



## **Workpackage 32**

### **Regulatory Framework**

## **Deliverable 32.3**

### **An Analysis of Legal ICTs**



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This document acts as a review of ICT initiatives and products relevant to legal aspects of conducting business-to-business e-commerce on the Internet or similar communications technologies. The document focuses on technologies used to support the legal aspects of e-Business activities rather than the regulatory aspects of the business itself.

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## Executive Summary

This document acts as a review of ICT initiatives and products relevant to legal aspects of conducting business-to-business e-commerce on the Internet or similar communications technologies. The document focuses on technologies used to support the legal aspects of e-Business activities rather than the regulatory aspects of the business itself.

After a brief introduction to the subject matter, *Technologies for Addressing Legal Issues* introduces technology types which are used to address the common issues of the legal aspects of conducting B2B e-commerce. These technologies are primarily concerned with identity, contracts and agreements and dispute resolution.

The next section, *Standardisation Initiatives*, provides an overview of standardisation efforts in the field. Much of the work examined here focuses on defining XML schema to facilitate interoperability of legal document management software. A summary table provides a means of linking each of these initiatives with its associated regulatory issues that apply to, or are addressed by them (as categorised in DBE deliverable D32.1[1]).

*Legal ICT Projects and Research Programmes*, provides a description of EU funded projects which have addressed issues of software technologies in a legal context, particularly with regards to e-business. In a similar way to the previous section a summary table is provided to show which of the associated regulatory issues each project addresses.

This report finishes with a *Summary and Conclusions* section which provides both a summary of the report and conclusions and recommendations which can be drawn from the research undertaken herein.

# **1 Introduction**

It is commonly recognised that many of the barriers to ubiquitous e-commerce adoption by Europe's SMEs are due to the legal problems inherent to the international and commercial nature of the business processes. Without the availability of affordable concrete mechanisms to provide sufficient levels of trust in e-commerce transactions it is unlikely that the desired uptake of e-commerce among SMEs will occur. DBE (and WP32 in particular) plans to address this problem to a certain degree by providing a knowledge base of regulatory issues and a model for generic level contracts and agreements based on the BML meta-model language developed throughout the project. Furthermore it is planned to model a mechanism through which e-commerce contracts can be negotiated via third party services. All of this is to be delivered via open source tools. This will represent a considerable advance in the availability of affordable state of the art tools for providing legal confidence in B2B e-commerce transactions.

Where the previous deliverable D32.1[1], Literature Review identified the primary regulatory and legal issues which need to be addressed by DBE for the successful deployment of B2B e-commerce services, this document discusses the technologies that underpin those issues and requirements. The focus of this document is therefore to review and examine the degree to which ICT technologies and standards are helping overcome legal barriers to international e-business transactions.

Finally, this document will identify which of these technologies and standards bear a relevance for the implementation of the digital business ecosystem.

## **2 Technologies for Addressing Legal Issues**

This section will look at the technology types which are used to address the common issues of the legal aspects of conducting B2B e-commerce. These technologies are primarily concerned with identity, contracts and agreements and dispute resolution. A combination of these technologies is necessary to provide the required levels of confidence in the system in order to encourage the successful uptake of DBE among Europe's SMEs, thus creating a suitable critical mass. The section also looks at some of the commonly available tools and services that are being used to provide solutions for these legal requirements in the e-commerce environment.

### **2.1 Digital Signatures & Identity**

Digital signatures are a method of authenticating a user's identity and thus indicating a user's assent to a contract or other document. They are commonly used to sign emails and in e-commerce and are based on a Public-Key Infrastructure. A PKI system involves a qualified certification authority (CA) issuing certificates to individual parties that have proved their identity. Each certificate contains a public key, and is issued to the user along with a separate private key. A digital signature can be created only by the owner (using their private key) but verified by anyone who can access the owner's certificate. CAs are an example of a trusted third party.

The use of digital signatures has been encouraged and standardised by EU directives, i.e. Electronic Signatures Directive (EU Directive 1999/93/EC) [2]. These standards help to ensure that signatures will be verifiable over the life of any agreement, and that the parties cannot repudiate the signature at a later date. A standard called XAdES[3], which was developed in order to satisfy the requirements of the directive is discussed in the section below on standardisation initiatives.

### **2.2 Terms and Conditions**

Most commercial web based services require that a user read and agree to the "Terms and Conditions" of the service, either by requiring the user to register and formally agree (by clicking "I agree to the terms and conditions") or by simply including a link to the service terms and conditions at the bottom of the page.

In order for a user to be legally constrained by the service's "Terms and Conditions" they must be easily readable by the user, which causes problems in situations of composed services. There may be no direct way for some services to present their terms of use to the user, and no standard way for a user to look for a service's terms and conditions. In a situation where a service is composed dynamically there are two possible approaches for legal responsibility, either each service component provider is responsible only for their component (with their own terms and conditions) or a Virtual Enterprise (made up of the providers of the individual component services) takes

responsibility for the whole composed service and provides a single “Terms and Conditions” for using the composed service.

The concept of a Virtual Enterprise is still relatively new and untested, with many legal questions still to be answered. Projects such as ALIVE[4], Legal-IST[5] and TrustCoM[6] are investigating the legal and technical issues involved and the results of these are being monitored by the DBE project.

### ***End User License Agreement***

An End User License Agreement is a common type of software license that describes the permissions the user is given to use and distribute the software. A EULA commonly defines the limits of the liability of the software authors and any copyright issues. In most EULAs the user is prohibited from making copies and distributing them to other users, however some open source Licenses such as the GPL (GNU General Public License)[7] the user is free to distribute the software, given certain restrictions.

Some further common elements of EULAs include limits on reverse engineering of the product, and how the user may use the Software. Most users do not read software licenses thoroughly[8] , and therefore software authors are able to put very restrictive limits in EULAs without greatly affecting the number of users.

Here is an extract from the ADOBE Reader End User License Agreement[9].

NOTICE TO USER: PLEASE READ THIS CONTRACT CAREFULLY. BY USING ALL OR ANY PORTION OF THE ADOBE READER SOFTWARE ("SOFTWARE") YOU ACCEPT ALL THE TERMS AND CONDITIONS OF THIS AGREEMENT, INCLUDING, IN PARTICULAR THE LIMITATIONS ON: USE CONTAINED IN SECTION 2; TRANSFERABILITY IN SECTION 4; WARRANTY IN SECTION 6; AND LIABILITY IN SECTION 7. YOU AGREE THAT THIS AGREEMENT IS ENFORCEABLE LIKE ANY WRITTEN NEGOTIATED AGREEMENT SIGNED BY YOU. THIS AGREEMENT IS ENFORCEABLE AGAINST YOU AND ANY LEGAL ENTITY THAT OBTAINED THE SOFTWARE AND ON WHOSE BEHALF IT IS USED. IF YOU DO NOT AGREE, DO NOT USE THIS SOFTWARE. IF YOU ACQUIRED THE SOFTWARE ON TANGIBLE MEDIA (E.G. CD) WITHOUT AN OPPORTUNITY TO REVIEW THIS LICENSE AND YOU DO NOT ACCEPT THIS AGREEMENT, YOU MAY OBTAIN A REFUND OF ANY AMOUNT YOU ORIGINALLY PAID IF YOU: (A) DO NOT USE THE SOFTWARE AND (B) RETURN IT, WITH PROOF OF PAYMENT, TO THE LOCATION FROM WHICH IT WAS OBTAINED WITHIN THIRTY (30) DAYS OF THE PURCHASE DATE.

The above extract states that a user is bound by this contract if they use this software even if they have not read this agreement.

### ***EULAyzer***

EULAyzer[10] is a simple free tool that analyses EULAs for text that the end user may find unacceptable. This is very useful as many EULA are quite long and can be notoriously difficult to read, but a user may be interested to read that it contains statements such as *"Using this product*

*means you will be monitored."*

EULAyzer organises questionable sections of the EULA into topics such as Advertising, un-installing and references to third parties. A major weakness of the EULAyzer program however is that any small change in the phrasing of certain terms should mean they avoid the filter, and the program relies on users to keep its knowledge base up to date. A EULAyzer pro version is also available which will automatically analyse EULAs of any software the user attempts to install

## **2.3 Contracts & Software**

*contract n., a written or spoken agreement between two or more parties  
intended to be enforceable by law. - Oxford English Dictionary*

A contract is any promise or set of promises made by one party to another for the breach of which the law provides a remedy. A contract does not have to be written down and signed in order for it to be legally binding. Having a written and signed contract should help to ensure that a disagreement avoids escalating to a courtroom judgement, as requirements and entitlements of any agreement should be clearly described in the contract.

There has been little progress in the way that contracts have been written during the IT revolution of the last 20 years. In most cases, contracts are typically drafted using common text editor programs such as Microsoft Word, and then printed and signed. Some tools are available to help complete common generic contracts, such as a sale of goods contract. In real world situations there is very little evidence of the semantic meaning of a contract being stored in a machine readable format, such as those proposed in [11] and [12].

### **Digital Contracts**

An ongoing ambition of B2B e-commerce deployment is the inclusion of machine readable contracts in service offerings. Such digital contracts require the use of digital signatures to make them legally binding and much research and legislation has been dedicated to this topic. The EU directive on Digital Signatures[2] encourages the acceptance of qualified signatures as being as legally binding as handwritten signatures.

Digital contracts require the development of technical standards for contracts, allowing digital contracts to be transferred from system to system, and while also being machine readable. There have been several different attempt to create a standard for digital contracts with XML being the currently leading standardization method (e.g. LegalXML[13], leXML[14]). These standards will allow computers to interpret the meaning and effect of a contract rather than simply authenticate it.



***Online Contracting Services***

Online Contracting Services allow businesses to find business partners, view their profiles, negotiate and agree on contracts terms, and finally manage the contract over its lifetime. These services help to move business interactions completely into the electronic world, removing the need for paper documentation, faxed quotes and off-line procedures.

***Contract Management Software***

Some commercial contract management software are discussed in this section. This is not an exhaustive list of available technologies, rather a description of some of the more popular tools that are available in this sector.

*Contract Assistant*

Contract Assistant [15] comes in a variety of versions, Enterprise, Standard and Professional depending on the size of your business and budget.

*Contract Advantage*

Contract Advantage [16] comes in Standard, Client-Server and Web versions, all of which include a clause library as a key feature. This clause library allows the user to re-use clause from other contracts or standard contract clauses which ship with the software.

*UpSide Contract*

UpSide Contract [17] is one of the more popularly used contract management tools and is a web based contract lifecycle management solution. It boasts SAP integration as well as integration with Microsoft Office 2003 suite.

*diCarta Contracts*

Also among the most popular of the available commercial solutions, diCarta Contracts[18] puts itself at the forefront of this competitive sector and integrates with SAP, Oracle, Siebel and Peoplesoft products. It claims real-world scalability, referencing one customer who uses diCarta to manage over 300,000 contracts with over 500 users.

*ContractX*

ContractX[19] A commercial XML solution which contains a clause library and provides a web interface for access via a standard web browser. Also provides SAP integration and Web Services interfaces.

***2.4 Online Dispute Resolution***

Current B2B e-commerce transactions often involve parties from different countries. As in off-line transactions, these e-commerce transactions will sometimes result in disputes between the participants[20]. This creates a scenario where recourse to normal dispute resolution mechanisms (i.e. courts) can be difficult to organise for all parties and also expensive to execute. This has led to

an increase in the existence of extra-judicial Online Dispute Resolution (ODR) services. These services use information technology via the Internet to facilitate disputes outside the ordinary court systems and have grown out of the principles which apply traditionally to off-line ADR (Alternative Dispute Resolution) systems. eBay uses a service called Square Trade[21] which is an ODR system for B2C disputes. There is no one standard approach to ODR services, in fact there is a wide array of approaches. Van den Heuvel [22] provides a introduction to the subject matter and covers the various types, namely consumer complaint resolution, mediation, settlement and arbitration. There is also a useful web resource[23] provided by the Center for Information Technology and Dispute Resolution(CITDR). The CITDR provides a comprehensive list of available ODR systems[24]. CITDR also organise a competition [25] for law students worldwide to participate in hypothetical cases under dispute and test their skills in negotiation, mediation and arbitration.

## **2.5 Legal Professional Support Tools**

The use of ICT in the legal practitioners daily work is on the increase. A vast amount of tools are available for the legal professional, ranging from Document Management Systems (DMS) and Case Management Systems to accounts and Practice Management Systems (PMS). Several websites specialise in the use of ICT in law firms, the most prominent being Legal Technology Insider[26]. This UK based website provides legal practitioners with information on IT products aimed at the legal market place. A core element of the site is the Insider newsletter which covers all aspects of legal ICT products and services, advice on which software is best for individual practice needs as well as yearly surveys on what software tools are being used by the UK and Ireland's top 250 law firms. A 30% increase in web traffic between 2004 and 2005 can serve as an indicator of the increasing interest from legal professionals in ICT tools to aid them in their work.

Another common resource for legal support tools is Legal IT[27] which provides an online newsletter for legal professionals and legal ICT tool developers with a focus on the legal information technology market.

Also the OUT-LAW website [28] provides an enormous website of free legal news and guidance primarily concerned with IT and e-commerce legal issues. The site is sponsored and run by international law firm Pinsent Masons.

Finally, JILT (Journal of Information, Law & Technology) [29] is an electronic law journal established in 1996 which covers a wide range of issues relating to IT law and applications. Three issues are published per year and all are available online free of charge.

## 2.6 Open Source Tools

There is not a large amount of active open source tools available specifically dealing with legal issues, most software available is licensed commercially. One such open source software that is available is listed below.

### Legal Case Management System

The Legal Case Management (LCM)[30] system is an web based open source tool to allow users track clients and legal cases. The GPL[7] licensed software is aimed for use by not-for-profit legal advice centre, and will improve their ability to follow up on cases, court events and reporting.

The LCM software uses a MySQL database to store all client and case information. An apache web server and PHP is used to provide a user interface. The software is currently available in Bulgarian, Portuguese of Brazil, Russian and English.

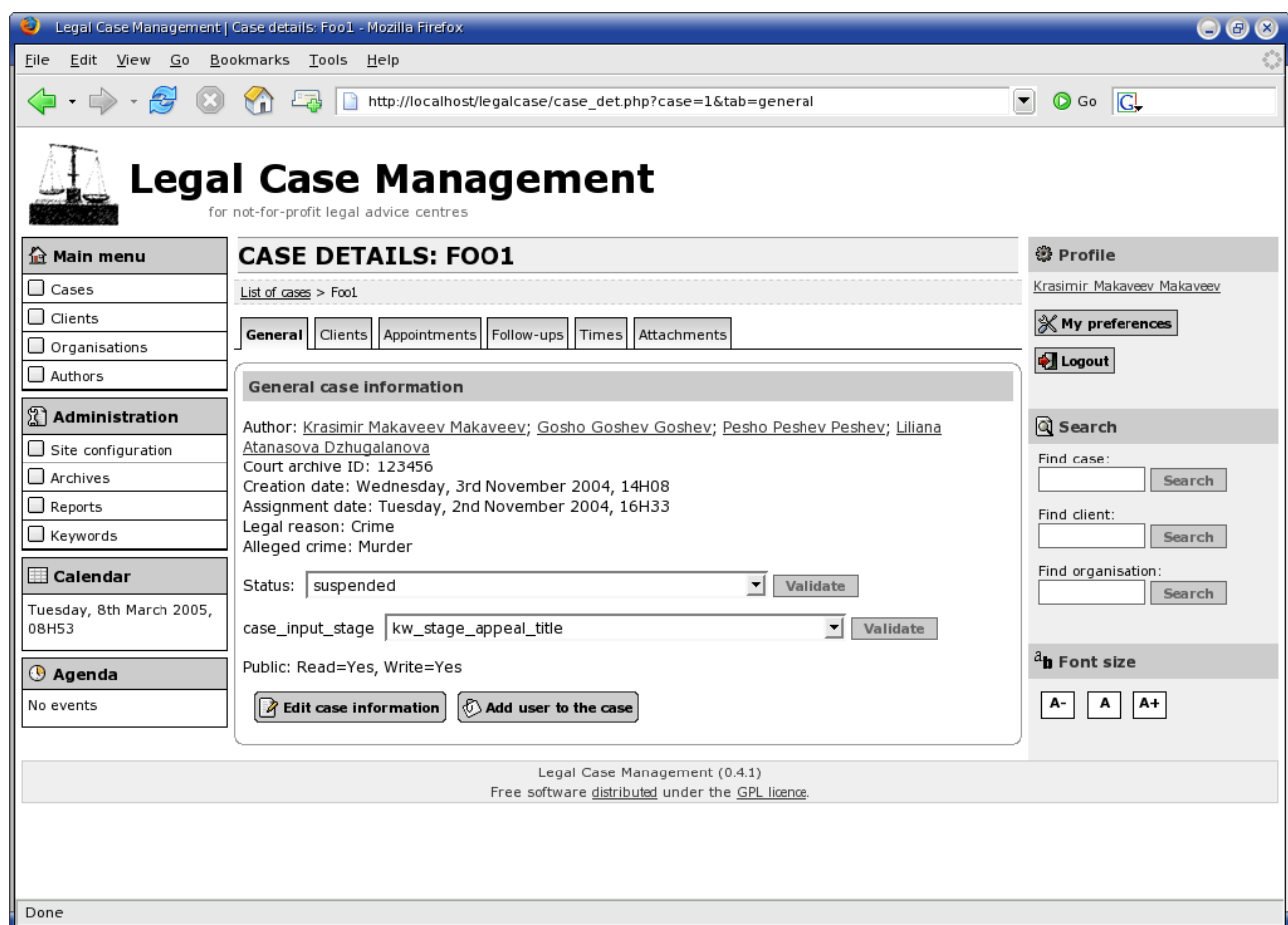


Figure 1: LCM User Interface

### **3 Standardisation Initiatives**

Most efforts made at standardising legal information and communication technologies have centred on data exchange and more specifically on defining XML schema to facilitate interoperability of legal document management software. This is due to the belief among the legal profession that XML can act as the facilitator in bringing the legal profession fully into the information age and knowledge society of the 21<sup>st</sup> century. However, partly due to the wide range of variation in practice and regulation across the global jurisdictions participating in e-commerce, no widely accepted standards have emerged to satisfy these aims. This section will briefly discuss the more prominent of these standardisation efforts, some of which are still active. Others seem to be no longer active, or at least have shown little progress in recent times.

#### **3.1 OASIS LegalXML**

OASIS (Organization for the Advancement of Structured Information Standards)[31] is a not-for-profit, international consortium that drives the development and adoption of e-business standards. OASIS was originally formed in 1993 as SGML Open but changed its name in 1998 due to the fact that the scope of the technology being addressed had grown beyond SGML(Standard Generalised Markup Language)[32]. The work of the organisation is divided into technical committees (TC) and there are several which deal with the legal aspects of e-commerce within the LegalXML Member Section[33] of OASIS. These are discussed below.

##### **3.1.1 OASIS LegalXML eContracts Technical Committee**

The goal of the OASIS Legal XML eContracts TC[34] is to create an XML specification that allows *“the efficient creation, maintenance, management, exchange and publication of contract documents and contract terms”*.

The TC was formed several years ago but has only produced its technical requirements document in May 2005. This document [35] identifies the business problems relating to the preparation and management of various kinds of contracts, the persons affected by those problems and the business requirements of those persons to overcome those problems. Within that framework, it defines the functional characteristics an XML application must have to meet those needs. The document evaluates the various advantages that could be achieved from XML contracts such as automatic dispute resolution and easier creation of new contracts. At the TC meeting of August, 2005 it was resolved to adopt the proposed BNML[36] schema as the base upon which the final schema will be produced.

##### **3.1.2 OASIS LegalXML Electronic Court Filing Technical Committee**

The OASIS LegalXML Electronic Court Filing TC[37] aims to develop specifications for the use of

XML to create and transmit legal documents between attorneys and to and from the courts.

The Technical Committee first met in 2002 and currently has a draft of the LegalXML Court Filing Specification [38] available on the OASIS website. The specification contains details on the procedures that will be supported by the system, i.e, filings, queries etc as well as specification for court and case Identifiers . The Specification also contains information on messages specific to a certain type of case, such as bankruptcy, civil, criminal or traffic related cases.

The success of Electronic Court Filing Standard will be largely due to whether or not courts allow (or even mandate) that attorneys file court documents electronically using this standard.

### **3.1.3 OASIS LegalXML eNotarization Technical Committee**

The goal of the OASIS LegalXML eNotarization Technical Committee is to create a standard for self-proving electronic documents [39]. The issues addressed by the TC include the needs of long term legal documents such as wills and documents involving real estate transactions. In many countries these documents are controlled by legislation, requiring handwritten signatures and with authorised notaries. The TC aims to investigate technical solutions that will provide equal levels of security and verifiability for electronic documents.

The eNotarization TC does not appear to be very active and has not published any draft specifications or requirements.

### **3.1.4 OASIS LegalXML Integrated Justice TC**

*“Facilitating the exchange of data among justice system branches and agencies for criminal and civil cases”* [40]

A driving factor behind the Integrated Justice TC is allowing exchange of information such as warrants or arrest records between US states and US Federal authorities. The same technology would also be useful in Europe as European Courts play a larger role and European wide arrest warrants become more prevalent.

The Integrated Justice TC charter [41] states their plan to Implement a number of XML specifications for legal documents including a universal Arrest/incident Report, Universal Arrest warrant and a universal Sentencing Order. These specifications have not yet been released, as the TC is currently finalising the details of the document exchange standard.

## **3.2 ebXML CPPA**

ebXML [42] is a suite of XML specifications for business applications to exchange data. The specification set is backed by UN/CEFACT and OASIS. One specification, the ebXML Collaborative Partner Profile Agreement (CPPA) [43] has considerable relevance in the area of

legally binding agreements between business partners involved in e-commerce B2B transactions. Each party publishes their own CPP (Collaborative Partner Profile), and other parties may use this profile to create a draft CPA (Collaboration Protocol Agreement). After negotiating the details of the CPA both parties then store identical versions of the agreed CPA. Each party can then use this agreement to configure their runtime systems, assuring that their message exchanges are compatible with one another. It is stated as an objective of the specification that the CPA can be obtained by the intersection of the CPPs of both participating parties. This Collaboration Protocol Agreement (CPA) then forms the basis of the relationship between the two parties. An ebXML CPA is, in fact, a form of agreement between two parties, and the methodology used to form CPAs could be extended for creating other business contracts.

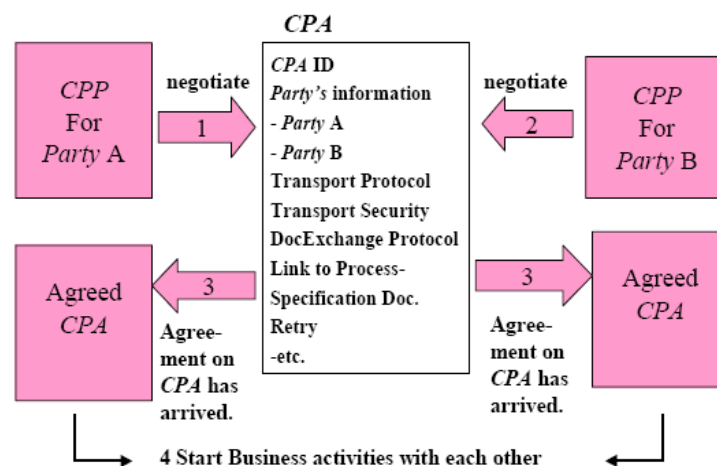


Figure 2: CPP Process Flow

### 3.3 CRXML

The Commerce Registers XML Standard (CRXML)[44] is an XML Standard created by the European Commerce Registers Forum[45] to allow messages be created and exchange in situations such as:-

- Statutory filings
- Public Registry Searches within and between countries

The European Commerce Registers Forum is also responsible for the European Business Register (EBR) [46], an initiative to allow the easy exchange of company registration information between European countries. The CRXML specifications were published in 2001 at the project website [44], however it is not clear if any progress has been made on the standards since then.

### **3.4 MetaLex**

MetaLex[47] is an open XML Schema standard for the markup of legal sources. The schema [48] has been designed specifically to work with multilingual documents, such as is common with EU regulations and legislation. MetaLex is primarily a method for exchanging and integrating legislation between domains and languages. Originally created by members of the E-POWER IST FP5 project, [49] the MetaLex standard has continued, supported by the University of Amsterdam.

MetaLex does not attempt to markup the semantic meaning of the legislation, instead it adds context information to the document, allowing it to be displayed in different formats etc. MetaLex is capable of classifying the contents of a document e.g. `<CitationDesignation id="statute">`. The dates that certain laws are enacted or repealed can also be included in a document, allowing for more intelligent applications of the data.

### **3.5 LSSA XML Initiative**

The LSSA (Legal Software Suppliers Association) [50] is the UK industry body for legal software systems developers and vendors with the aim of setting and maintaining professional software standards. One such initiative is the LSSA XML initiative [51] which came about as the association recognised that it is to the benefit of its members to agree a common XML standard that could be used as a basis for all future inter-program communication of case/matter information within the legal environment. LSSA XML Working Party chairman Neil Ewin has stated: *"Writing a single XML schema to cover the vast range of possible legal transactions is daunting, if indeed possible"*. The approach that has therefore been adopted is to develop a collection of sub-schemas describing common 'data components' likely to appear in any such transaction (e.g. party, time posting, financial posting). A white paper describing the latest schema is available at [52].

### **3.6 Legal and Advice sectors Metadata Scheme(LAMS)**

In 2000 the UK Department for Constitutional Affairs[53] released a consultation paper, the aim of which was to promote common standards across Internet sites providing legal advice. The resulting Legal and Advice Sectors Metadata Scheme (LAMS)[54] is a proposed standard for websites that provide legal advice, which would allow users find relevant legal documents easily. One major problem of LAMS, as with all metadata systems is that users must add in the metadata manually to their documents. Motivating users to provide this metadata is a limiting factor of this system.

### **3.7 LEXML**

LEXML[55] hosting the open source development of a multi-lingual and multi-jurisdictional RDF Dictionary for the legal world. For this purpose the open source RDFSDictionary[56] project is used for the development environment. Unlike Legal XML, LEXML does not aim at one data structure per document type, but rather allows and encourages a greater number of XML-data structures to be created by any community which is willing and capable to do so. The European legal landscape is too diverse, by virtue of its number of jurisdictions, its legal systems (Roman, Napoleonic, Common Law), number of languages and (legal) culture, that it would be unrealistic to strive for one structure per document type. Furthermore the expectation is that by encouraging smaller communities to establish their own structures, the process of agreeing on such structures will be simpler and shorter in time. However there has been little movement from this organisation since 2003.

### **3.8 LEXData**

LEXData[57] is an initiative aimed at driving the creation of a Legal RDF[58] Dictionary. The formation of the dictionary was initiated by the LEXML project[55] and continued as LEXData in 2003. This Legal RDF Dictionary would contain common legal term and would also be multilingual. It would allow the comparison and interchange of information between heterogeneous systems, where disparate systems use some common elements from the Legal RDF Dictionary. This approach allows application developers enough freedom to develop their own schemas to deal with their own scenarios and entities, while maintaining a method of translating information from one domain to another. These domains could be in different countries and even different languages. The current draft version of the Dictionary is available at [59].

### **3.9 odrXML**

odrXML[60] is an XML schema (currently in draft form) which can enable information interchange between different ODR (Online Dispute Resolution) systems. The schema provides a core data model intended to provide a basic, yet complete, description of a single case which can then be interfaced to different and more sophisticated systems. AN OASIS Technical committee was formed in 2003 and the odrXML charter is available here [61]. Not much activity has been seen since that date however and the TC is not listed under the OASIS general categorisation.

### **3.10 XAdES**

XML Advanced Electronic Signatures (XAdES) [3] is a W3C[62] standard which was created specifically to comply with the legal requirements of EU Directive 199/93/EC[2]. The XAdES standard incorporates several features to ensure the validity of the signer, based on the concept of a qualified certification authority(CA).



The XAdES standard was created by the European Telecommunications Standards Institute (ETSI)[63] and is based on the existing IETF/W3CXML-Signature Syntax and Processing specification (XMLDSIG)[64] published by the W3C. Current implementations of the XAdES standard include XSECT[65] and OpenXAdES [66].

### 3.11 Summary

The following table lists the standards reviewed in this chapter, provides a simple description of the area they cover and the regulatory issues that apply to, or are addressed by them (as categorised in DBE deliverable D32.1[1]).

<i>Standard name/body</i>	<i>Description</i>	<i>Regulatory issues</i>
LegalXML eContract	Digital contract schema	Jurisdiction and consumer protection
LegalXML Integrated Justice	Legal document standards	Jurisdiction and consumer protection
ebXML CPPA	Business agreements	Jurisdiction and consumer protection
CRXML	Business registration	E-signatures and security
MetaLex	Legislation document standards	Jurisdiction and consumer protection
LSSA XML Initiative	Legal document standards	Jurisdiction and consumer protection
LAMS	Legal advice categorisation	Privacy and consumer protection
LEXML	Multilingual legal documents	Jurisdiction and consumer protection
LEXData	Legal RDF dictionary	Jurisdiction and consumer protection
odrXML	Online dispute resolution	Privacy and consumer protection
XAdES	Advanced Electronic Signatures	E-signatures and security

## 4 Legal ICT Projects & Research Programmes

This section is a description of EU funded projects which have addressed issues of software technologies in a legal context, particularly with regards to e-business. Other projects which have focussed more on the legal aspects of e-business deployment have not been addressed as these are deemed outside of the scope of this document.

### 4.1 COSMOS

The COSMOS[67] (Common Open Service Market for SMEs) project aimed to develop a support platform for business transactions across the Internet based on a generic contracting service. Potential users of such a system include small and medium enterprises and even individual persons. The contracting service enables its users to negotiate, sign, and settle electronic contracts across the Internet without leaving a uniform and flexible system environment.

#### ***The COSMOS Contract Model***

A key feature of the COMOS system is the contract model. This model has four main Components

**Who:** The parties associated with the contract

**What:** The goods, services or whatever is being transferred or covered by the contract

**How:** Details such as how the goods or services will be delivered, and by what date. This also covers procedures and relationships between the parties

**Legal:** The typical terms and conditions of a contract, references to regulations or standards

A contract would be created by starting with a standard contract template. The contract template will define most of the **How** and **Legal** clauses in advance. The clauses covering **Who** and **What** will obviously differ from one contract to the next.

The COSMOS Contract Model is defined in XML and a DTD of a contract is available. This XML contract is manipulated by an Contract Editor allowing the parties to negotiate an contracts details such as QOS or add other clauses.

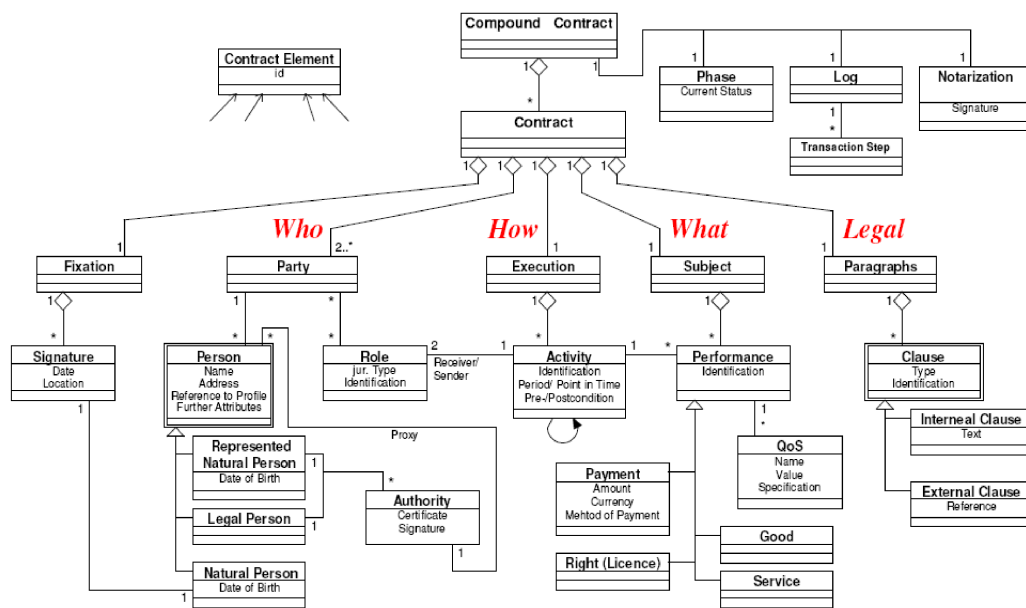


Figure 3: COSMOS Contract Model

### Procedure for creating Contract

The COSMOS contract creation process starts with a predefined contract template, which has a number of roles and other clauses unfilled.

#### Creating a contract proposal

In the Cosmos contract proposal is created by a Broker, a third party that is trying fill the missing roles of the contract template. This is achieved using an online catalogue (a yellow pages of online goods and services). The user gives the broker their selection preferences, Quality of Service(QoS) requirements etc. and the broker finds the best match. Once a contract proposal is created the process moves on to Negotiation.

#### Negotiation

Contract negotiation is carried out by the involved parties using the contract editor to make changes to the contract. The contract could also be negotiated by telephone or video conferencing to support the contract editor. When both parties are satisfied with the contract it is digitally signed by both parties.

## 4.2 The eLegal project

The eLegal project [68] was created in order to define a framework for legal conditions and contracts regarding the use of ICT in business collaborations. The legal and industrial partners reached a consensus on how the application of ICTs to project-based business could be contractually

supported, resulting in the “*eLEGAL Contractual Framework for ICTs*”.

The project has created a number of tools to facilitate inter-enterprise information exchange that focus on creating legally binding contracts between parties. At the heart of this system is the eLegal Open Contracting System as shown in Figure 4.

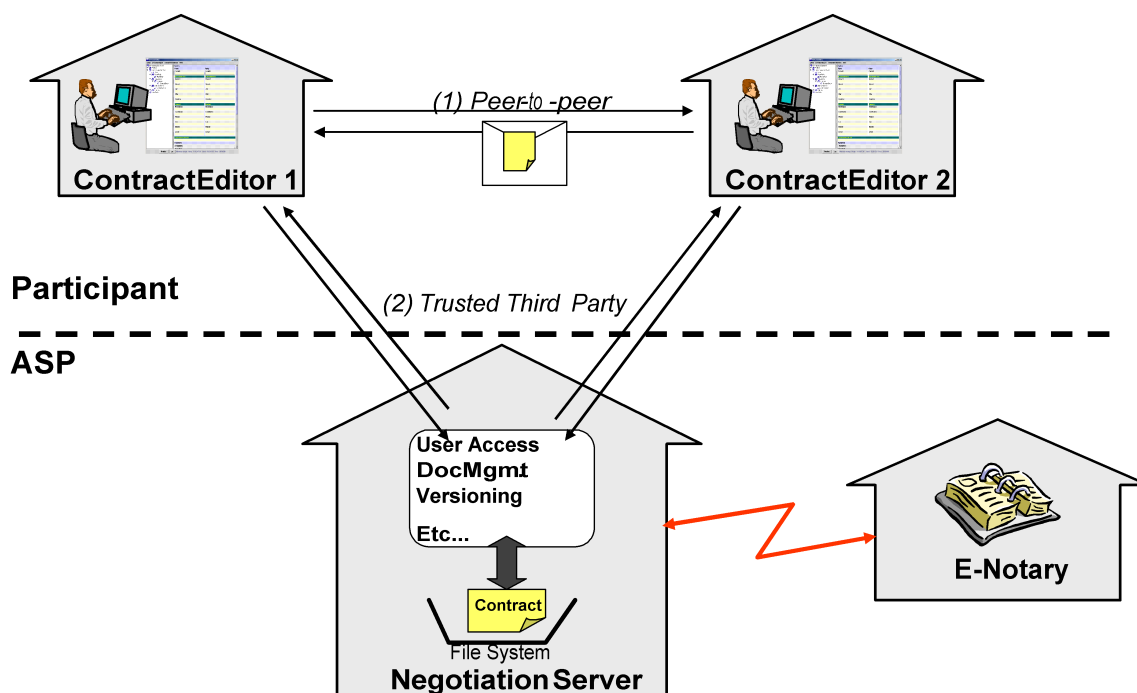


Figure 4: The eLegal Open Contracting Service

### **The eLegal Open Contracting Service (OCS)**

The eLegal OCS consists of two main components, the Contract Wizard (see Figure 5) and the Virtual Negotiation Room. The contract is an XML document, and the Contract Wizard allows the user to edit the document. The contract wizard also has access to a clause library containing a number of reusable legal clauses.

The Virtual Negotiation Room (VNR) will allow multiple parties to negotiate a contract by editing a centralised version of the contract. The VNR handles issues such as user Identification, document versioning, lock/unlocking and signing the final contract. A complete specification of the eLegal OCS is available as public deliverable of the project[69], including a generic contract XML schema.

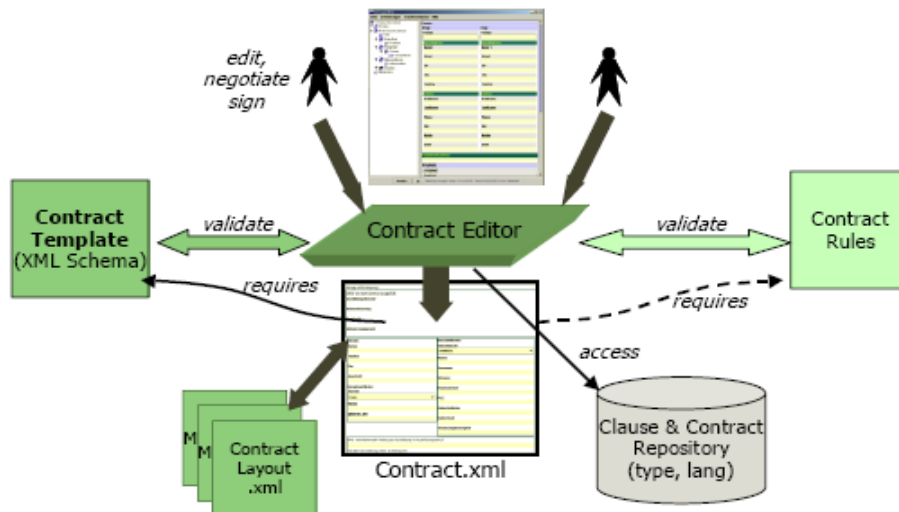


Figure 5: Architecture of the eLegal Contract Wizard[69]

While the eLegal system is designed to create contracts describing ICT environments and capabilities for the construction industry, much of the technology involved could be reused for any VE contracting scenario.

### 4.3 Lexical Ontologies for legal Information Sharing (LOIS)

The LOIS project [70] was launched in 2004 by a number of research and business partners. The objective of LOIS is to create a multilingual access facility for European legal Databases, enabling citizens to view national and European legislation and court case documents.

The project uses the WordNet technique (grouping words of similar meaning) to allow a search in one language and return documents in another language related to the topic. Similar concepts in different languages (synsets) will be cross linked in such a way that users can enter queries to a legal documentation base into his/her language and retrieve also documents written in different languages.

A paper describing the architecture is available on the project website[71].

### 4.4 The Aequitas Project

The Aequitas project[72] is a European initiative that aims to improve the communications via the Internet between judicial operators such as Registrars, Solicitors and Attorney generals. These communications must be secure, verifiable and legally binding.

A main focus of the project is on the interchange of documents such as allowing a solicitor file 'Judicial writ of a lawsuit preventive entry' or other common legal document. These documents need to be stamped electronically and verifiable sent to various registered addresses.

The format of the documents used by Aequitas are specified by XML schemas, which have been defined for several of the more common judicial filings.

The Aequitas project also handles various other business paperwork that while not directly involving the courts, is legally mandated, such as changing of business addresses. Other more complicated procedures covered by this section of the project include documentation involved with merging companies.

The Aequitas project website also contains a “legal framework” a small repository of legal documents on topics including electronic signatures and public registrars. These documents are divided into the jurisdiction in which they apply, which for this project is the countries of Lithuania, France, Portugal and Spain.

#### **4.5 OCTANE**

The OCTANE(Open contracting transactions in the new economy) project[73] was funded under the IST 5<sup>th</sup> Framework programme and ran from November 2000 to November 2002. The goal of OCTANE was to create an Open Contracting Service allowing SMEs to quickly and easily create business deals and partnerships over the Internet. To support this service the project also developed an Electronic Notary for verification and certification, and a Business Information Service(BIS)to allow users find and evaluate possible business partners. The information for the BIS could come from independent sources such as chambers of commerce or business registrars.

OCTANE had several SME partners and trials played a large role in the project. These trials took place primarily in Switzerland and Portugal.

#### **4.6 E-COMMLEX**

The eCommerce Legislation and Regulatory Policy Portal (E-COMMLEX)[74] was an IST FP5 project that aimed to create an online portal containing regulatory and legislative information for enterprises. The results of this project can be found at [www.elexportal.com](http://www.elexportal.com) which has been partially maintained after the project finished.

The main useful feature of the Elex portal site is the Regulatory Enquiry Service[75] which can be seen in Figure 6. The regulatory Enquiry service requires a user to describe the country they are established in, the countries they wish to do business in, and the business activities they are involved in. The user can choose to receive either summaries of relevant regulations or the full texts. The resulting information can be ordered by regulatory issue or by country (with EU regulations appearing first).

This type of service is very useful to any company looking to expand their business into new European markets, capable of highlighting any potential issues quickly and cheaply. While the portal is no replacement for a legal expert it does appear to provide a useful level of information

**eLexPortal.com** Language: English

Home | Background | Site Map | Contact | Disclaimer

**Regulatory Enquiries - Regulatory Enquiry Service**

Please select a country, a Business Activity, Process and Type as your Search Criteria. You can also personalize your results.

For another way to search the same information, click on the "Fast-Track Enquiries" / "Standard Enquiries" buttons.

Further details are available in the On-line Help. First-time visitors are encouraged to avail of the **tutorial on how to use the Regulatory Enquiry Service**.

**Fast-Track Enquiries**

**1. COUNTRY OF ESTABLISHMENT**  
Country : Ireland

**2. COUNTRIES where you wish to trade**

<input type="checkbox"/> Austria	<input type="checkbox"/> Belgium	<input type="checkbox"/> Denmark
<input type="checkbox"/> Finland	<input type="checkbox"/> France	<input checked="" type="checkbox"/> Germany
<input type="checkbox"/> Greece	<input checked="" type="checkbox"/> Ireland	<input type="checkbox"/> Italy
<input type="checkbox"/> Luxembourg	<input type="checkbox"/> Netherlands	<input type="checkbox"/> Portugal
<input checked="" type="checkbox"/> Spain	<input type="checkbox"/> Sweden	<input checked="" type="checkbox"/> United Kingdom

**3. BUSINESS ACTIVITY**

<input type="checkbox"/> Provision of catering services	<input type="checkbox"/> Provision of transport services
<input type="checkbox"/> Provision of accommodation services	<input type="checkbox"/> Provision of leisure services
<input type="checkbox"/> Offering financial services	<input type="checkbox"/> Issuing electronic money
<input type="checkbox"/> Providing certification services	<input type="checkbox"/> Providing advertising services
<input type="checkbox"/> Providing web-hosting services	<input type="checkbox"/> Providing Internet access
<input checked="" type="checkbox"/> Providing webcast programmes	<input type="checkbox"/> Providing adult content
<input type="checkbox"/> Providing child content	<input type="checkbox"/> Conducting auctions
<input type="checkbox"/> On-line gambling	<input type="checkbox"/> Building construction
<input type="checkbox"/> Carrying out a regulated profession	<input type="checkbox"/> Providing directories
<input type="checkbox"/> Providing services (other than those listed above)	

Figure 6: Regulatory Enquiry Service

with a relatively easy to use interface at a level that is affordable for all.

#### 4.7 ALIVE

The ALIVE (Advanced Legal Issues in Virtual Enterprises) project[4] was created to identify and address the legal issues involved in designing and setting up of virtual Enterprises. A virtual Enterprises is created when several commercial partners co-operate to provide a single product or service. Among the legal issues raised in such a situation were issues of legal identity of the Virtual Enterprise, liability and intellectual property rights.

The Alive project evaluated a number of technologies for addressing the legal issues involved in

creating and managing a Virtual Enterprise. The issue of the legal standing of software Agents is investigated specifically in electronic commerce, such as using Agents to create a contract between two parties.

#### **4.8 Legal-IST**

The Legal-IST project[5] is an FP6 IST funded Specific Support Action that aims to provide support to IST projects by addressing the legal issues involved in the use of technology in e-commerce and other IST related goals. Legal-IST is particularly interested in directing the evolution of the EU regulatory framework, the laws and regulations that define how e-business function.

Legal-IST project has analysed existing e-business models and scenarios, such as Business to Business(B2B), Business to Consumer(B2C), e-Procurement and Virtual organisation/Enterprises. Legal-IST has identified the legal issues constraining e-business and aims to provide this information for policymakers and industry, to encourage the use of electronic commerce.

Legal-IST is addressing some specific issues that are relevant to the DBE project such as the legal implications of:

- Open source Software
- Privacy/Identity management
- SME Clusters/Virtual Enterprises
- Software Agents

The knowledge of the Legal-IST community will be used to ensure the development of DBE components avoids any major legal pitfalls where possible.

#### **4.9 TrustCoM**

TrustCoM[6] is an FP6 IST funded Integrated Project, who's mission is to create a a trust and contract management framework to allow Virtual Organisations conduct collaborative business processes. These Virtual Organisations can be formed on demand, are self managing and evolving.

In order for companies to collaborate to offer composed products or services there needs to be contracts between the relevant organisations. If these services are to be composed dynamically then the contracts must either be broadly defined in advance, or defined and agreed by software agents. TrustCom has two main scenarios:

1. *Collaborative Engineering* involves several companies working together to design and produce complex systems (e.g. aerospace projects)
2. *Ad-hoc Aggregated Services* (also known as dynamically composed services). Both approaches



will require a complex contract management system, and this is a primary goal of TrustCoM

TrustCom began in February 2004 and is due to finish in February 2007. At this stage no technical documents on the design of the proposed contract management system have been released publicly.

#### **4.10 Summary**

The following table lists the projects reviewed in this chapter, provides a simple description of the area they cover and the regulatory issues that apply to, or are addressed by them (as categorised in DBE deliverable D32.1[1]).

<i><b>Project name</b></i>	<i><b>Description</b></i>	<i><b>Regulatory Issues Addressed</b></i>
COSMOS	Contract negotiation system	E-signatures and security Jurisdiction and consumer protection
eLegal	Contract exchange system	Jurisdiction and consumer protection
LOIS	Multilingual legislation access facility	Jurisdiction and consumer protection
Aequitas	Legal Document exchange system	E-signatures and security Jurisdiction and consumer protection
OCTANE	Contract creation service	E-signatures and security
E-COMMLEX	Legislation and regulatory policy portal	Jurisdiction and consumer protection
ALIVE	Legal issues of virtual enterprises	Jurisdiction and consumer protection
Legal-IST	Provides legal support for IST projects	Privacy and consumer protection Jurisdiction and consumer protection
TrustCoM	Trust and Contract management in Virtual Organisations	E-signatures and security Jurisdiction and consumer protection Privacy and consumer protection

## 5 Summary and Conclusions

This document has focussed on tools, standards and initiatives to support legal aspects of enable SMEs engagement in e-Commerce.

The types of legal supporting ICT tools are wide ranging and cover such issues as digital signatures, contracts, dispute resolution as well as law practice support tools. An important discovery is the lack of open source tools aimed at supporting SMEs legally in e-Commerce activities, particularly in managing contracts. In this regard the expected output of DBE WP32 can provide a useful contribution to this space by providing open source contract creation tools as well as a knowledge base of regulatory issues.

There have been several efforts at creating open standards for legal document interoperability. Such initiatives very often strive to define XML schema to facilitate interoperability of legal document management software. However, none of these standardisation efforts have reached a level of maturity to be considered de-facto standards in the field. This is in no small part due to the wide range of variation in practice and regulation across the global jurisdictions participating in e-commerce. While no widely accepted model for electronic contracts has been reached, most of the initiatives examined provide recommendations and guidelines for what should be encapsulated in such models. These guidelines are being used in WP32 as input into the creation of generic contract models using BML. This has implications for the BML definition itself as well as the generic models using the BML. In this regard it is important that WP32 interacts closely with Task B18 *Business Modelling Language* of WP15.

The research reported here also looked at projects which have considered legal ICT as part of their remit. The output of these projects proves very useful in terms of providing input to tasks within WP32. For example, the *eLegal Open Contract Service* [69] for contract creation and editing is being considered as a suitable model for the contract creation task (C52) within WP32. In addition WP32 is also tracking the progress of and interacting with both the SSA Legal-IST[5] and IP TrustCom[6] which are both still running under FP6.

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