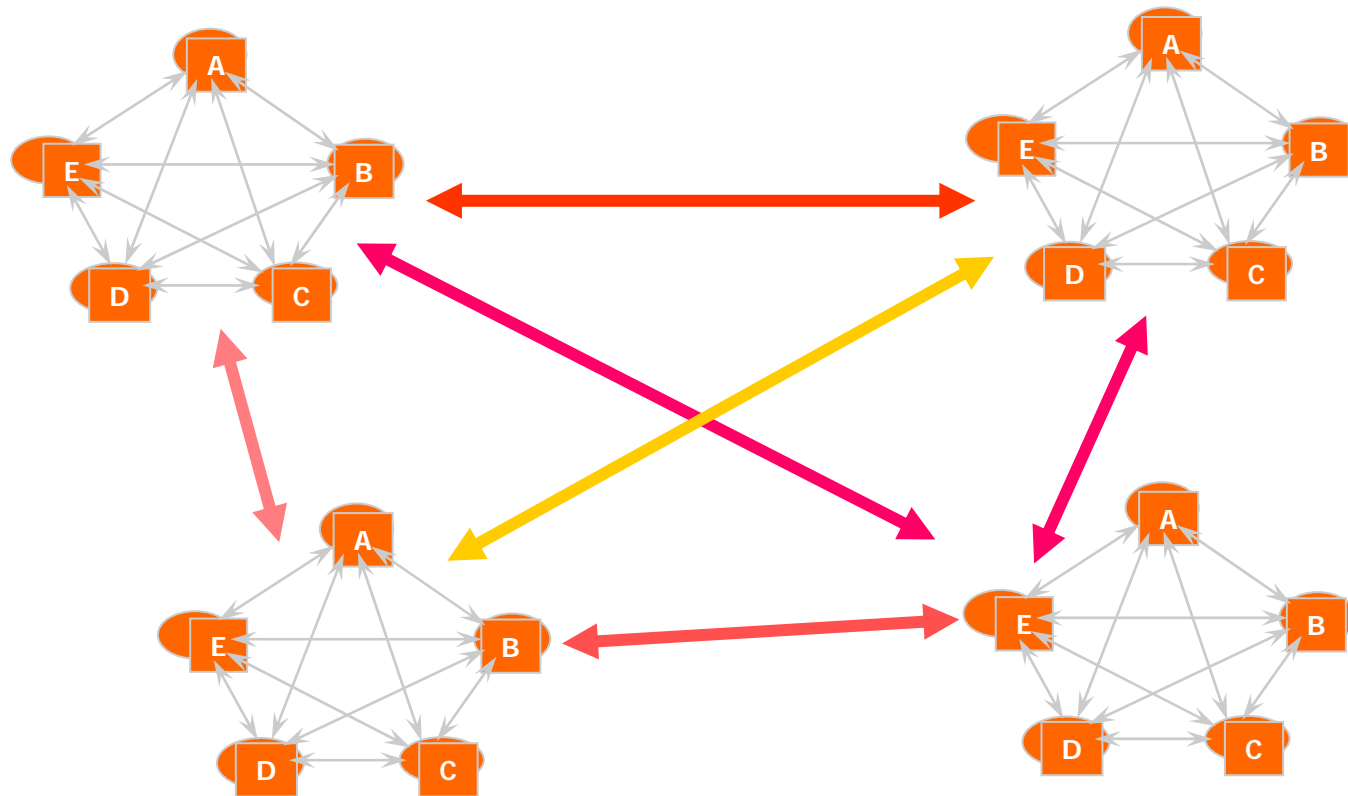


# Business Document Standards

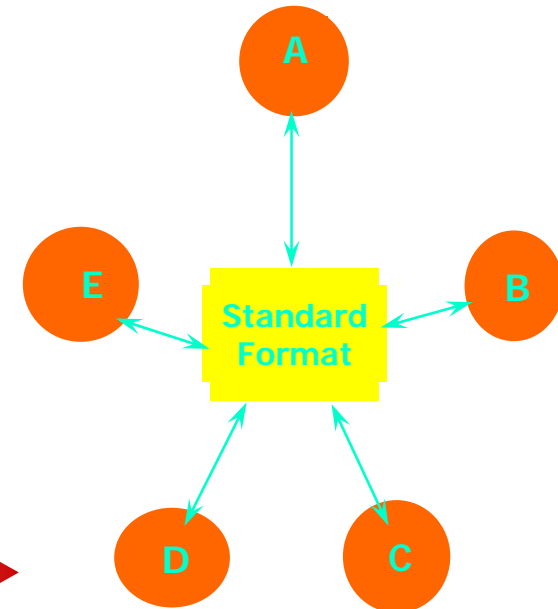
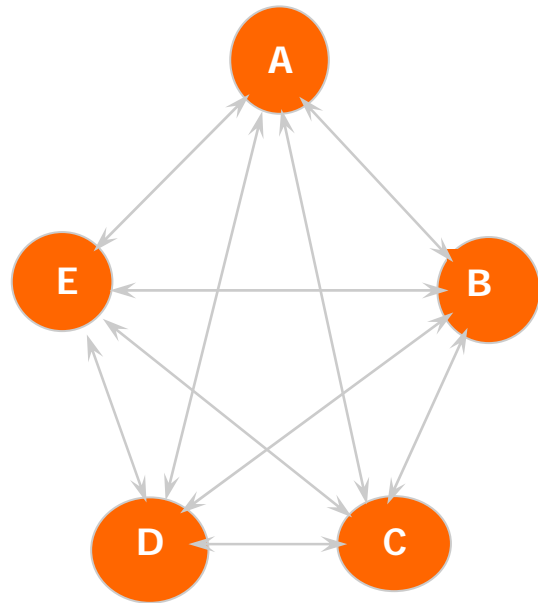


**Many  
business to business  
bilateral agreement**

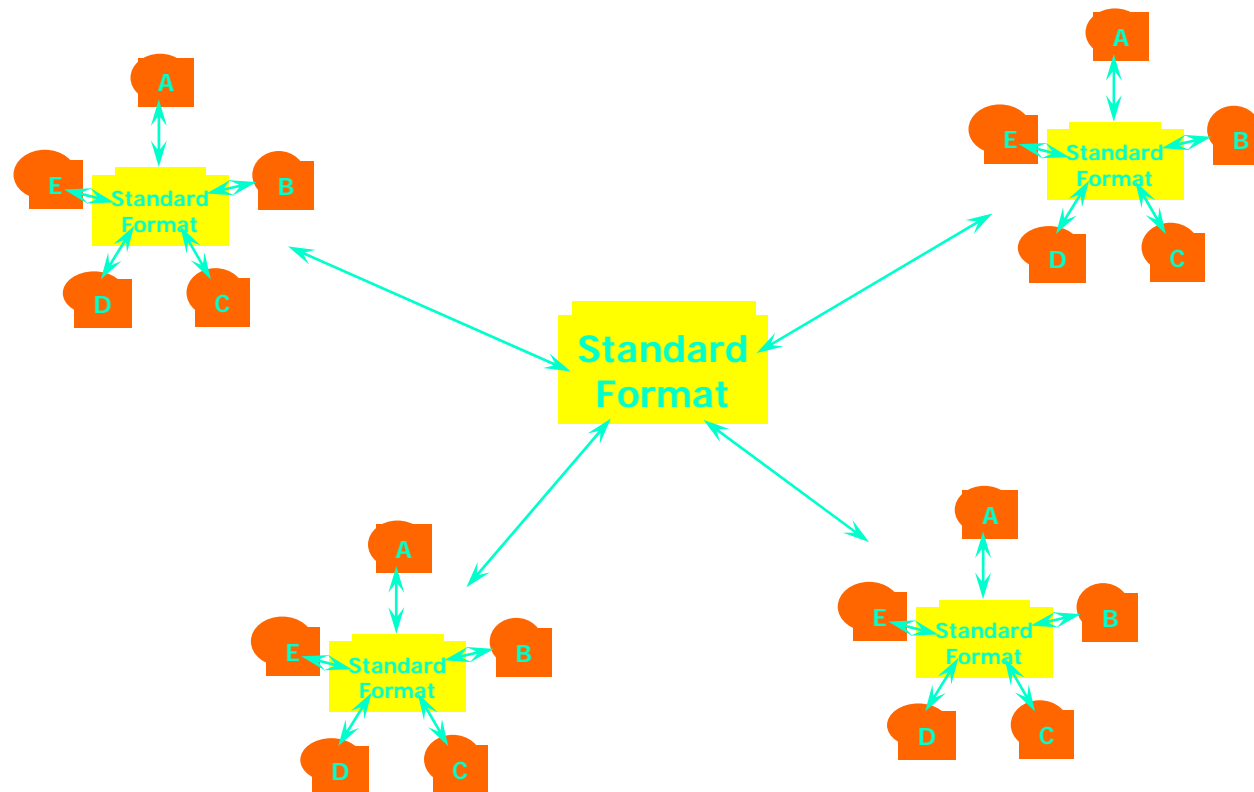
# Business Document Standards



# Business Document Standards

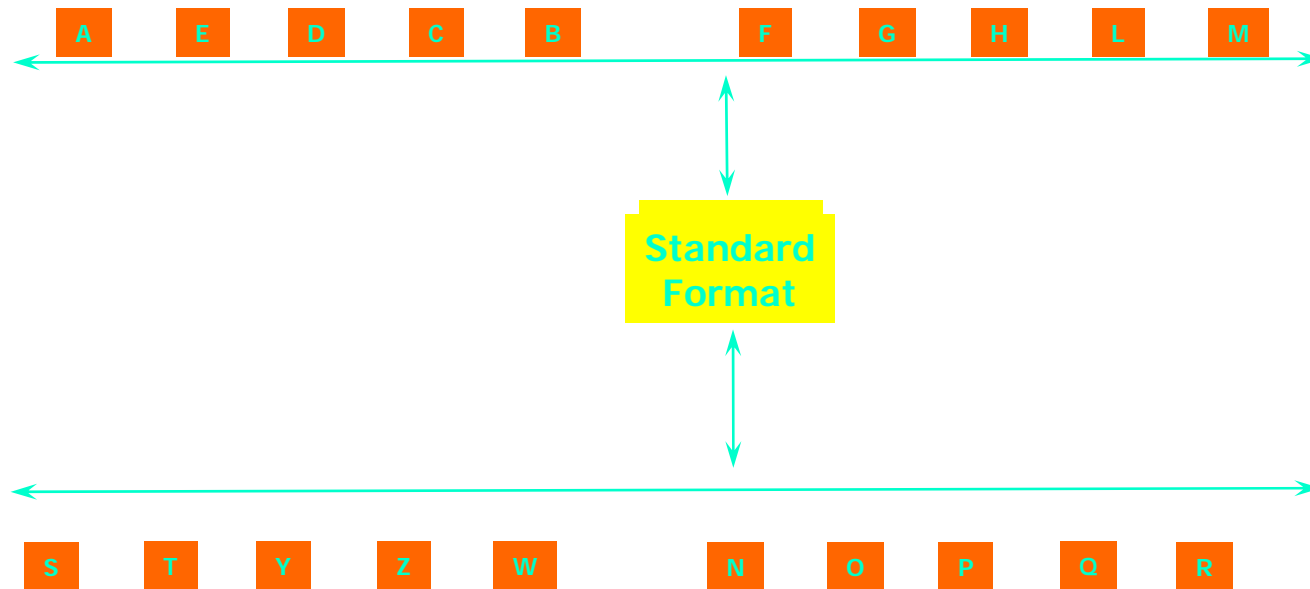


# Business Document Standards

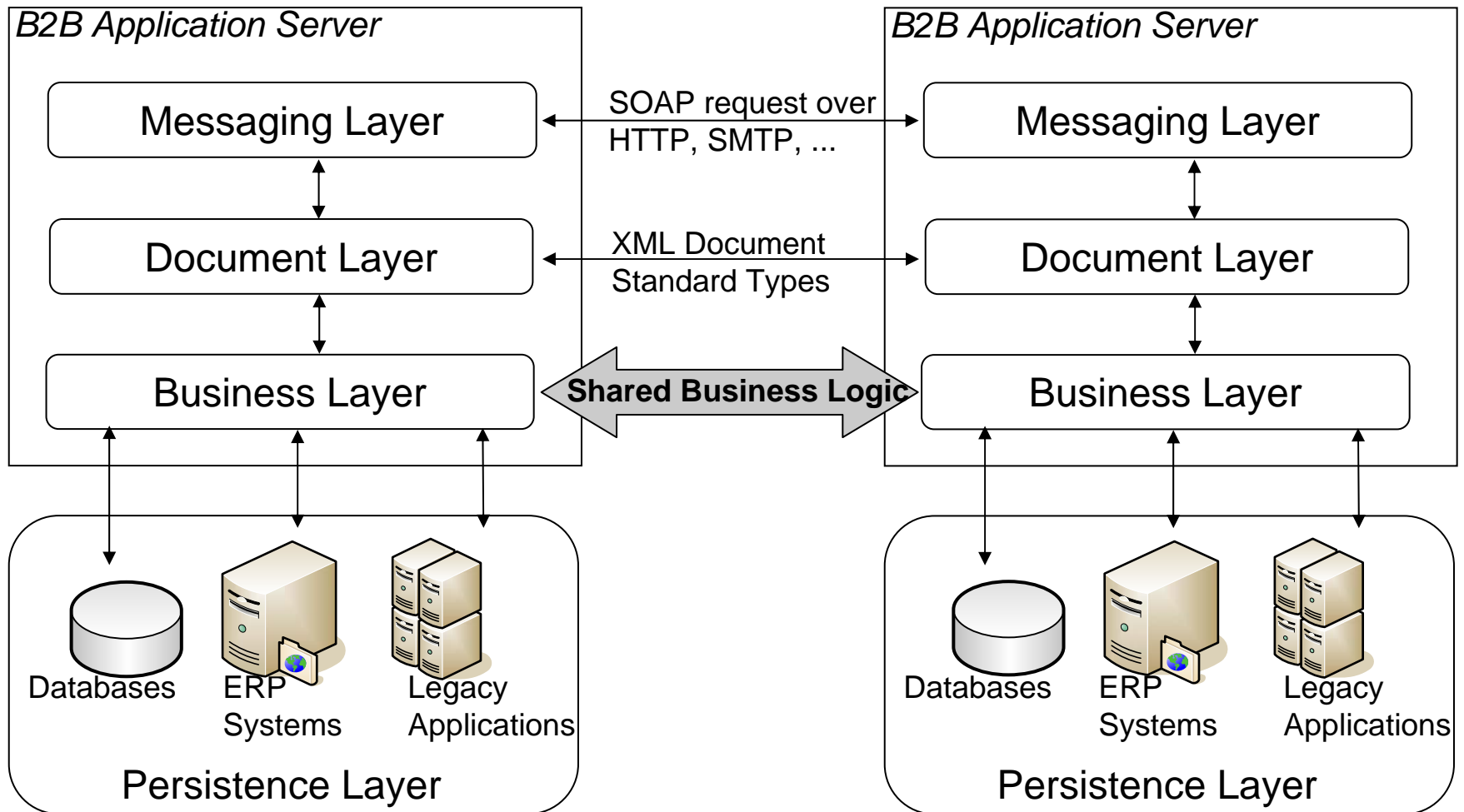


# Business Document Standards

**A software infrastructure enabling business SMEs are in the business**



# Bilateral Agreements



# The Essence of e\_logistics

**... where enterprises of any size, anywhere can**

- ✓ Find each other electronically
- ✓ Conduct business through the exchange of electronic based messages
  - using standard message structures
  - according to standard business process sequences
  - with clear business semantics
  - according to standard or mutually agreed trading partner agreements
- ✓ Using commercial off-the-shelf purchased business applications

□ **Large Companies, Public Administrations and SMEs need an electronic infrastructure to share information and e\_services in order to enable effective and efficient e\_business processes**

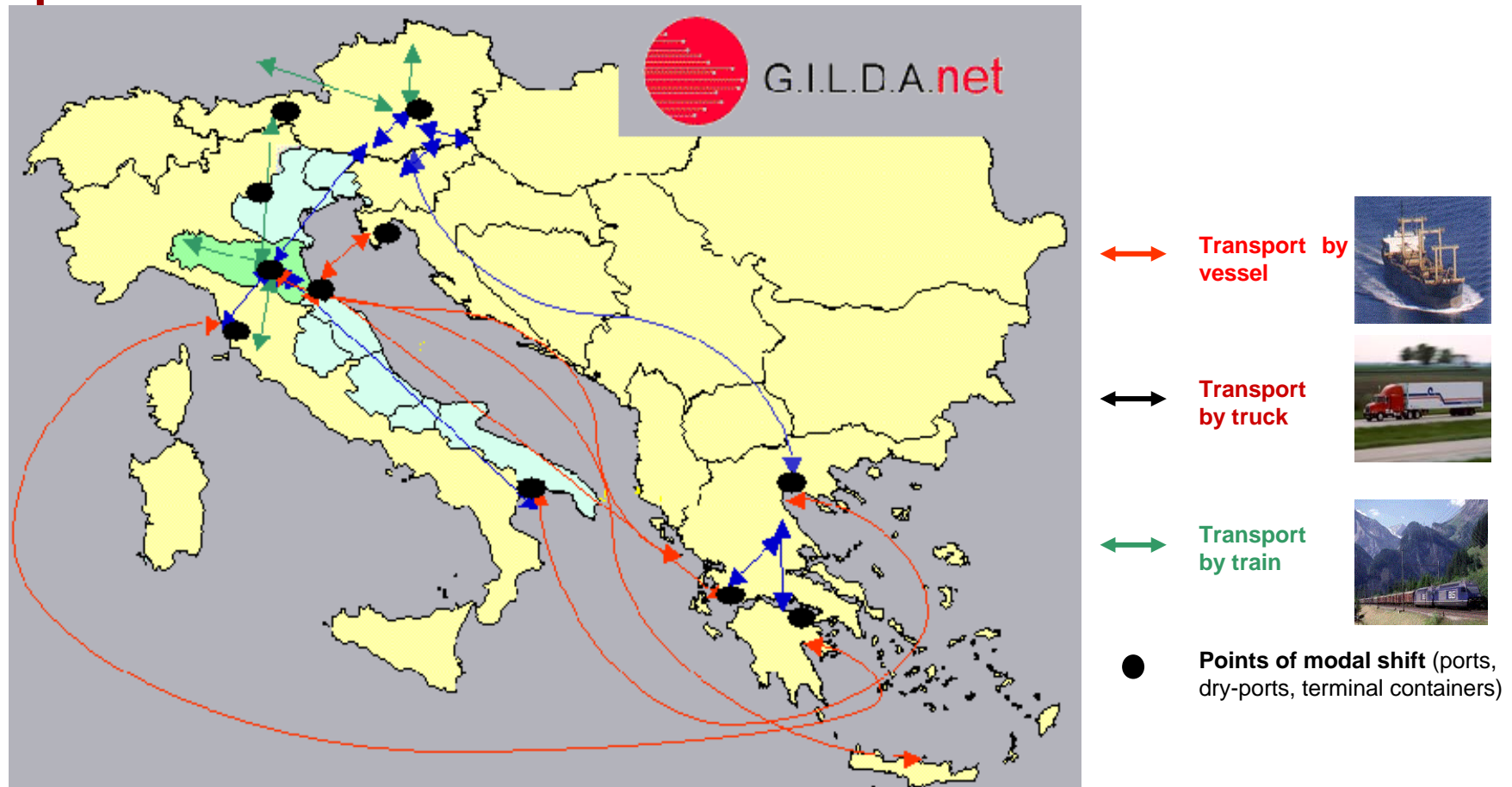
- ✓ It will afford participation of SME's in multiple supply chains



# Essentials of Pilot Projects



## Gildanet: to improve the overall efficiency of intermodal transport providing an innovative ICT open platform



# The GILDANET Approach

- ❑ To analyse the normative and organisational aspects effecting efficiency in logistics
- ❑ To analyse the current status of the art for Interoperability and Accessibility at local level
- ❑ To define pilot projects at local level
  - ✓ Organisational, Normative and Technological aspects
- ❑ To identify ICT standards capable to enable a more efficient approach to communicate among actors
- ❑ To develop pilots adopting IT and e\_services
- ❑ To disseminate the technical standards enabling SMEs to be part of e\_logistics
- ❑ To assess the pilots according a “validation approach” that is a way to disseminate good practices.

## The Approach

- ❑ **GILDANET adopted a bottom up approach**
  - ✓ The ICT proposals are answers to real problems
  - ✓ The providers of ICT solutions are local and involved companies
- ❑ **Sometime, the adopted Technology is not “outstanding”**
- ❑ **The model is simple**
- ❑ **Many involved users**

A large red crosshair graphic is centered on the page. The vertical bar of the crosshair is on the left side. The horizontal bar of the crosshair extends to the right and contains the text "Which standard ?" in white. A thin, semi-transparent red horizontal bar is positioned behind the main horizontal bar, extending from the left edge of the image to the right edge of the main horizontal bar.

**Which standard ?**

## Business requirements

Identify business requirements (data collection, data exchange, data dissemination, data sharing, alert)

Select generic services & common tools, e.g. CIRCA, STATEL

Select network generic services, e.g. TESTA II, Internet

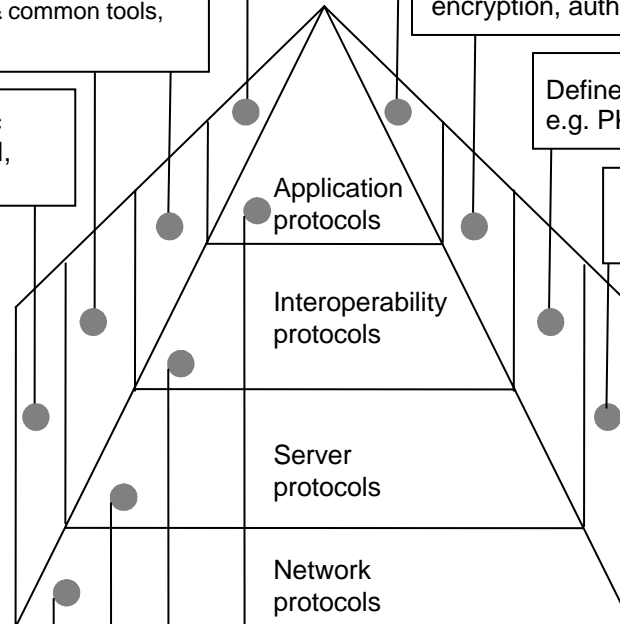
## Security management

Establish a requirements-led security policy

Define security mechanisms, e.g. digital signature encryption, authentication and authorisation

Define application security protocols, e.g. PKI, SSL, S/MIME

Define networking security protocols, e.g. IPsec



## Implementation

### Application protocols

ISO 10646 (e.g. Unicode), PDF, SGML, DSSSL, HTML, XML, XMI, UML, WebDAV, GIF, TIFF, JPEG

### Interoperability protocols

SOAP, ebXML, Domain-specific XML messages

### Server protocols

HTTP, LDAP, X.500, J2EE, CORBA, SNMP

### Network protocols

TCP/IP

Source:  
IDA: ARCHITECTURE GUIDELINES For  
Trans-European Telematics  
Networks for Administrations



# How many document formats ?

## ❑ The documents

- ✓ PDF (Portable Document Format);
- ✓ SGML (Standard Generalised Mark-up Language);
- ✓ DSSSL (Document Style Semantics and Specification Language);
- ✓ HTML (Hypertext Mark-up Language);
- ✓ XML (eXtensible Mark-up Language);
- ✓ XMI (XML Metadata Interchange);
- ✓ UML (Unified Modelling Language);
- ✓ WebDAV.
- ✓ MS Word/office

## ❑ The Interoperability Level

- ✓ XML based services
- ✓ EDI Services



## Levels of Standardisation

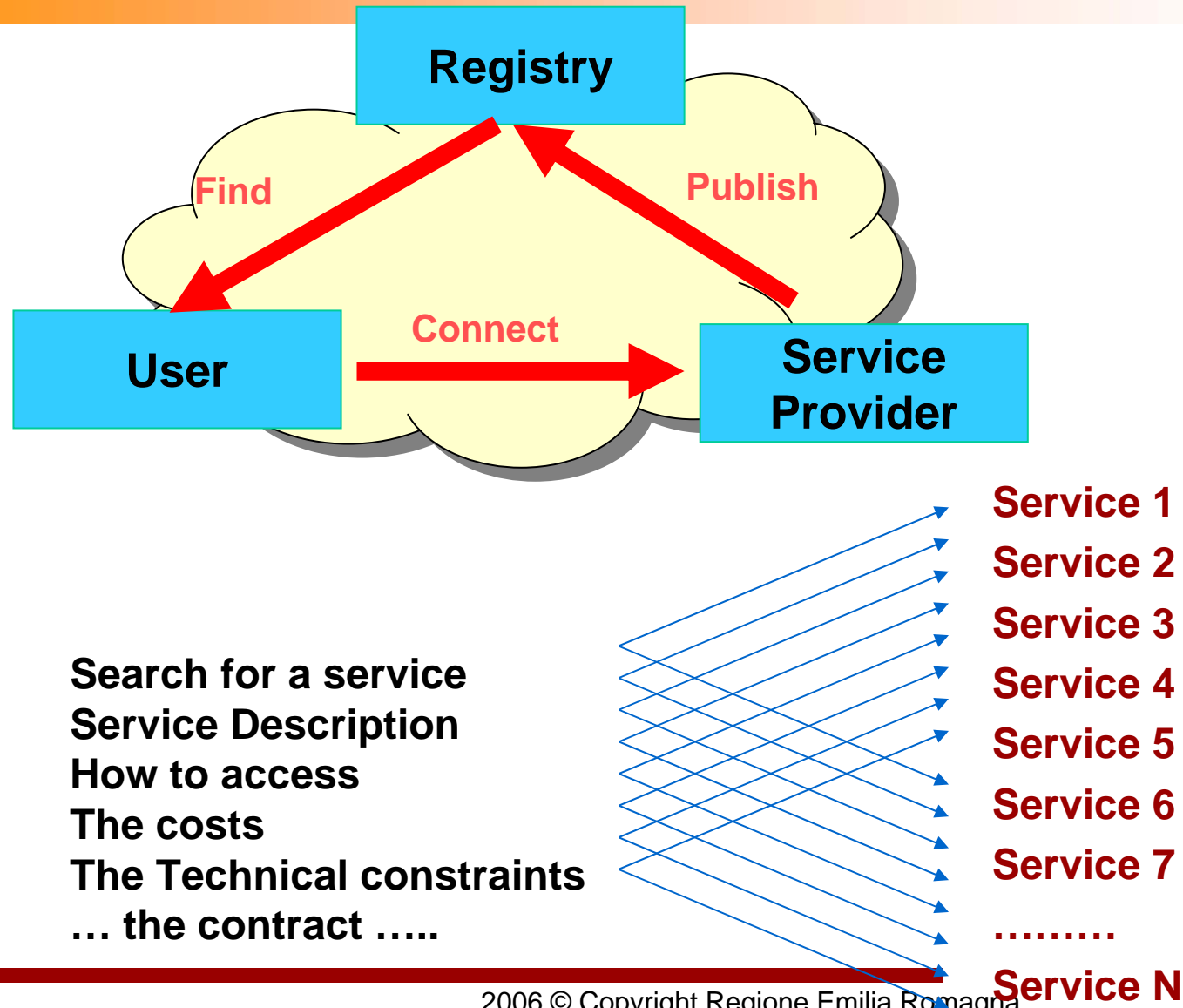
- ❑ The document format (digital formats)
- ❑ The Contents of the document
- ❑ The Coding of data in the document
- ❑ The Business Level
  
- ❑ The Interoperability Level
- ❑ The communication level
- ❑ ..... The service Level
  - ✓ How to access to services
    - ... many layers of standardisation

# The main standards on documents

- ❑ **Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT),**
  - ✓ It is world wide adopted
- ❑ **CARGO-IMP proposed by IATA (International Air Transport Association). It is an old standard, consolidated in the airports.**
- ❑ **American National Standards Institute X12, the ANSI X12,**
- ❑ **Organisation for Data Exchange Through Tele-transmission in Europe (ODETTE),**
  - ✓ An example of vertical standard in the automotive sector
- ❑ **Society for Worldwide Interbank Financial Telecommunications (SWIFT),**
  - Other vertical standard in the banking sector.
- ❑ **XML (eXtensible Mark-up Language) based standards**
  - ✓ It is a format more than a standard. It is flexible and world wide adopted. The WEB based applications are using this standard that helps interoperability.



# The REGISTRY



# What is an e-business Registry?

- ❑ An e-business registry is a **software product** that acts as an **organizing focal point** for the wealth of information and interactions that conducting e-business requires.
- ❑ E-business registries serve various purposes, including:
  - ✓ **Enabling the discovery of trading partners** and their various capabilities
  - ✓ Classification, association of e-business artifacts such as XML schemas, Document Type Definitions (DTDs), and trading partner profiles
  - ✓ Registration and discovery of Web service descriptions, such as Web Services
  - ✓ Description Language (WSDL) documents
- ❑ E-business registries are central to the execution of e-business because they allow for the registration, management, and discovery of those critical items that are crucial for the conduct of e-business. The UDDI and ebXML registries are considered e-business registries, each with a different primary focus.

# Gildanet SOFTWARE review

Microsoft Internet Explorer window showing the GILDAnet press review website.

Address bar: <http://software.felixia.it/>

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**Software Listings:**

Prodotto:	Produttore:	Descrizione tecnica:	dettaglio
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<a href="#">Order management</a>	Oracle Italia srl	Oracle Order Management permette di ridurre i tempi di immissione e coOracle...	<a href="#">dettaglio</a>
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<a href="#">Stocksystem</a>	Replica Sistemi SpA	Stocksystem è lo strumento per organizzare e controllare tutte le attiStocksystem...	<a href="#">dettaglio</a>

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# The Gildanet Press Review

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Logo: GILDANet press review

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Categories: Intermodalità, Tecnologie, Trasporti, Ricerca e Formazione, Infrastrutture, Unione Europea

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**Infrastrutture**

**Gravi ritardi per le reti transeuropee**

fonte (ANSA) del (10/05/2005)

Ritardi e carenze nei finanziamenti delle Ten.

continua ...

**Intermodalità**

**Beni di largo consumo: quale strada?**

fonte (Logistica) del (01/04/2005)

Il programma convengnistico di Rimini Fiera ha analizzato le sfide a cui la logistica deve sottoporsi per raggiungere traguardi di eccellenza ed efficienza nel settore alimentare dei beni di largo consumo.

continua ...

**Ricerca e Formazione**

**La logistica alla frutta è sempre più veloce**

fonte (Il Giornale della Logistica) del (01/04/2005)

Trasportare tonnellate di frutta salvaguardando freschezza e shelf-life. E farlo in modo veloce, sempre più veloce. Una logistica globale che copre il pianeta fino a raggiungere la tavola del consumatore finale...

continua ...

**Tecnologie**

**RFID: prospettive, ostacoli e potenzialità**

fonte (Logistica) del (01/02/2005)

Si rilevano nuove prospettive di crescita per il mercato RFID, come dimostrano i recenti trend di vendita, ma non in Europa.

continua ...

**Trasporti**

**I sistemi logistici portuali**

fonte (Logistica Management) del (01/04/2005)

Le realtà portuali del Mediterraneo vincono le sfide della globalizzazione e dell'intermodalità logistica e sfruttano la vicinanza con i mercati asiatici e il

## **Gildanet's mission to support SME's involved in the supply chain and their adoption of e-logistics**

- ❑ **support to international business by enabling interoperability in ICT Systems**
- ❑ **reduction of costs and times connected to communication flows and data interchange**
- ❑ **reduction of the technological gap between SME's and the main operators**
- ❑ **efficient and effective cooperation between all the actors involved along the Supply Chain**
- ❑ **strong cultural change toward information sharing and cooperation through the use of state of the art technologies**

## Open questions for the Discussion

- ☐ Are the companies ready to open their information systems ?
- ☐ Is the interest in Interoperability limited to the pilots ?
- ☐ Are there relevant services available on the market ?
- ☐ Who pays for the services ?
- ☐ Who will invest in new services ?
- ☐ Is technology sufficient to cooperate ?
- ☐ How to start the process of business process reengineering in the logistics ?
- ☐ Which standard will be adopted in the future
- ☐ How to work together with financial companies
- ☐ Is the P2P approach the right one ?
- ☐ Is the IT security a critical issue in this process ?

## Lessons Learned

- ❑ **The adoption of international standards is increasing at European level**
  - ✓ Recent initiatives focus on ebXML
  - ✓ The EDIFACT is not dead
- ❑ **Driver are external to the transport sector**
  - ✓ Multimodality
  - ✓ Security Concerns
  - ✓ Globalization & Harmonization
- ❑ **Consequences, Benefits**
  - ✓ Changes in the competitive structure
  - ✓ Expansion of business opportunities for adopters
  - ✓ Process cost reductions