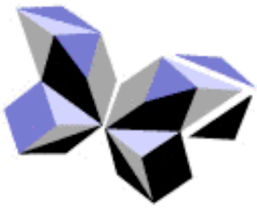

Digital Business Ecosystem

Contract n° 507953

Workpackage 32

Regulatory Framework

Task B11: Knowledge Base of Regulatory Issues

Deliverable 32.4

Locational Issues for the Implementation of the Knowledge Base

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Executive Summary

The aim of this internal report is to present the final results from fieldwork following the completion of M32.2 in October 2005. This document is to report on completed empirical work of Task B11 in connection with the previous work carried out by the Task, as well as in association with other Tasks of the WP32, while, as stated in the workplan for WP32, Task B11 is structured in 4 stages: D32.1 and D32.2 as theoretical frameworks for the Knowledge Base of Regulatory Issues and Taxonomy; M32.2 and D32.4 as reports that present findings from engagement with sector specific and local implementations.

This document reports on interviews with seven SME drivers selected to represent key variables identified in the taxonomy of regulatory issues found in D32.2 and originally investigated in M32.2. The intent of these findings is, in turn, to report on sector-specific and local implementation issues, integrating them with the regulatory issues identified and reported in M32.2.

Key findings in this report are as follows:

- **Sector-specific and local implementation issues related to regulation and trust**: The aim of this document is to present the final findings on regulatory concerns relating to sector-specific and local implementation issues, as these have been described in documents D32.1, D32.2 and revealed empirically by the results of interviews with DBE stakeholders. The following issues of interest can be pointed out:

  - Sector-Specific issues
    a) *Identification and Security:* sector-specific issues engendering business risks.
    b) *Privacy/Consumer Protection:* risk associated with business clusters consisting of companies sharing customer information in the same business domain.
    c) *Contractual Issues:* Contracts to adapt to different business domains, suggesting their potential impact on the business potential of the DBE.

  - Local implementation issues
    a) *Local implementation of the DBE vision*: a process that has to take place through a small community with various layers of interfaces between SMEs, developers and the users of SMEs, as well as the regional drivers.
    b) *Gradual process of local implementation:* this is a better way to establish a meaningful local strategy for adoption and packaging of DBE software and development in the business community.

- **The taxonomy model:** with respect to the building blocks of trust in different business domains and localities, SMEs seem to confirm the validity of the three building blocks of trust developed in the taxonomy model, whilst each SME approaches these building blocks (privacy and consumer protection, security, and jurisdiction) mainly from a sector-specific and local implementation perspective.

- **Issues beyond the taxonomy model:** as well as confirming relevant regulatory issues with respect to trust and SME participation in Digital Business Ecosystems, this report highlights issues regarded by the SMEs as relevant to the sustainability of the project in the long term, such as DBE Governance, DBE Legal Constituency and DBE platform workability.

The above issues are regarded as critical by the researchers and will need further research in the future. Hence this document is also intended to provide empirically generated insights for other workpackages that might be relevant to activities in the field. Additionally, as the final report, this document is intended to identify priorities for future research pertaining to the knowledge base of regulatory issues. The issues identified with respect to future research are as follows:

- **Future research into sector-specific and local implementation issues:** With respect to sector-specific and local implementation regulatory issues of concern, the SMEs' views in this document seem to converge on ISUFI, as the official undertaking of the above issues from legal experts could protect both the business and technical potential of the DBE platform, making the goal of sustainability and trust far more feasible in the future.

- **Future research based on taxonomy model:** based on the observations from the field work, the taxonomy model developed in D32.2 was subjected to a preliminary evaluation and further used to structure the design of research into the usage scenarios presented in accordance with the following three taxonomy perspectives:
  - *DBE relationship:* DBE legal identity, integration of e-signatures, SME competition, security, trust, reconciliation between the business objectives and the technical models to work within the DBE environment and governance issues.
  - *DBE actors:* identification, security, contractual issues, DBE platform workability, trust relationships and long-term commercial incentives for the development of Open Source middleware.
  - *Software life-cycles:* intellectual property issues, middleware ownership and the Open Source ideal, lack of documentation for the DBE software features and releases, and lack of sufficient commercial basis of the DBE platform.

  These three taxonomy perspectives and the particular regulatory issues identified in each of them could foster future research in the DBE with respect to the evolving character of the Knowledge Base of Regulatory Issues, as well as the necessary legal provisions and regulation implementation.

- **Future research on DBE sustainability:** additionally, this report has verified critical issues from potential B2B practices that can affect the Digital Business Ecosystem's future development. As it is necessary to define a short, medium and long-term sustainability strategy for the DBE, it is equally necessary to differentiate between the technical and business sustainability of the DBE vision. Hence the SMEs' perception of technical sustainability, the DBE platform workability, and its current lack of business utility raise concerns about the links between business objectives and commercialisation and the technical models developed in the DBE environment, challenging both the future engagement of the SMEs as well as the sustainability of the DBE itself.

In terms of the business sustainability of the DBE vision, the issue of the legal constituency of the DBE under European, national and local law, as well as the role the business domain has in the adoption of this legal form in the standard everyday B2B practices within the DBE, is of particular significance. Hence, research into B2B governance should be high on the agenda in due course, as it intrinsically affects the sustainability and future development of the project and raises questions of one company governance entity vs. a multiple-company type of foundation. The choice between an Open Source community development model and a proprietary model in these last two issues will in turn determine the feasibility of any future sustainability plan.

1.0 Introduction

This document is the final report D32.4 for Task B11, Knowledge Base of Regulatory issues, Workpackage 32, of the Digital Business Ecosystem (DBE) project. The intent of this document is to present the findings from interviews with DBE stakeholders on regulatory concerns related to sector-specific and local implementation issues, as described in more detail in documents D32.1, D32.2 and M32.2.

This document reports findings on seven key drivers that were identified in three DBE critical regions (West Midlands in the UK, Tampere Region in Finland, and Aragon in Spain), while the interviews with company members of those regions (Drivers SMEs) were completed in the period summer 2005-February 2006. Hence, one of the aims of this work is to identify concerns about regulatory issues raised by those DBE members in relation to the development and sustainability of the project when EU funding ends.

In this introduction the aim is to review the final findings of Task B11, which are detailed in deliverable D32.1 Literature Review, D32.2 Taxonomy and M32.2 internal report on pilot empirical study from WP32, Task B11, Knowledge Base of Regulatory Issues. In these reports, a number of regulatory issues were identified with respect to the DBE vision and the practices of SMEs that might be involved in the DBE evolution and sustainability. Also, a key finding from earlier work is that any Regulatory Trust framework for the DBE needs in the first instance to develop trust at different levels to contribute to the evolutionary process linked to the aims of the ecosystem.

Moreover, this final deliverable of Task B11 provides further input to the research work done by C46 (ISUFI) particularly with respect to the document M32.1 on Knowledge Base Model of Regulatory Issues. In M32.1, ISUFI has provided a high-order model of the taxonomy using BML, describing thus the initial architecture design and specification related to the knowledge base model. In that sense, this document aims to provide further input so that the architecture and the functionalities of the Knowledge Base Model of the Regulatory Issues are further developed, with a business model for the SMEs that will sustain the Regulatory Framework as it is built, describing the tools and processes that will realise the creation and management of knowledge related to the Regulatory Framework Knowledge Base.

A general theory has been derived from the available literature in the field and, within the context of Digital Business Ecosystems, three building blocks of trust have been highlighted as crucial to the viability and sustainability of the DBE:

- Trust in services and in technological solutions. This type of trust is understood to be developed within the DBE, by developers and users who have confidence that the basic infrastructure layer and supported applications provided by the ecosystem are reliable.

- Trust in business activities. This type of trust is established in relation to expected patterns of behaviour and organisational practices adhered to by the ecosystem actors.

- Trust in Knowledge. This is a measure of confidence expressed in terms of

symmetric access to information.

Each category of trust can be expressed as:

- Trust type X, defined as trust in the design of systems architecture and supported services
- Trust type Y, defined as the trust of institutional and governance arrangements in the DBE vision
- Trust type Z, defined as trust established through the ongoing co-operation and contractual obligations between companies. This type of trust is dependent on both the conduct of the SMEs and the existence of legal remedies to provide adequate solutions in the event that breaches occur.

From deliverable document D32.2-"Taxonomy", those three types of trust were enhanced in layers based on the type of trust and business interaction, either business to business (B2B) or business to consumer (B2C). In line with the focus of the DBE itself, the targeted area of investigation is the business-to-business sector.

To address the concerns of such enterprises when developing e-business initiatives and Digital Business Ecosystems, a number of building blocks, which represent the domains of regulatory environment that are a priority concern when developing e-business initiatives, are described below:

- Privacy and consumer protection, in which the individual rights and freedoms of e-business users have to be taken into account.
- E-signatures and security, in which the concern is to ensure autonomy and cross-border interoperability for e-business.
- Jurisdiction and consumer protection, in which a means for resolving cross-border disputes is provided.

But to provide a deeper insight into the importance of some regulatory issues and what might become of them during the evolution of the Digital Business Ecosystem, trust types and building blocks must be considered from multiple points of view in order to correspond with the multiple relationships that are expected to exist within a dynamic DBE.

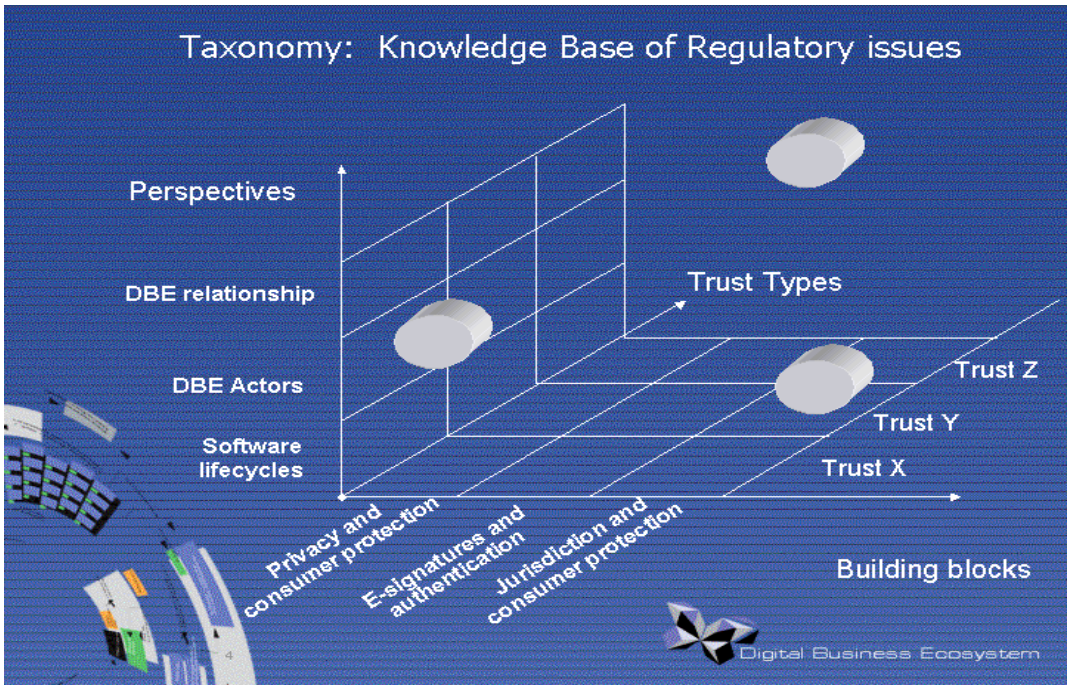
The approaches taken are:

- DBE relationships, where two main categories of issues are related to the DBE:
  - Internal – those that have arisen from the DBE type of setting and or from the ones linked to the DBE participants and their activities
  - External – those that are not within the realm of the DBE environment
- DBE actors, in which DBE members and their partners link within the Ecosystem:
  - SME Service Providers, providing digital services that use the DBE as an infrastructure platform
  - SME Users, use digital DBE services for their own business needs in a self-consumption war of competition or in order to undertake transactions with other DBE members
  - Business Analysts, who have a function of bridging the two types of SMEs
- Software Life-cycles, which aim to address the concerns that arise during software development:
  - Rapid Application Development

- Internal Development Tool
- Extreme Programming (XP)
- Open Source

A summary of how these approaches are represented in the taxonomy can be summarised in Fig 1 below.

Figure 1: *Taxonomy (D.32.2)*



This document is divided into seven sections: section 2 explains the research process, the methods and procedures applied to generate and analyse the data produced from the field work; sections 3, 4, and 5 present main findings applied to the different perspectives that are part of the DBE; section 6 is a summary of observations and considerations to be taken into account, and finally section 7 is focused on recommendations that can be applied to other workpackages and future research identified as important to be developed.

2.0 Research Process and Methodology

This section describes the research process and theoretical considerations applied to qualitative analysis of data collected from the SMEs in regards to Regulatory issues. Included in this section there is a discussion in how the empirical cases were selected, the preparatory stages, methodology, logic and logistics of the fieldwork, while an overall assessment of the efficiency of the process of data collection and analysis is attempted.

2.1 Research Process and Considerations in the Field

At the outset of the research process leading up to this report, initial discussions with DBE project partners took place in order to understand the implementation timeline

and possible usage scenarios. Furthermore, systematic network building with SMEs, DBE project partners who had already approached some usage scenarios empirically and other researchers in the field was employed to facilitate the most efficient selection process, to establish a reliable profiling of candidates, as well as to increase the accessibility to informants. As a result of this preliminary work, a clearer picture of a number of considerations was formed to assist in the research design.

2.1.1 Definition of the scope of the fieldwork

With respect to the initial discussions, the reach and approach of the fieldwork, as well as the overall focus of this document, the scope of this empirical approach to key usage scenarios revolved around the following issues/questions:

Regulatory focus

- Focus defined in advance on the basis of the three building blocks of the taxonomy.
- Open approach, based on cases to extract regulatory issues. Therefore, use of the existing building blocks as support, but not as strict thematic boundaries, so that, when new areas arise, these can be taken into consideration for further enrichment of the existing taxonomy.

Industry/Sector

- Three regions were identified: West Midlands in the UK, Tampere in Finland and Aragon in Spain, while a variety of sectors constituted the focus of the fieldwork. The regions exhibit a diverse range of sectors. In the West Midlands there is some variety of sectors with e-commerce, content management and accountancy comprising the central business activities of the SMEs/Drivers. In Finland all the engaged SMEs/Drivers act in developing Open Source software, whilst in Spain the tourist sector dominates, with the involved Drivers developing travel agency software, tourist management software and consultancy in e-commerce.
- Focusing on just one region ran the risk of not representing the DBE as a whole. As the main aim of the task is to develop a methodology for populating the articulated knowledge base, it could be helpful to develop the specific knowledge base in several locations for populating the taxonomy.

Case definition

- A usage scenario was conceived as including several applications/actors and focusing on particular regions. We decided to look at SMEs/Drivers in one or several regions and talk to them about regulatory issues they found important for joining the DBE. Given the current state of development of the DBE, we decided that this was the most suitable approach.

How many cases?

- A total number of seven Drivers[1] selected for in-depth interviewing constitute the usage scenarios employed for the empirical research of the task, integrating the

[1] Drivers could be defined as SMEs which have the knowledge and expertise to manage technology in the current intermediate stage of the DBE, and can be distinguished from SME users which can just apply this technology when the latter if completed and ready for use.

findings of the M32.2 internal report where five Drivers from West Midlands and Finland had been interviewed. The final stage of the research included empirical research conducted in Aragon where two Spanish Drivers were interviewed. Seven cases are regarded as sufficient for the aims of this research and the identification of sector-specific and local-implementation regulatory issues in the DBE.

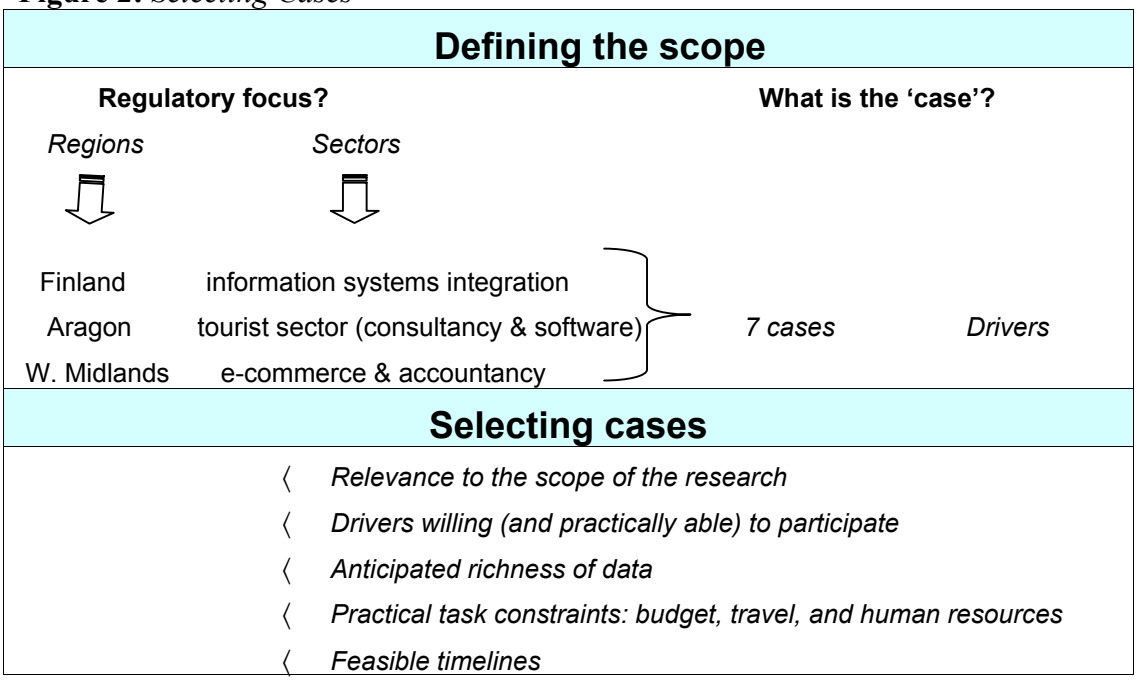
DBE Actors

- We decided to interview only Drivers and not SMEs or Regional Catalysts for reasons that are explained in more detail below.

2.1.2 Selection of empirical cases

Based on the scope and original evaluation of potential participants, further discussions with the DBE participants themselves and DBE partners led to the definition of the final list of Driver candidates. Initial discussion with Driver candidates was then conducted to identify their potential for participating on the basis of the scope of most relevant cases. Following this, definition of criteria for final selection of cases was carried out and final assessment of feasibility and usefulness of cases was based on the criteria described in Figure 2.

Figure 2: *Selecting Cases*



According to the above figure, the sector-specific and local implementation criteria have defined the overall scope of the field work, determining, in turn, the identification of seven cases in three critical regions, West Midlands, Finland and Aragon with respect to four key business domains: information systems integration (Finland), e-commerce and accountancy (West Midlands), as well as management software and e-commerce consultancy in tourist sector (Aragon). At the same time, the selection of the usage scenarios relied on a certain number of considerations regarding the relevance of the scope to the theoretical framework and the taxonomy of the task, as well as on the influence of some rather structural factors, such as

timelines, willingness of the Drivers selected, and possible task constraints (budget, travel and human resources, etc).

2.1.3 Preparatory stage

After selecting the usage scenarios, we proceeded to devise and structure a rather general interview schedule based on the generic level knowledge base resulting from D32.1 findings (Appendix 1). The thematic frame of the topic guide was mainly based on the main regulatory issues, but also included open questions for reporting additional matters. The structure drew on the taxonomy presented in D32.2, attempting to use the three-dimensional space of building blocks, trust types and operational perspectives to structure the investigation.

Agreement on the timelines for empirical engagement with the selected Drivers was reached and the interviews with the seven usage scenarios were conducted in the period between the summer of 2005 and February 2006. The first five usage scenarios in the regions of West Midlands and Finland were approached and interviewed over the last summer, while the last two scenarios in the region of Aragon were interviewed in February and under the light of the findings obtained from the first five cases and reported in M32.2.

The selection of the conventional data analysis method of highlighting and picking up on key points of the interview data was decided, while the usage of software, such as ALCESTE and ATLAS/ti, was dismissed due to the rather limited length and number of collected data. Hence, the interpretation of the results took place in the light of the generic knowledge base and original taxonomy matrix, whilst some initial suggestions were included, pointing to the necessity for further investigation of the regulatory issues in the DBE that have so far been somewhat overlooked.

2.2 Methodology

2.2.1 Interviewing: Data collection method

Interview was employed as the method of data gathering, as it provides a number of advantages and consists of data collection tools that are functionally compatible with the objectives of the task. Additionally, interviewing provides the task with the necessary flexibility and freedom for eliciting new themes of regulatory concern and more implicit issues of regulatory relevance, both testing the taxonomy formulated in D32.2 and allowing the emergence of new patterns of regulatory interest.

Other possibilities were considered for investigating the area of regulatory concerns of SMEs in the DBE, but they were not suited to the task. One of these possibilities was the use of a fully structured questionnaire and the survey research mechanisms to obtain more quantitative data. However, the use of the survey as a technique could be open to charges of inappropriateness, as the goal of the task is not a strictly quantitative approach to SMEs' and Drivers' regulatory concerns towards their potential of participating in the DBE. At the same time, survey is inappropriate for such a small research sample and in particular for the investigation of a group of people with their own business particularities and interests at stake, such as SMEs and

Drivers in the DBE. Rather, aim of the task is to investigate SMEs' and Drivers' perceptions and evaluations of the three building blocks of regulatory issues raised by theory while, simultaneously, pointing to other possible regulatory concerns of critical interest for the DBE vision.

Interviewing was therefore employed as the appropriate research tool for approaching SMEs, since it has the potential for identifying a number of regulatory concepts and themes of association to the taxonomy. Devising a semi-structured questionnaire has the advantage of 'openness', where new regulatory issues and concepts can be raised, thus leading the task to a sort of testing for the articulated theory-base and the taxonomy platform on which theory rests, while allowing particular patterns of regulatory concern to emerge.

2.2.2. Logic and Logistics of the Fieldwork

The logic of the fieldwork was constructed in accordance with the vision of the approach to regulatory issues that relate both to theory (three building blocks of regulatory issues) and the taxonomy (the matrix of building blocks, trust types and operational perspectives), while being potentially extended by current practices in sector-specific and local implementation usage scenarios.

The goal of the task is not to propose any solutions to the regulatory issues raised by the Drivers or to expose the potential of the DBE to address these issues effectively. Rather, the aim is to identify regulatory issues of critical relevance to the SMEs when deciding whether to join the DBE, either verifying the theory and taxonomy or updating and modifying them to some extent. Furthermore, the exploration of forces and factors influencing the current regulatory concerns in each of the selected three regions and among the interviewed seven Drivers, bringing to the fore possible implications for other workpackages (WPs), is of critical importance for the task.

Research aims were significantly facilitated by the openness that the Drivers demonstrated in all seven cases and their willingness to express their thoughts and concerns by referring in particular to issues related to regulation building in the DBE relevant to their business characteristics, and locality facilitated significantly these.

On the basis of an extensive list of potential participants (see Appendix 2), a selection procedure was followed, resulting in an overall sample of seven Drivers in West Midlands, Finland and Aragon. The sample selection procedure rested primarily on the credibility of this list, as other DBE partners had already contacted these Drivers. From this perspective, the task proceeded to the selection of the sample of seven Drivers on the basis of their sector characteristics, their business traits, their availability and the frame of their engagement with the DBE. In parallel, their overall profile was appropriate for the aims of the research on regulatory issues in the DBE, by which means lessons could be learnt and findings used both as the basis for future research and for regulatory implementation within the DBE.

The selected sample consists of three Drivers in the West Midlands (Pollard, Openscape and Redenet), two in Finland (Nemein and Integratum) and another two in Aragon (Barrabes, Gabilos SW).[2] The initial plan to research other types of SMEs

[2] More information on the company and business activities of the sample of Drivers in Appendix 3.

was abandoned due to time constraints. At the same time, the usage scenario from Spain was initially put on hold due to uncertainties and rapid changes taking place on the map of the participant SMEs in Spain over the past summer. This region was finally engaged at the last stage of the research, in February 06, thus integrating the empirical construction of the knowledge base of regulatory issues whilst reflecting on the results of the pilot stage of research in West Midlands and Finland reported in document M32.2.

2.2.3 Background on Participants

West Midlands: Pollard, Openscape, and Redenet

The three interviewees in the West Midlands were selected on the basis of their long engagement with the DBE. At least two of them, Pollard and Openscape, were generally concerned about the present and future of the DBE. Moreover, the interviewees in the West Midlands represent a spectrum of business domains, covering the areas of online accounting, e-commerce and web design and consultancy. Hence, they give to the task the opportunity to identify regulatory issues of concern at various levels of engagement and in different business domains, allowing the articulation of arguments regarding the sector-specific dimension of the aspired Knowledge Base of Regulatory Issues.

Finland: Nemein and Integratum

The Drivers in Finland constitute a rather different usage scenario from the one in the West Midlands. More specifically, both Drivers in Finland belong to the same business sector, developing activities in Java-based enterprise information systems integration, while they constitute active contributors towards the technical implementation of the DBE platform. More specifically, they both have undertaken the following integration projects within the DBE:

- Nemein work and position within the DBE:
  - Integrating the Open PSA project management system into the DBE framework.
  - Enabling companies to share project information and expense reports automatically with their partners and contractors.

- Integratum work and position within the DBE:
  - Integrating CentraView OSS CRM system to DBE Framework and implement a service that allows users to import and export CentraView Contact data.
  - Importing and exporting contact data using XML files.

Hence, the Drivers in Finland allow the task to proceed to a comparative analysis of the initial identification of sector-specific and local implementation regulatory issues, reflecting on the generic level taxonomy.

Aragon: Barrabes and Gabilos

The Spanish Drivers constitute centralised business networks, where ITA (Regional

Catalyst) is at the epicentre controlling them. In Aragon, all engaged Drivers[3] belong to one sector, the tourist sector, and carry out diverse programs that cover the management of the SMEs and, in particular, the management of rural tourism, the management of hotels, accounting, turnover, payrolls, boards of repayment, accounting general plan, and so on.

Although both interviewed Drivers belong to the same business sector, their business activities vary, with Barrabes being a regional influencer and a famous[4] example of a successful IT SME in the area developing activities in e-commerce and consultancy in the tourist sector, while Gabilos develop management software for other SMEs in the same sector. More specifically:

- Barrabes:
  - E-commerce industry.
  - Consultancy, dedicated to help Spanish companies develop their businesses around the world.
  - Communication link between IT developers and tourism businesses.

- Gabilos:
  - Software programs that cover the management of the SMEs, such as management of rural tourism, management of hotels, accounting, turnover, payrolls, boards of repayment, accounting general plan, etc.

Hence, the interviews in Aragon allow the task to approach regulatory issues in accordance with the views of Drivers attempting to boost business within the DBE platform, offering thus a different perspective of sector-specific and local implementation issues while reflecting, validating and/or updating the generic level taxonomy with the issues identified at this final stage of research.

2.2.4 Method of Analysis

After the sample selection and on the basis of the generic taxonomy platform generated in the D32.2 deliverable (See Figure 1: Taxonomy D32.2), the research drew on the taxonomy, in the first instance, in order to allow the application of this platform to the particular selected usage scenarios and the testing, consequently, of the theoretically-based foundations of the Knowledge Base of Regulatory Issues.

In accordance with this generic taxonomy platform, each selected Driver was asked about issues raised in the taxonomy, while space was given for additions or modifications, as the taxonomy presents generic layers of regulatory concern, serving the identification of a broad set or regulatory issues, without however specifying whether and how these issues are of relevance to a specific set of business circumstances. Therefore, the sample of seven Drivers and their reflections on diverging regional and business domain issues constitute the key research tool, so that the attempted and empirically-founded Knowledge Base mirrors different local contexts and business/sector characteristics, shedding light on sector-specific and

[3] Currently, in the region of Aragon there are four engaged Drivers: EON, DBS, Barrabes, Gabilos. The two Drivers that were not interviewed by the task, EON and DBS, develop travel agency middleware and have been previously contacted by other DBE partners.

[4] Barrabes was chosen by Microsoft as a worldwide example of e-business model for SMEs at the start of the Internet boom in the middle of the 1990s

local implementation regulatory issues of interest (Fig. 3).

Figure 3: *Taxonomy and pilot usage scenarios*

Usage scenarios	Taxonomy: Knowledge Base of Regulatory Issues		
	Trust Types*	Building blocks*	Operational Perspectives*
Finland (OS companies)	Trust X Trust Y Trust Z	Privacy & consumer protection E-signatures & authentication Jurisdiction & consumer protection	DBE Relationship DBE Actors Software Lifecycle
West Midlands (E-commerce & accountancy, web design & consultancy)	Trust X Trust Y Trust Z	Privacy & consumer protection E-signatures & authentication Jurisdiction & consumer protection	DBE Relationship DBE Actors Software Lifecycle
Aragon (E-commerce, consultancy and management software in the tourist sector)	Trust X Trust Y Trust Z	Privacy & consumer protection E-signatures & authentication Jurisdiction & consumer protection	DBE Relationship DBE Actors Software Lifecycle

* See Appendix 4.

2.2.5 Interview Guide and Guidelines

A single interview topic guide was used throughout the interviews to map out the field and achieve the operational aims of the task. More specifically, the interview topic guide addressed the main issues raised in the literature review, namely the three building blocks, while the platform of relating them to trust types and operational perspectives was also included. Furthermore, it was important to ensure a degree of openness, whilst interviewees in different sectors come across different issues and concerns. For instance, a Driver in the West Midlands acting in the area of e-Commerce is more likely than an integration and software development company in Finland to come across issues of privacy and consumer protection. Therefore, the treatment of different Drivers had to be mindful and the interview topic guide was to reflect sufficiently the varying areas of regulatory concerns.

Since the purpose of the interviews was to understand and map out the legal concerns of key business actors throughout their business activities and within a collaborative business environment, the interview topic guide revolved around areas of investigation where the information obtained could be used for the understanding of how participation in the DBE can be successfully encouraged and sustained. What follows is a brief outline of the employed interview guide in all seven usage scenarios, while some, more or less minor variations were committed with regards to the characteristics and particularities of each usage scenario (see Appendix 1):

- Background questions in terms of company profile and current business activities.
- Main regulatory concerns and legal issues as these were raised by theory and reflected by the Drivers in all three regions.
- Regulatory concerns and further legal issues raised by current business practices of

the Drivers from both business domain and local perspective.

〈 Underlying factors influencing Drivers' concerns with emphasis given on the business domain and locality of the interviewed Drivers.

〈 Finally, the challenges for the DBE were investigated, and the potential future prospects of the DBE environment were explored in detail.

Therefore, by understanding the legal needs and regulatory concerns of the seven participant Drivers, a sustainable Knowledge Base of Regulatory Issues was built up, and a range of key sector-specific and local implementation regulatory issues were identified, facilitating thus the transition from the DBE as a project to the DBE as an actual collaborative digital business community. Consequently, what follows is a more analytical approach to the reflections from the Drivers in all three regions, in terms of DBE relationships, regulatory issues stemming from the three key building blocks, and trust through software life cycles and development, thereby bringing the sector-specific and local implementation character of the Knowledge Base and the potential implications for the DBE future to the fore.

3.0 Reflection from the SMEs regarding DBE relationships as grounded in the taxonomy

As explained in section 1, there are two types of DBE relationships:

- Internal (which have arisen from the DBE environment, or are linked to its participants and activities).
- External (which are not currently within the scope of the DBE project evolution).

The internal relationships may have initially begun as external relationships but have since been formalised. It is anticipated that external relationships will in future be internalised within the SME under the DBE evolution process and therefore both categories require particular attention and regulatory provision. Therefore, in the following two sub-sections we describe some of the core issues in this matter, while a summary of findings is provided in the third sub-section, with particular emphasis placed on the issue of applying the Open Source approach to the DBE relationships.

3.1 Internal Issues arisen from the DBE environment and specific to the DBE setting

The interviewed SMEs expressed concerns about how the DBE legal identity will be defined at international, national and local levels: will the DBE legal identity be valid and recognised at EU level and in other world economic blocks, and, if that is the case, which type of identity will it be? The same is applicable at the national and local levels of jurisdiction. Doubts about the legal standing of the DBE as an organisation must not be overlooked since they could lead to a breakdown in trust, not necessarily between participants, but in the organisation as an entity. This problem is particularly acute given the differing and sometimes contradictory legislation relating to business law in the EU member states.

These concerns were reflected by all SMEs, hence the comments included here are not linked to a sector-specific domain but they can be thought of as applicable to all SMEs. Therefore, there is a strong link to sustainability models and long-term development of the project as a business case voiced as a major concern by the SMEs. When asked about the legal identity aspects of the DBE, Gabilos expressed the following views:

Gabilos: "…We expect that and we've had a European standard in terms and where we are clear, we think, too, that there must be a signature and other things that we are strictly speaking yes, an identity but a European standard to be all SMEs in the same, in the same page…"

A further issue identified is that, as the number of DBE participants increases, the number of legal agreements between participants increases faster and scalability of the legislation becomes an issue. As the DBE emerges from a set of pioneers to become a network, it must pay close attention to flexibility and extensibility in establishing the framework of legislation. For instance, when asked if state legislation might pose an obstacle to the DBE, Nemein stated that this would especially be the case for small operations:

Nemein: "...For one-man company like myself or just very small companies working together one issue is that if such groups are going and then try doing larger and larger projects, the amount of legal bindings among the partners is going to grow exponentially basically, and that is something that would probably benefit quite a lot if there would be some common framework on, legal framework on how to handle such large-scale contract …"

A specific example of this concern is the issue of e-signatures. Currently, each EU country has defined certification processes for validation of e-signatures. In cases where DBE partners exchange e-documents, how is the integrity and validity of such e-documents under several different national legislations to be ensured? The work involved in establishing a contract between entities in two countries, already considerable, is multiplied many times when further countries are involved. This is expressed in the following view of Nemein regarding their concerns about the legislature status of the DBE with respect to e-signatures:

Nemein: "...it would be nice to have a commonly accepted system for that. But as long as there is no such thing, then basically…well…the approach so far is just to have legal work outside the system. Basically, nothing more works …and the other approach taken for example by this French company that I have been working with is that the legal work is pretty low and like just submitting a work form and confirming by any way that 'okay I am going to do this work and then you are going to pay me'. That is obviously something that does not scale up to very big projects, it is like a two days work, half a week on that kind of contract and if something goes wrong then nobody knows what to do…[laughs]…but it is like one way to avoid the question..."

Furthermore, the SMEs interviewed expressed concern about the terms under which governance will be established within the DBE; there are two main streams of thought in this matter: that of the open source and that of the proprietary developers. For the SMEs, participation in DBE governance is expressed by how the DBE sustainability can be achieved. For some developers the Open Source software development is regarded as the preferred choice. The Open Source community views this model as

successful, in particular when applied to the issue of scaling the legislative framework and when it is able to provide the necessary framework for the implementations of mechanisms, e.g. for e-signatures, which are released into the public domain. Seeming incompatibilities between such mechanisms can then be addressed by referencing the source code and national legislation. The SMEs' views can be then grouped in three main models.

The first model preferred by the Open Source community of DBE developers aims to have an Open Source community at least in principle. However there are concerns as to how this can be achieved. Nemein, for example, were asked to express their concerns about the further development and share of the knowledge and technology in an Open Source environment such as the DBE:

Nemein: Well, as I said previously, I am a bit concerned because at the moment the community is not that big around the actual DBE project and many parts of the system are still closed in a sense that we do not have or have seen where it is at the moment or where it is going… I think that at the moment as…as…there are quite few driver companies working or external people working on the system. I think that the pressure for opening up the development and…it raises concern of (?) that the platform is not that big, it is probably not as feasible as it could be.

B11: Why is that? What are the factors that make the participants not be that open contributors?

NEMEIN: Well, in many cases is just the credence of doing anything. Basically doing many things in a closed manner is okay, I am building these components and it should be like this when it is ready. So I am working on this until it is ready and then it is done. Changing from that mindset to one that, okay, the system is basically holding it open from the one and…

The second model is provided by the proprietary developers, orientated more towards getting one of the bigger DBE partners such as Sun Microsystems or IBM to hold the governance of the DBE until the project is self-sustainable. However, there are concerns about the fairness of these views. Openscape, for example, were asked about their view of how to keep alignment between developers (pro Open Source) and the directions issued by main or bigger partners:

Openscape: "...You've got to be careful there; the only reason open source is commercial making money for people out there is that someone is getting a benefit; we've got to make sure there is the right balance. Developers might spend 5 years doing this and nothing happens. You have to market to business people. You want to make it successful because if it's not commercial it's going to die.

B11: Both big and small players are capable of making it successful given that they are treated equally.

Openscape: A bigger player might not have the urgency for it to happen; a smaller player might have more urgency. There might be a conflict there; these kinds of issues about where the focus will be placed need to be handled..."

In the third model, mixed/hybrid components of both development models seem to be incorporated as needed. Specifically, it is envisaged that a specification comprising

interfaces and a reference implementation of core functions is released into the public domain, but both proprietary and open source developers are then free to implement as they wish. An analogy may be made with the very widespread and successful J2EE application server specification, produced by Sun Microsystems along with a simple prototype implementation and released into the public domain, which has been implemented and extended by both open source companies (e.g. JBoss) and proprietary (e.g. BEA Weblogic). This is an alternative vision for the DBE, which was discussed with Pollard. More specifically, the SMEs were asked to explain how they visualise the different business models available, and to what extent their opinion is influenced by the discussions between proprietary and Open Source models:

Openscape: "...I think that open source is pretty nearly voluntary, so if you're talking about low license fees that's good enough for me. If I was talking about how to make a living out of open source I think you'd be happy to go and do something, support something, do a specific development, manage a particular project. We're finding in common with many other businesses that large customers don't like any large sums of capital in one go. They prefer something closer to a revenue model rather than a capital model. We can make money out of very small businesses of about £10/month. That fits in quite well with what the DBE's doing..."

Gabilos in turn believes in generating a mixed model that includes a number of enterprises sharing the management of the DBE consortium. This opinion is somehow shared by Barrabes with a slight difference: to have a major partner taking control on a temporal basis of the consortium.

Gabilos says (translation from Spanish): "...for the SMEs, if there is a leader then it is more convenient to the SMEs; the problem with too much democracy is that nothing finishes or it is being completed. The final objective of the DBE is sustainability. The best thing to do is to have a model of 3 or 4 companies…maybe 5, that there is always someone that is pulling it as leadership because the most important thing that matters is not to have an infrastructure organisation of any kind. Instead, it is to have at least one that moves forward and can actually continue delivering the platform…"

Pollard was also asked to give their opinion about how the technologies can be returned to the Open Source community:

Pollard: "... We are looking at the model we use to sell to other newspapers, but it would probably be fairly specific - open source newspapers - that conceivably could work. If we look at our company, we are not open source because we're too small to support the overhead of running that kind of project. It's the issue of keeping the product on course and developing rather than trying to manage a set of other developers. Also a very different style of code is used for the framework, and you have to make some conscious design decisions if you want to do that, and you write more, so again there would be an overhead in creating a framework. Our strategy for interoperability is XML services, so in that respect we fit quite well with what the DBE is doing, and it should be possible to use our products in time when all the XML is developed and web services are published..."

Pollard in other instance were asked for their views on the degree of engagement with open source they aim for, and in doing so how they relate to issues about governance and styles of governance, and community management, foundation models, voting

systems, etc. The angle presented was the one of trust as per collaborative work in an Open Source environment:

Pollard: "...you have to allow for a variety of models as not everyone works the same way. I think you have to get people with different types of expertise to want to work on the project, and if you prescribe a particular model, it's a sure way of shutting out a group of people who don't want to work that way. I think where you're probably strongest is where you define standards for interfaces and it's down to individuals to make their products work with those. Therefore we could have as many different models as we wanted...."

However, Pollard were not concerned with different models of governance coexisting in the DBE environment:

Pollard: "...I wouldn't mind. What would worry me is if I was required to buy large chunks of proprietary code simply to get the job done but if it were genuinely open source I wouldn't mind..."

The overall view is that without laying down some clear route to follow soon after the money that has helped to start the project has run out, there will be no possibility of sustainability. Openscape also shared this view and concern, especially in regards to the project funding coming to an end. How at the end of this process DBE partners are starting to think about the kinds of issues a governance body would take on and the various different kinds of models of governance in the open source community were issues that followed up in the discussion:

Openscape: "...it's a sensitive issue because you can lose people at that point if there's suddenly a board full of IBM people or people who aren't traditionally seen as good community members; it could be a point at which people get bored because there's an element of trust. A company has to be commercial - it has to be able to survive. That should be at the top for all companies. Fairness should be in there somewhere - there should be a sort of referee otherwise the smaller guys will have no chance..."

A summary of the issues discussed in this section is presented in section 3.3. In the section 3.2 below the discussion is focused on DBE external issues grounded in the taxonomy (D32.2); some of those issues are also DBE-internal, but due to their complexity they overlap with or are repeated as DBE-external issues.

3.2 External issues, as grounded in the taxonomy

External issues as referred to in the taxonomy, such as competition rules, consumer and data protection regulations, are also concerns for the SMEs. These issues touch upon the profitability of the DBE enterprise as a whole, since without the security provided by the legislative framework, made available electronically and in an easily accessible way, the commercial viability of the DBE is jeopardised.

Openscape, for example, were asked to express their views about competitiveness increasing the commercial impact of software releases developed by their company:

Openscape: "...Yes, there has to be some commercial edge to it. If this thing can be shown to be successful there are going to be more and more people who want to contribute to it. They will see that they

can make money from it and that is going to be the key driver - if they can make money from this. Some are going to say: 'we want to innovate this'. Before they can move forward, they need to see that it is a viable thing as well. If they don't see it as viable they will lose interest and it will die..."

Another concern for Openscape was the use of Digital signatures for business outside the DBE:

Openscape: "... That's the holy grail of the industry. Everybody wants it but nobody's been able to deliver anything like that...

... If the solution's out there, lots of people are going to use it, but for whatever reason people aren't ready; the market is fairly fragmented in that respect.

B11: You mentioned the holy grail of the fragmented pieces of code that can be integrated, but from the point of view of contracts you can have these different components somewhere out there that you want to use, but to use them you have to establish contact with the companies that are the owners of the IP. Do you think that this can be done or does your company find it attractive from the point of view of doing it online, or do you need to know the company on a one-to-one basis before you can establish contact?

Openscape: It depends on the transaction. Let's take something like music - people can evaluate their fees based on a benchmark - they can say if they're earning about 100 then everything seems to be OK in the system. You have to find areas like that where people can assess whether it's working - no-one is cheating them - and one benchmark could be if the system is generating the same kind of revenue as you were generating before the system, then you're OK but if it suddenly starts going down you can start questioning it.

B11: …and do you think that this would work for components?

Openscape: I think software's a good one to do, if we can get it working, I think it's a long way away. I think DBE should have the kind of plan that says we're aiming for this point but should have something that even if it's not entirely successful it will be successful enough to keep the momentum going. Something like a Plan B, C and D, each with its own entity to be evaluated for commercial viability. You have to look for contingencies down the line, because this will not go the way we're sitting down talking about it now. I think there should be different alternatives and each one should be evaluated from a commercial perspective. Maybe you can write a minimal service, and at least if it's being talked about that will be a commercially viable thing that will keep it going...."

Barrabes expressed those concerns in terms of security and actual implementation and usage of e-signatures in the context of Spanish SMEs:

Barrabes: I worked on security for some companies, I tell you, all the governments in Europe, you know, all the programs, they have this concern with this e-signature. So if you're not going to be on the spot, you're going to have to be with it because even to get government support for projects…so I'm going to do something new and loads of people are going to do work on that for free for your project, because the government's already doing it. So you're going to have to be in the plans, of course I will be there too.

B11: These signatures have security but they don't really have the trust of companies. All they do is to tell you that they are who they say they are. If you are good or bad or indifferent. It doesn't help you with an online report for people. Do these e-signatures deal with, are they widely in use? I mean people using it.

Barrabes: Say not all…1% of Spanish companies. But you know, it is something the government's very concerned about, all the programmes, all the new things, they're going to have e-signatures.

The issues listed as internal are also external issues but it is reasonable to believe that over time these issues will evolve as the DBE vision is grounded. At this point, the actor identity factor is another important dimension to be taken into account when issues of regulation and governance in the DBE are under scrutiny. To complete this section a bullet point summary is presented in 3.3

3.3 Section Summary

As discussed in section 3.1, the analysis completed in this section covers the generic concerns expressed by the SMEs regarding the DBE. In this part of the analysis there is a lack of issues that can be identified as sector-specific or domain specific, as the topic is common to the overall view of the DBE community. Listed below are the three main points identified as serious concerns:

- First, regarding the DBE legal identity, a common view that whatever this legal identity will be, there should be an EU standard.

- Second, a serious concern about how sustainability can be developed within the DBE internal relationships, trust and security, as well as the reconciliation between the business objectives and the technical models to work within the DBE environment.

- Third, the DBE governance directly linked to sustainability and the viability of a one-company governance entity vs. a multiple company type of foundation.

The diversity of opinions expressed by the SMEs in these three areas highlights, in the view of the researchers, the need actively to seek participation of the SMEs in the current internal discussion about the DBE future for a positive outcome in the direction of the project's future.

In section 3.2, regarding external issues that are of a generic concern to SMEs, there were also three points raised, which will require special care as the project evolves outside its research scope:

- First, SME competition, understood as the role of security in establishing trust in the system for competition between DBE members.

- Second, privacy, understood as ways of enabling consumer and data protection for B2B and B2C DBE relationships that are internal.

- Third, the points raised above differ between sectors and business domains in which the SMEs are situated.

Overall, the issues arising out of DBE relationships, and particularly the concerns about DBE legal entity, integration of e-signatures and the implications in terms of governance, bring the document to the point where we need to look more carefully at the specific reflections from the Drivers as DBE actors and within a complex matrix of relationships. Hence, the following section presents the case of the SMEs as DBE actors and the different types of relationships developed by the SMEs on those roles.

4.0 Reflections of the SMEs as DBE actors: SME Software Service Providers, SME Users and Business Analysts. Reflecting on the Building Blocks and Other Issues at Stake

One of the key aspects of the Knowledge Base of Regulatory Issues is how the issues raised by the building blocks have been represented by the views of various DBE actors, such as SME Service Providers, SME Users and Business Analysts. In addition, these actors can potentially contribute to the highlighting of other issues that theory has not identified as yet, while the regulatory impact of those issues can be of particular importance for the completion of the existing theoretical framework, as well as for the update of taxonomy platform.

4.1 SME Software Service Providers: Identification, Security and Privacy at the forefront. Implications for the DBE future

To some significant extent, SME Software Service Providers, mainly represented by the Drivers in Finland, are the actors who can considerably help the Task identify issues relevant to particular DBE partners and analyze these issues according to the views of those who provide digital (software component) services and use the DBE as an infrastructure platform. Therefore, the reflections from this particular category of DBE actors can potentially shed light on issues and concerns which mainly stem from the very inside of the project and are of particular interest to the articulation and future viability of the Knowledge Base of Regulatory Issues.

Overall, SME Software Service Providers underline the problem of different national regulations across Europe while being particularly concerned about the formation of a sound Knowledge Base of Regulatory Issues and examining the impact of the different regulatory schemes on the e-signatures system in the DBE. Furthermore, they are significantly concerned about the insufficiently open source character of the project, while maintaining that conflicting business interests amongst different localities and various business domains are unlikely to undermine the open source character of the DBE. Finally, and from a purely regulatory perspective, they are in particular concerned about the following two key categories of regulatory issues.

4.1.1. Identification and Security: sector-specific issues and their importance for business

In general, SME Software Service Providers raise the identification and security as the two most important issues of regulatory interest, while approaching them from a rather business perspective. They mostly emphasize that the architecture of the DBE platform, as it has been built until now, does not ensure the secure transfer of data and the identification of both parties to a communication within the platform, jeopardizing

thus the overall security of the platform. More specifically:

Identification
Identification is raised as an issue of common concern, as well as of particular business interest for the SMEs, whereas SME Software Service Providers themselves are currently in the process of solving this issue with the assistance of the relevant DBE partner in Ireland. Hence, when asked to inform the Task about concerns regarding the potential of identification within the DBE platform, Nemein and Integratum stated respectively:

Nemein: "...as the DBE identification environment is now, basically the platform itself gives no guarantee on…if I like some of the system and start looking for, okay, I want to find Nemein's open DSS system through the DBE platform and then a get a reference to the system and there is no guarantee that there is actually a system and then I could have some sensitive project data there that is not meant for other than Nemein. Unless I can get a guarantee that this is really, really a reference to them, Nemein system, I can't trust the system to transfer the data I want to transfer. That is I think the main issue we had...

Integratum:...yeah, we are also concerned about that because if we are transferring data, we have to know where the data are coming from and where they are going and…so, that is our case as well..."

The identity issue in the DBE platform, as it has been articulated by both SMEs, engenders business risks that the SMEs themselves declare they would rather avoid, bringing thus to the fore security questions of a rather broader scope.

Security
Hence, what follows is the SME Software Service Providers' consideration that the identification issue is tightly related to serious security risks and the danger of data loss during data transfer within the DBE platform. Nemein, for example, were concerned about the danger to DBE participants presented by security flaws:

Nemein: "... it is like you compare it to a situation where we didn't have this network and I was like…a…submitting my early reports and past reports with the Nemein, I could basically sign and seal all of them in an envelope and give them to a trusted carrier to hand them to Nemein. This is basically what the proposed identification system does.…at the current level, we are basically writing the notes and the postcards and giving them to the next person on the street…'well, I would like this to be handed to Nemein but do whatever you want'…yeah, there is no guarantee on who is going to read it along the way and if never even it arrives at the destination……and nobody tampers with it..."

The SMEs who already use the platform as an infrastructure, contributing furthermore to the provision of its constituent software components, identify security and identity as issues that could make them avoid transferring volumes of sensitive data through the platform in the future. As a result, these issues might entail possible implications for authentication and consumer protection, which has also been pointed out in the second category of regulatory issues.

4.1.2 Privacy/Costumer Protection and Contractual Issues: business domain and risks

at the epicentre

Since SME Software Service Providers mostly deal with software management and clients having private data, they have expressed a strong concern regarding the extent to which the existing platform is in a position to ensure the confidentiality of data and consumer protection. This, in turn, raises the issue of contracts and agreements between contractors, as the argument that different terms and conditions with respect to consumer data should apply to different business domains has been broadly raised.

Privacy/Consumer Protection

Drivers such as Integratum indicate that the above concerns about security and identification are associated with their fears about risks to consumer information, while pointing to the important role that different business domains play in the way that these issues should be regulated:

Integratum: "I got this feeling that security and authorization are not yet implemented at all in the DBE. So, I am waiting…for some implementers to see what they've got to offer to us…and our product, which we are going to integrate, is related to costumer information and costumer history and those kinds of…a…data…because…a…there are some data that other companies probably would not like other partners to see because it is CRM system…"

Additionally, the SMEs highlighted the issue of risk related to clusters of companies sharing customer information at certain level. At this point, Integratum supports the division of the overall DBE business spectrum by business clusters, illustrating the necessity for tackling this issue from a business perspective when regulating.

Contractual Issues

Privacy and consumer protection evince other issues regarding contracts, as well as contractual terms and conditions. Hence, after the SMEs took a look at the contract creation demo[5] that the relevant DBE partner has made available, Integratum argued that contracts need to adapt to different business domains, as a single contract will not be in a position to cover different regulatory concerns raised in different domains:

Integratum: "...contractual issues are somehow…since they are not clear to us…from the business point of view of course…how to make business from the DBE is something that we have to develop somehow…it is not clear yet. There is a plan of course but how can we, as a software company, get business from the DBE?"[6]

As an outcome, Nemein suggested a common legal framework which will enable the mutual building of trust amongst DBE participants, while Integratum proposed, from a sector-specific perspective, the creation of industrial clusters which will allow the

[5] The demo shown does not create a contract; it only creates a PDF version of a standard form of contract to be validated by lawyers. This is because of the lack of authentication; therefore the document lacks legal value. This demo is still underdeveloped and a new version of it is on pending release.

[6] Likewise, we notify that SMEs belonging to the same business domain encounter similar concerns on contractual issues:
NEMEIN: " ... a bit concerned about what is the real contract status of this work and so far we have been basically avoiding that question…so it is by luck hard-dependent... you can basically want to have some…sort of mechanism...without doing all the traditional paper work and that is basically something that is a big question on how that should be handled so that is legally binding and everything goes…goes well basically...It is obviously waiting, as these kinds of contract and networks probably spread across national borders and the regulatory issues become more pressing because the legislations vary…"

contract creation and the non-conflict of business interests within a common regulatory framework:

Nemein: "...the amount of legal bindings among the partners is going to grow exponentially, and that is something that would probably benefit quite a lot if there would be some common framework on, legal framework on how to handle such large-scale contracts…networks basically and how trust and responsibility are handled in such cases. I think that at the moment the current legislation does not meet those needs as it could…

Integratum: …so the original idea…I think…for the DBE vision is that there should be some kind of industrial clusters which use this software…these…would not…I don't think that the DBE serves two, four companies there, there and there…they should be related somehow…like synergies..."

Furthermore, Integratum pointed out that the use of cluster infrastructure in which DBE partners will build services can be affected by technical problems (downtime, failures, etc) and needs to be addressed within the DBE sustainability vision.

Finally, they underlined the necessity for hiring a lawyer, while suggesting the potential impact of contractual issues on the business potential of the DBE, bringing thus to the fore the importance of sector-specific considerations within the DBE[7].

4.1.3 Implications for the DBE evolution

The above regulatory concerns seem to put at risk trust and responsibility in the DBE, as SME Software Service Providers argued about the importance of trust while underlining the possible risks that the above issues might entail for future trust and responsibility amongst DBE participants. Thus, Integratum expressed their views regarding the potential undermining of trust within DBE participants by stating:

Integratum: "...yes, that is true. There has to be some level of trust and, as a software company, of course we always care because technical issues have to be in good shape…and there must be trust for that. That is…I think that is the question somehow…that…that it can't be any problems in that area if someone wants to see the DBE in future success..."

Nevertheless, SME Software Service Providers still believe in the important role that the DBE might play in the future community building in various business domains, while having the potential to lead some of the Providers to initial networking with other Providers in the same locality. That prospect seems however frustrated by the above regulatory concerns and uncertainties. Indicative, from this perspective, is Integratum's view of the DBE as a way to facilitate collaboration with other companies across Europe:

Integratum: "...yes, probably…that is my goal in that project; at least when we started with it, when we red descriptions and stuff like that. But the reality so far has been totally different…but we can understand it..."

[7] B11: "So the business …
INTEGRATUM: …and what is the contractual basis with us and with other companies that use services that we have implemented within the DBE. In that sense, contractual issues are interesting but we haven't solved them yet."

In reflecting on the SME Software Service Providers' belief in the future business prospect of the DBE, which is accompanied by a definite degree of regulatory uncertainty, the Task paves the way for the articulation of a sound Knowledge Base which will take particularly into account sector-specific regulatory issues, while being implemented through a strictly binding and common regulatory framework and with the potential assistance of a specialized legal team.

4.2 SME Users: Workability of the DBE platform, trust issues and implications for the DBE evolution

SME users structured their concerns taking the view that the business domain they belong to and the particular business activities they develop are the key determinants for their engagement with the DBE. Since SME users use digital DBE services in a "self-consumption" way and in accordance with their particular business needs, they expressed concerns about the software so far available for testing and usage within the DBE environment. They also raised the issue of trust within the DBE and between users as a crucial measure of confidence expressed in terms of security and reliability in the DBE.

4.2.1. Workability of the DBE platform

From the technical point of view, from the SME users' point of view, the DBE tools lack completion, while some features considered as very important such as the sophisticated service factory and evolutionary environment are not yet a standard that can compete with currently available software.

More specifically, a particularly critical approach to the quality and level of completion of the technical features of the DBE was articulated by a Driver in the region of Aragon, Barrabes who, although engaged with the DBE since the project started, have very tight business links to mainstream companies such as Microsoft and Oracle. Hence, Barrabes have expressed their concerns about the testing of the various features of the platform and the lack of understanding of how most of these features and tools work, questioning the future workability and sustainability of the DBE platform:

B.11: "So what are your expectations from your participation in the DBE?"

Barrabes: I think it's a great idea. But I think once you come into the real world, it's going to be very difficult...Because some sort of things like those called the semantic description or all of these names are very good...Well for someone like me it is very difficult cause I don't know how, where to start. I think it's going to be even more difficult with the real uses cause they're going to keep saying: "Eclipse can do this, but what am I going to do with this?"...Like Word or Excel or Access, right, I only use 10% of their functionalities, and it's mainly because you know how it works. So I don't think the DBE case is going to be the same...the system is not going to be fluent in terms of spreading the application to the real world."

Furthermore, once again, the idea of providing standard interfaces has been raised.

Such interfaces are intended to define the functions and concepts available to DBE participants but leave the implementation up to individual developers and software development companies. Whilst this idea works where there is a standards body defining the content of interfaces, it can fall down where there are competing standards, particularly where several proprietary companies define their own standards. From this point of view, an important aim for the DBE should be to define a single standard or specification, which can then be mapped to the DBE environment in a number of flexible ways.

For example, when asked about the workshop in Tampere last June, Nemein reflected on the DBE platform presented to DBE partners, identifying a lack of object-oriented interfaces and of dynamic registration of new services within the DBE:

Nemein: "...they were like more technical issues but…a…in summary….the current execution environment makes it possible to basically build services that are…a…how would I say it?...there are some limits on how you can express concepts, you can't have concepts like these services apart of other services, they are all at the same level and there is some sort of limitation on how to develop with the system. Especially, what I am thinking is that our solution is pretty simple interfaces and it is like what is it to map to these interfaces…but our execution environment features…but those designed decisions that we made for the interfaces were partially affected by the limitations. So like, if it hadn't had those limits, then we probably would have been designing part of the interfaces as bit differently. I think that for some other projects that there are like doing more, more in depth, integration, the problem is just growing stronger… We would be like pretty okay if there were existing networks, platforms that had more features, like the IRM, CORBA and other platforms that have some like more..."

Nemein's concerns were transmitted to other partners such as the DBE computing team and Nemein have expressed a desire to include more features. In their view, the DBE had chosen a simpler approach that at this point in time would be very hard to change.

In parallel with these technical concerns, Gabilos, that produce management software for tourist companies, argued that these technical issues will significantly influence the future sustainability of the DBE:

Gabilos: "…it's everything related. If the bus is good, we just have to put a driver in front of the wheel and the SMEs will start saying, okay, the bus is going then put five in there and five here. If it starts introducing the gears and the bus goes up and I turn to the left and the bus goes to the left, I say, okay, let's try to invest a little bit more and try to find out how to translate those new features in new business opportunities, right? So again, it's a problem whether the platform really provides advantages and whether the platform's technical features are working at the end of the project…sustainability is really guaranteed by the platform itself because if the drivers like the platform they are going to support it."

These technical concerns have given way to the state of trust within the DBE and between users, raising the issue of trust as a very significant measure of confidence expressed in terms of security and reliability in the DBE.

4.2.2. Trust relationships in the DBE: critical issue with security and reliability implications

The issue of trust is considered of great relevance to understand relationships between SME users. With respect to technical issues in particular, the SMEs have argued that there must be trust in the DBE infrastructure, as well as between SMEs who use the platform. In this respect, Integratum expressed the following view:

Integratum: "Yes, that is true. There has to be some level of trust and, as a software company, of course we always care because technical issues which have to be in good shape…and there must be trust for that. That is…I think that is the question somehow…that…that it can't be any problems in that area if someone wants to see the DBE in future success".

Beyond this general remark about the overall importance of trust relationships, Drivers in Aragon, such as Gabilos, underlined the importance of trust, whereas Barrabes articulated a rather pessimistic view of the DBE attractiveness to users due to the limited commercial impact of the platform and particularly due to trust concerns with respect to safety and security risks within the DBE and among SME users. Hence, when they were asked about the attractiveness of the DBE to users, they answered by stressing, from a local-implementation perspective, the necessity for the DBE to become:

Barrabes: "...more commercial...and it is very difficult to sell that to the companies because they do not trust something that it is not in the near area of them...I don't know in the UK but in Spain, they are still reluctant to send the data and they want it here...I'm sure there's space to be even safer than in their server room but they like to have it here...So that's one thing and the other thing...it's going to be very difficult to let all people to agree, you know, with the whole security issues...letting people get into my system, it is very difficult.."

The issue of contracts, in which the legislation of different countries can be incompatible, has also been highlighted in relation to trust. Whilst legislation itself may be a long-term goal, the technical issues need to be addressed in the immediate future as they influence significantly the building of trust relationships within the DBE. These concerns were raised by Integratum in Finland with regard to the case of using a digital signature system, to considering the different national legislations across the EU, as well as to solving any contractual issues that could occur:

Integratum: "... From the contractual point of view of course there are differences…although there is the EU, there is still something different in the legislation of every country. I don't know how far the DBE can support at a common level…so, is it too much work to go over the problems in all countries and for all details of the agreements in this area of contractual issues for example? I don't know… The technical issues, issues related to technical matters, such as e-signatures and things like that, I think it is probably harder to solve it..."

From the same perspective, Gabilos in Aragon, who are not currently using e-signatures in their transactions with their costumers, have shown a strong interest in adopting e-signatures stressing the necessity for more implementation tools within the

DBE, such as contracts and e-signature digital certification system:

Gabilos: "...it's absolutely needed from a point view, it's absolutely needed because only if those contracts are available in the DBE companies who have not contacted you before are likely to contact you...I think it will be very interesting!

B11: Because at the moment there are no contracts online, there are no e-signatures online. If these things were in place, would this be for the SMEs a positive view in terms of keeping the DBE long-term sustainability?

Gabilos: Yes".

At the same time, Gabilos have maintained that, although trust can push further the SME engagement with the DBE, it is not in place yet, as it has to develop gradually, and only when it is fully established will SMEs become fully engaged:

Gabilos:"...remember the bus example okay, so the idea is that they were saying they need drivers for the bus and to train them. But the SME says okay, I need to see the bus because the bus is not there yet...So the bus is not there yet...If the bus is good, then we put the driver and they will start trying to drive. If the bus is good, they say, okay...

B11: So if we rephrase this, we could say that basically trust is something that is being, we know and obtain gradually.

ITA (Regional Catalyst): Obviously...the reason I cannot go with all 100% of my company over a new technology is that the latter has not been used before".

With respect to the necessity of building trust relationships, Barrabes have proposed the creation of a DBE Foundation suggesting a bank organisation or a big computer organisation to control the Foundation in order for trust relationships to be maintained within the Foundation. In this sense, they are not in favour of multiple controllers such as a Foundation Committee, espousing models taken from relevant mainstream proprietary initiatives:

Barrabes: "So whatever you do, it always has to be a bank cause that guarantees you...So that's very important, right?...So it is very difficult. In terms of what I'm getting here, because you ask me - if I understood well - if different partners or just one. I would say it's going to be easier to start with one cause otherwise it's very difficult. I'll tell you my experience: I talk with all those people and I find it very difficult to coordinate, to get something clear...it's very difficult"

4.2.3. Implications for the DBE evolution

The concerns arising in terms of workability of the DBE platform and trust relationships within the DBE and between DBE users entail significant implications for the future of the DBE and its long-term sustainability. In pointing out some of these potential implications, Barrabes have underlined how the perceived shortage of trust and the subsequent security concerns have driven them to being reluctant about using Open Source, supporting the 'security' that proprietary software offers to them

and doubting to a great extent about the business potential of the DBE:

Barrabes: "...security, that's the thing...I think there's a big long-term project but at the moment I would not recommend [the SMEs] to get involved. It's alright to do the testing and things like that...and I find it so difficult cause, for example, now Oracle has come to us to do their strategy for SMEs in Spain and they've this big, it's so difficult to sell solutions because SMEs need a solution, [they] don't care about the model or whatever, they want...it's cheap, it'd good, okay, I'll buy it, otherwise I don't care...it is something new, open source, we've got the big ones [SMEs] saying, always the same: who's going to maintain that platform? There's a foreign community that supports it but it hasn't been tested into the business side. So my company has got a Microsoft man or Oracle man but not an open source man...we never recommend to our customers open source because it's a big question..."

Even users who have been less critical about the potential of the DBE articulate reservations about the business future of the project, as for them the workability of the platform is an issue that will take a lot of time to be sorted out. Nevertheless, users, such as Gabilos, trust that the DBE has the potential to survive as a business platform pointing to the ways in which the DBE differs from other European projects in the domain of e-business:

Gabilos: "...this project is different from other European projects. In other European projects you finish with one dot zero and then you start another one from scratch. In the DBE...it's good we are overlapping this space which has had huge work from the developers and also from the SMEs using the platform because...they are interested, they are using, trying to..."

4.3 Business Analysts

4.3.1. Benefits vs. Costs and long-term commercial incentives

Closing the discussion about DBE actors' reflections on the building blocks and other issues of interest, there are a number of issues concerning how business analysts will integrate and help establish the BML profiles, and how to keep up with the costs of the development in practical terms. One of the SMEs interviewed, Openscape, who has a solid Open Source base for their business model, reflected on what were their expectations in terms of DBE membership retribution:

Openscape"... We see that we are contributing. We haven't taken back anything yet. The only thing we have got is £5000(pounds)towards doing some of the DBE activities. We've put in a lot more than we've taken out. We're going to be testing and giving feedback based on our commercial experience.

B11: So in the short-term more costs than benefits?

Openscape: Yes, but in long term we see benefits because we'll have an idea that it's going to work and so we'll have a bit of a lead over other companies. We'll have a service, which if it does work properly will be used by other people. I see that as a long way away..."

Other concerns for the business analysts relate to the commercial incentives for the development of open source middleware. For instance, open source middleware often involves the concept of a non-commercial authority (such as ObjectWeb), providing guidance and possibly funding for development, and usually backed by a consortium of large private and public bodies. This authority, in turn, accepts contributions from open source SMEs, which themselves tend to operate on a revenue model (as opposed to the more monolithic capital model of proprietary source companies). Openscape again for example had some interesting views about pushing middleware software releases over an Open Source model:

Openscape: "...You don't just push anything. If you want to receive stuff from SMEs you've got to put the right structure there and they have to decide what they want. There has to be a central authority. There always is in open source. The authority accepts contributions from companies. Things that are commercial tend to survive. With open source there is a big commercial element. People are not doing it out of the goodness of their hearts..."

However, Barrabes in Aragon maintains that the current DBE package does not have the necessary commercial potential to survive in the long-term, expressing a rather pessimistic point of view of how Open Source software could penetrate in traditionally proprietary SME companies in Spain. Hence, by underlining the importance of packaging in comparison to services, Barrabes stated the following:

Barrabes: "… You have to put the value in the service. It is very difficult for us to sell that value to SMEs. You know, you go to a company, they want to capture it. That's why it's so difficult to sell some sort of technology to companies in Spain, because they want to touch it, to see what it is, where is the package (laughs)...they don't perceive the value in the service. They might see it later but you have to prove it to the businesses".

4.4. Section Summary

From the reflections of SME SW Service Providers, SME Users and Business Analysts, a critical approach to the Building Blocks of privacy & consumer protection, e-signatures & authentication, and jurisdiction & consumer protection, as well as to additional issues at stake has been indicated (based on the taxonomy model from D32.2) as Figure 4 shows:

Figure 4: Reflections of DBE actors on building blocks & regulatory issues

DBE ACTORS	Reflections on building blocks and other issues of interest	Regulatory issues
		The identity issue as engendering business risks that the SMEs would rather avoid

SME SW Service Providers	**Identification and Security: sector-specific issues and their business momentousness**	Identification issue as tightly related to security risks and the danger of data loss during data transfer within the DBE platform
		Security and identity issues could make SME Service Providers avoid transferring sensitive data through the platform in the future
		As a consequence, these issues might entail possible implications for authentication and costumer protection
	Privacy/Costumer Protection and Contractual Issues: business domain and risks at the epicentre	Risk associated with clusters of companies sharing customer information at certain level
		Proposal for division of the overall DBE business spectrum by business clusters, illustrating the necessity for tackling this issue from a business perspective when regulating
	Contractual Issues	Contracts need to adapt to different business domains, as a single contract will not be in position to cover different regulatory concerns arisen in different domains
		Necessity for hiring a lawyer, suggesting the potential impact of those contractual issues on the business potential of the DBE, and bringing thus to the fore the importance of sector-specific considerations within the DBE
SME Users	**Workability of the DBE platform**	DBE tools lack completion, while features such as the high service factory and evolutionary environment are not yet a standard, so that they can compete with currently available software
		Lack of dynamic registration of new services within the DBE
		Lack of object oriented interfaces. Such interfaces are intended to define the functions and concepts available to DBE participants but leave the implementation up to individual developers and software development companies
		These technical issues as significantly influencing the future sustainability of the DBE
	Trust relationships in the DBE: critical issue with security and reliability implication	There must be trust in the infrastructure of the DBE, as well as between SMEs who use the platform
		Limited commercial impact of the platform particularly due to trust concerns with respect to safety and security risks within the DBE and among SME user
		Issue of contracts, in which the legislation of different countries can be incompatible, has also been highlighted in relation to trust
		Necessity for more implementation tools within the DBE, such as contracts and e-signature digital certification system
		Although trust can push further the SME engagement with the DBE, it is not in place yes, as it has to develop gradually and only when it is fully established SMEs will get fully engaged
Business Analysts	**Benefits vs Costs and long-term commercial incentives for the development of open source middleware.**	

The above reflections by different DBE actors on regulatory issues of critical importance could be completed by reference to the possible regulatory and trust concerns that software lifecycle and development might raise for the participants. This refers to the third perspective of the taxonomy platform, allowing us to obtain a full picture of the new taxonomy situation in the DBE.

5.0 Sustaining Trust through Software Life-cycles and the contractual properties interdependencies.

Moving to a regulatory account from a rather technical angle, and since the Drivers in Finland contribute to the architecture of the DBE platform, the issues of object-

oriented interfaces and the lack of dynamic registration of new services in the platform are at the core of the Drivers' concerns regarding the future software and technical development of the platform. On the other hand, the SMEs are not particularly concerned about the software life-cycles and potential regulatory concerns arisen during software development, deployment, upgrade, expansion and discontinuation, while persistently supporting the Open Source model of software development. Hence, they are not in favour of the proprietary software model, pointing out the OS direction towards which the DBE platform should be oriented.

5.1 Software Life-cycles in the DBE and the Open Source Ideal

The software life cycle is viewed by the SMEs as an issue of no particular concern, whereas it is argued that software and services should not be thought as a single area of evolution, pointing, furthermore, to the long-standing workability that Open Source might ensure for the DBE. Here, we could identify the role that the Open Source character of the Drivers in Finland, as well as their expertise in producing Open Source components, play in the way they perceive this area of interest. Nemein for example explains:

Nemein: "...I don't know basically because we are just in the DBE from our perspectives, more like a network service than a thing like software. So, as long as the software works up to some point of time, we can definitely keep using it, and it doesn't really matter if the…what the real life-cycle is. It would be nice if it is like constantly evolving and doesn't die at the end…but as long as it is…especially if it is open source then if there is any real problem, we definitely need to work from ground, then we can…there is nothing else we can fix. I think that open source just helps the long-standing workability of the software..."

At the same time, the SMEs point to their preferences for the Open Source model of software development, arguing that only this model could sustain the DBE community and make the latter not just part of a project but also part of reality. Here again we could reflect on the experience and insight of Nemein in Finland in making Open Source software workable:

Nemein: "... for the DBE platform...if it is one that is going to live on after the project ends, there are I think little options not to be entirely Open Source …unless there is something like a really big company like IBM or something like that, which is willing to extend behind it for a number of years at least, a bit like, lets say, what Sunny does…they are like heavily committed on maintaining and supporting that platform. But if there is no like…none to stand behind it, like IBM or the EC, then, certainly, I do not think we would like to have that kind of commitment...unless it is open source, I do not see how it could survive."

Gabilos expresses the view that enhancing the business case for using the DBE technology is a very important contractual property in the life-cycle for the DBE software in the medium and long-term support for the DBE vision sustainability:

Gabilos: "…So for example, this technological picture of the DBE is seen as a business advantage. But what they have, they are working with the DBE, they can start knowing or becoming aware of new features and hopefully those features can lead to another business working in this environment. This is a hope we are working on. So we press, we meet with the companies, we have applications they wish to

integrate cause mainly we have to, they have to provide, they have to have applications that provide interaction on different applications or providers to customers and so on. And then the SMEs can use this as a new tool. So we have to be quite an expert in technology and also in business, but technology is also very important. If you don't know your technology, you can't take advantage of it…"

Also this SME is concerned about some of the perceived risk associated with using Open Source, from the point of view of non-developers SMEs:

Barrabes: Well, when I first raise one issue, I mean in every opportunity, what is the advantage of the Open Source? Well, you can touch Open Source, you can read the code inside the DBE. The Open Source is advantageous as in the case that your software provider goes down and disappear you have the possibility to read the code. So this is the case with the DBE, since we probably have an advantage for the DBE. So for example, this is the way of competing with Microsoft and those big software companies because normally small companies want the big companies which have a very important background, cause they know those big companies are not going to crash. So my code is safe and they don't care. So the risk of buying an application for a small company has the result that theoretically this company is likely, has a probability to crash quicker than the big company. So if the code is closed, then I have, my business is in danger, otherwise there is no concern if it is Open Source.

In this sense, the Open Source model of development constitutes the ideal end for the SMEs, as well as the source of a number of question marks and anxieties, which are further analyzed below. This choice is actually influenced by the need to have real business cases that enable the use of the software cycles and platforms. A merge within the SME of views from developers and business people aims is necessary to optimize the software production cycles in the DBE, reducing testing times and accelerating releases.

5.2 Software and Platform Development from a local-implementation perspective

An issue which is broadly underlined by the SMEs was that of the insufficient Open Source character of the project, spotlighting the necessity for further openness and signalling that the DBE has not taken as much advantage of this model as it should. Therefore, the provisional usage of proprietary software until sustainability is ensured could be thought of as a possible solution. However, the emphasis must be on proprietary software as a temporary 'stopgap', and proprietary APIs must still adhere to industry standards. When Nemein was asked about the need to share knowledge and technology in an Open Source environment in the DBE in order to survive and further develop, they said:

Nemein: "...I said previously I am a bit concerned because at the moment the community is not that big around the actual DBE project and many parts of the system are still closed in a sense that we do not have or have seen where it is at the moment or where it is going..."

Related to the issue of openness are technical issues, which constitute barriers to the efforts of development and integration of the available Open Source software. More specifically, one of these issues is that of interfaces, as the current ServENT programming model only allows services with flat procedural interfaces. Nemein

expressed their views in these terms:

Nemein: "...the current execution environment makes it possible to basically build services that are...there are some limits on how you can express concepts, you can't have concepts like these services apart of other services, they are all at the same level and there is some sort of limitation on how to develop with the system. Especially, what I am thinking is that our solution is pretty simple interfaces and it is like what is it to map to these interfaces…but our execution environment features…but those designed decisions that we made for the interfaces were partially affected by the limitations..."

This, in turn, seems to be a huge drawback, as it does not allow the system to scale up given that many existing computer language specifications have supported fully object-oriented APIs for a decade. Additionally, it seems to constitute a key development issue for the SMEs, reflecting an interestingly more locally focused case of concern for Drivers, such as Integratum, in Finland:

Integratum: "...the main problem was the interface that couldn't be able to transfer objects over such flat interface. So, in order to integrate our product with the DBE is really difficult and needs much work to be done".

Their perception was that in those conditions integration was something difficult to achieve. They also are aware that they are not the only ones (at least in Finland) with such concerns.

Closely related to the architecture of the platform and its future evolution is the issue of the lack of dynamic registration of new services which shows to the problematic direction of integrating different software components, as well as to the necessity of adopting a super interface in the ServENT core that allows a service to get full access to the internals of a ServENT instance. Nemein's thoughts on the subject are stated below:

Nemein: "...at the moment you can basically register services when you install them…like…for example, I have this open PSA system here and I would like to install another one and if I do that, it is one step to install the product here, and then I need to go to the execution environment and install services there as well. What I would like to have instead is that when I install instances of the product, it goes automatically to the execution environment and registers the new services automatically. This is like…it shouldn't really be that hard to implement…it is like the implementers didn't have this use case in mind…so it is like an extra feature..."

Another way the Drivers have engaged the trust of the SMEs in the process of platform development has been a gradual strategy of participation. This is the case with Gabilos (the view below is of ITA, the Spanish Regional Catalyst for the region of Aragon summarizing Gabilos' view in this matter):

ITA: "…So they (Gabilos) okay, start working with him, we recommend, we advise you how to use the DBE with your computer application, right. We search the new features that, from the technological point of view, the DBE offers, and then they can be working within DBE. I think it's more like adapting applications, then you can start to think about new possibilities in other parts of your business. So, for example, in this case, the testing to use the software. So okay,

they have to translate the technology, like for example, communication using shared file doesn't require you to know the ID of the hotels, and if they are up or if they are down. So, I mean, we have to translate those technical contents to the business content…"

This strategy has paid good dividends in terms of trust, enabling the SME developers to participate in the DBE vision. While the SMEs do believe in the future business potential of the DBE, at the same time they are severely concerned about issues of software and architecture development, paving the way to further elaboration of the regulatory impact and changes that those issues might bring about in the future[8].

5.3 Implications for the DBE evolution

As an outcome of the above software and development concerns, the SMEs demand more real and technically implemented codes and software integration to be carried out, arguing that so far more paper-work than actual implementation has been achieved. Nemein expressed this view as follows:

Nemein: "...Yeah, yeah, yeah, yeah…more paper-work than real…and that, basically, gives the concern about what happens with the DBE once the project runs out..."

Furthermore, there are serious concerns about the lack of security features in the software so far released and how the long-term possibilities of the project are going to develop. Barrabes sees the DBE this way:

Barrabes: "…going back to the first question, how do I see how things will evolve? You know, I think there's a big long-term project you know. But at the moment I would not recommend [the smes] to get involved. It's alright to do the testing and things like that; and I find it so difficult cause we are finding difficult you know, for example now Oracle has come to us to do their strategy for SMEs in Spain and they've this big...it's so difficult you know to sell solutions because SMEs need a solution, [they] don't care about the model or whatever, they want to go there...it's cheap, it is good, okay, I'll buy it, otherwise I don't care…"

Nonetheless, the SMEs think that there might be some future for the DBE, and they are, therefore, willing to wait to see what takes place in the DBE, before deciding about their future engagement. Integratum for example is still committed to be an essential contributor and participant in the future:

Integratum: "...Why not? Because this is something related to our basic ideas, our company is Open Source and needs to relate to that area if the whole open source world is going to that direction..."

Gabilos expressed concerns about some of the software tools being incomplete or not ready for the SME market. Their main concern is that the SMEs engaged in the use of DBE tools might lose interest in remaining part of the project because the software tools are not properly evolving due to lack of developer's support or premature releases with incomplete software features. These situations are perceived by SMEs as very time consuming and are seen as lack of coordinated efforts and vision on the part

[8] NEMEIN: I think that…such a framework or platform is needed for more…like both within that snowballs and internationally doing collaboration. It is done at the moment but there are quite few barriers for extra work to be done and having some platform like the DBE to capsulate that would probably be a backbone to such business.

of DBE members. To fix some of the software problems faced, the SMEs have spent human resources and time of their own with some success. Whilst at this point in time the project is seen as in a testing phase and the SMEs are therefore eager to do so, expectations are higher when the software is released as a commercial feature, hence SMEs will not be eager to spend excessive resources fixing or troubleshooting software features in the DBE products.

This critical and reflexive viewpoint of the SMEs on software cycles and development serves perfectly the aims of the Task, namely the reflection on issues of both regulatory and technical interest which have a great business impact as well, allowing the Task to bring to the fore a certain number of observations and recommendations for both future research and action.

5.4 Section Summary

From section 5.1, the issue of trying to sustain trust through software cycles and its contractual properties has to be further analysed. Hence:

- For the SMEs, the trust issues associated with the DBE development model are directly linked to Open Source sustainability (either as a model of adoption or governance model).
- For the SMEs, if their role is that of software developers, they share the views of the business SMEs with respect to implementing policies that reduce the perceived commercial and technical risks associated with Open Source models.

From section 5.2, the software and platform development using a local implementation perspective is reflected upon the findings in section 5.1:

- For the SMEs, the local implementation of the DBE vision is a gradual process. This process can be achieved using a small community with diverse interface layers between SMEs developers and SMEs users, as well as the regional drivers.
- For the SMEs, this gradual process is a better way of establishing a meaningful local strategy for adoption and packaging of DBE software and development in the business community.

From section 5.3, the implications of the use of Open Source models for the DBE evolution are pointed by the SMEs as follows:

- For the SMEs, the DBE evolution as a software platform and business community needs to be sustained by working DBE products that can be used on commercial basis.
- For the SMEs, the DBE evolution is being influenced by the lack of DBE products that are workable and not only benched; there is also a lack of full documentation for the DBE software features and releases, and/or a primary source (centralized) from where to obtain this information.
- For the SMEs, the issues being discussed within the DBE consortium about sustainability and governance need to be worked closer to the regional drivers and SMEs to obtain gradual evolution and development for the DBE.

Section 6 below is a discussion of the issues presented in sections 3, 4, and 5 by using the taxonomy and building blocks of trust for analysis.

6.0 Observations and Considerations

6.1 On the current taxonomy

The seven SME drivers interviewed operate in some of the most important areas to be provided by the DBE, such as commerce, content management and accountancy. Within these areas, the most important issue is trust: trust in the systems architecture and the business solutions that provide digital DBE services, trust in institutional arrangements providing knowledge, and trust when doing business between companies.

The SME driver position in a certain business sector determines their more specific concerns in the areas of identity, security, privacy and consumer protection as well as contractual issues specific to the business domain. From the analysis in this document, the issues of local implementation are addressed under the sustainability title in section 6.2.

Defining the common usage scenarios and providing the infrastructure to deal with them establish trust within the DBE members. These usage scenarios are ascertained through discussion with SME users and service software providers, and conventional verbal information gathering, rather than through a statistical model. One observation is that this SME development model is close to the Extreme Programming model, where software is fed back to the users at all stages of the development life-cycle. There is one main difference in the case of the DBE, as the model is open to influence from multiple SME participants rather than a single client, either as developers or business clients.

It is also interesting to note that this approach includes relationships with non-participants, who are also able to participate in the development of the DBE, and who, by having an influence on the design, may have a greater interest in joining. From this perspective, SMEs can contribute significantly to the identification of issues of critical importance for the establishment of trust in the DBE, while commenting on the existing platform structure as well as on the present and future of various software models evaluating, therefore, the future business prospects of the platform.

The table below presents a summary of how building blocks of trust were identified by the SMEs interviewed as relevant to the DBE work; the influence of the domain in which the SME service is focused has been in some cases a strong influence when the SMEs described the relevance of a building block as being part of the DBE. Hence, the table below provides the Task with an overview of the emerging patterns with respect to building blocks of trust in different business domains and localities, paving, thus, the way for the empirical configuration of the Knowledge Base of Regulatory Issues.

Figure 5: ***Building Blocks of Trust and SMEs perceptions***

SMEs	Building Blocks of Trust		
	Privacy and Consumer Protection	**E-signatures and security**	**Jurisdiction and consumer protection**
Nemein (Finland)	Concerns about how to protect privacy in a OS environment	Concerns about applications within the DBE	Concerns related to e-signature uses and the role of legislation
Openscape (UK)	Engagement view associated to privacy	Concerns minimum, as use is currently limited	Differentiates between B2B and B2C practices
Pollard (UK)	Tends towards a proprietary model for privacy	Will prefer centralized model for security	Aware of differences between B2C and B2B practices
Rednet (UK)	Working practices well established but "wait and see" view for DBE	Already using E-signatures in secure environment	Concerns about e-signatures and role of legislation
Integratum (Finland)	Very similar to Nemein since working together in DBE project	Relatively low concern	No practical experience in B2B issues
Barrabes (Spain)	Good compliance with current normative regulations	Level of expertise is very low due to lack of practical experience in e-signature	Advance awareness of issues that concern B2B and B2C practices
Gabilos (Spain)	Relies on trust model for Open Source model	No major concerns but also no experience with e-signatures	Similar to Barrabes

6.2 Other issues

In addition to the known categories described in the taxonomy with respect to the SMEs perspective of building blocks of trust, three main issues not covered in the scope of WP32 were further identified as relevant by the SMEs: DBE Sustainability, DBE Governance and DBE Legal Constituency.

DBE Sustainability

More specifically, SMEs tend to prefer the Open Source model, but there are issues regarding the sustainability of the project after the funding (provided in part by large corporations, who have their own interests) runs out. After the Annual General Meeting in Tampere (January 2006), it has been clear for the whole consortium that a short, medium and long-term sustainability strategy is necessary to be defined for the DBE. In this three-stage plan, it is necessary to differentiate between technical sustainability and business sustainability of the DBE vision. This is echoed by the SMEs' concerns as seen in the content of this document.

Unless sufficient SME SW Service Providers, who make up the infrastructure, can be

brought into the DBE, SME users will not have the infrastructure or resources required to foster trust in the DBE as a legal entity. Hence, business analysts who have a brokering function between the two can prove a catalytic factor for the engagement of a far broader SME service provider community with the DBE.

The DBE sustainability is intrinsically linked to the other two issues mentioned in this section as DBE governance and DBE Legal constituency. The choice between Open Source community development model and proprietary model in these last two issues will determine the feasibility of any sustainability plan to be run in the future.

DBE Governance

The OS community addresses issues of legislation with respect to the ways in which the DBE could deal with the protection and mutual development of the platform, while it brings to the fore the question 'proprietary until the project is sustainable?' Sustainability is presented as fairly problematic with respect to the existing interfaces/services model, whilst the open character of the project is so far severely disputed, bringing to the fore issues of intellectual property and middleware ownership. These issues entail in turn a huge impact on governance with respect to both external and internal DBE relationships among participants.

A way to look at this issue is to look at proposals coming from within the FS/OS community, where the technical development model[9] used is somehow mirrored in the Governance Model. This, being an innovative approach not successfully tested, provides very challenging fields for discussion of how governance will be managed within the DBE.

There is room for an intermediate stage of evolution in the DBE governance process, as indicated by the SMEs during interviews: This intermediate stage could be one in which a FS/OS Governance model is not the primary idea put in place, instead a number of major players (E.g. Sun, IBM, Soluta, etc) could take control in turn and for certain periods of time of the DBE governance board might help to achieve the short and medium objectives of sustainability in the project.

However, the aim of DBE vision is to adhere to its FS/OS ethos and to develop highly innovative governance channels, which reflect upon the FS/OS community development models.

DBE Legal Constituency

This brings us to the point where scalability increasingly matters as relationships in the DBE grow, posing the question of what the future of the DBE as a legal entity will be. At this point, concerns regarding e-signatures under national legislation and variations in legislature between countries, identification and security, consumer protection and contractual issues (incompatible contracts between countries and in different business domains) are all concerns of major importance which call for a rather thorough overview of the current regulatory dilemmas within the DBE, while raising the necessity of legal experts participating in the DBE after the project is finished.

[9] Van Wendel De Joode Ruben, De Brujin J. A., vab Eeten Michel J.G., 2003, *Protecting the Virtual Commons: Self-organising Open Source and Free Software Communities*, Cambridge University Press

During the last stages of this research Task B11 was able to access the specialized support from DBE partners such as the University of Zaragoza, and looked to alterative ways to create a DBE legal constituency such as the following four major legal constituency forms:

- Collective Society: this is a legal model in which all DBE members might have the same level of responsibility for the society actions.
- Common Collective society: this is a legal model in which some DBE member might have a higher level of responsibility for the society actions than others (higher or common members)
- Anonymous society: this a legal model in which DBE members establish their level of responsibility for the society based on their economic contributions
- Society of limited responsibility: this is a legal model in which DBE members establish their level of responsibility for the society based on both their economic contributions and designated level of responsibility (higher or common members)

Each of these needs to be explored and perhaps modified to accommodate the principles of the governance model, taking into account the national and EU legislation of all DBE members

In the next section, the document will present the future research and preliminary recommendations that can be concluded from the work completed, as well as the input provided to other workpackages in the project.

7.0 Further research and preliminary recommendations

7.1 Future research based on taxonomy model

Based on the observations from the fieldwork, the taxonomy model developed in D32.2 can be subject to a preliminary evaluation and modification of the usage scenarios presented.

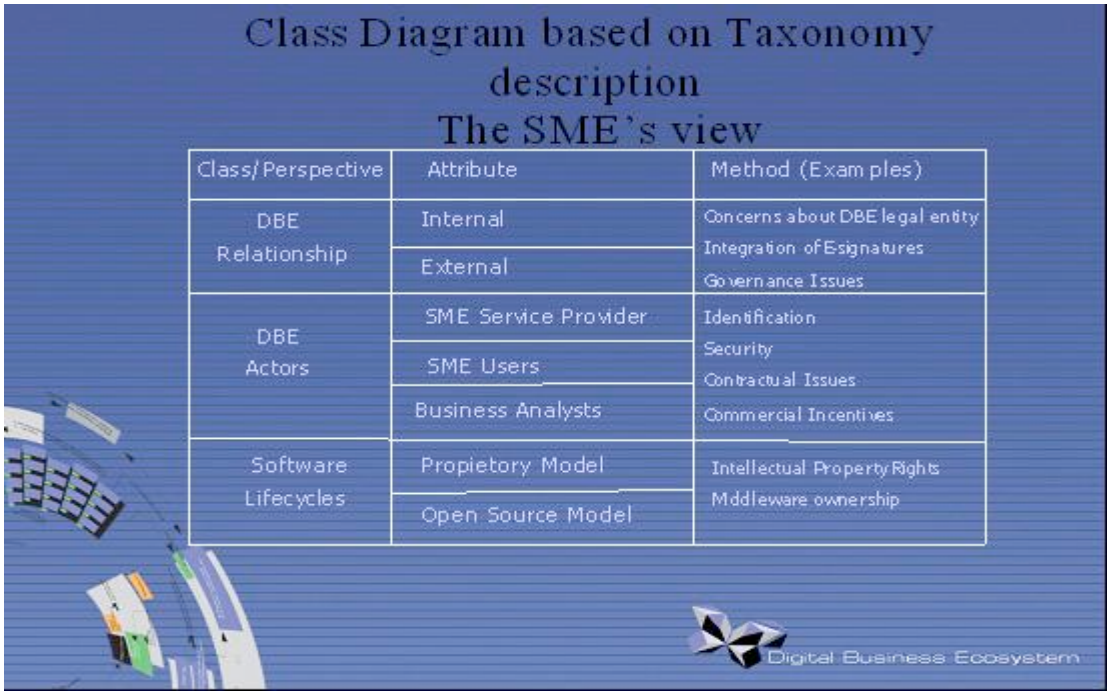
The taxonomy from D32.2 presents to the SMEs a theoretical framework, in which their views pose the question of the commercial viability of the DBE, whereas Business Analysts seem to need a supervisory authority to accept OS contributions. An authority which would solve a number of the above regulatory dilemmas has also been proposed by the interviewees, as well as by DBE partners such as ISUFI in M32.1-"A structural BML model for the Knowledge Base" document, where the proposal is for the bottom layer of the Regulatory Framework to consist of users such as lawyer SMEs – legal expert users – and government bodies.

The SMEs' views in this document seem to converge towards the ISUFI direction, as the official undertaking of the above issues from legal experts could protect both the business and technical potential of the DBE platform, making the goal of sustainability and trust far more feasible in the future.

The class diagram from D32.2 has been updated with some of the methods that can be used to represent the SMEs' views. In figure 6 we see a partial view of these changes, where new methods are shown together with those provided in D32.2 (column 3) to give an overall picture of the way in which the SMEs' view confirms and updates the

perspectives (column 1) and the attributes of those perspectives (column 2) of the D32.2 taxonomy model.

Figure 6: ***Class Diagram based on taxonomy description: the SME view***



Hence, any future modelling of Digital Business Ecosystems can draw on this and other similar usage scenarios and structural approaches that can then be integrated in higher-order models, as ISUFI did in C-46, the Knowledge Base model of the Regulatory Framework, in their first preliminary report. Taking into account the fact that the work so far completed only takes into consideration the building blocks of trust, we foresee future research in which this model can be extended to other blocks, and be integrated in modular form depending upon domains and business sectors.

7.2 Critical issues for DBE sustainability

This document has also identified three critical issues from potential B2B practices that can affect the Digital Business Ecosystem's future development, as expressed by the SMEs in the interviews completed.

- The first and most important unresolved question is the issue of what is the legal constituency of the DBE either under European, national or local law, as well as the role the business domain has in the adoption of this legal form in the standard everyday B2B practices within the DBE. Without a clear definition of this legal constituency, SMEs' engagement will be affected.
- The second issue is the link between legal constituency and governance of the DBE and how to provide for a parallel process of development.
- The third issue is the convergence between business and research aims when choosing a model. The area between proprietary and Open Source models is an interesting research field, but businesses do express a clear need to obtain tangible gains from the project. Hence B2B governance is also a very important issue to be researched and addressed in due course, as it intrinsically

affects the sustainability and future development of the project.

7.3 Recommendations and further work with other DBE workpackages

Task B11 is directly associated in its outputs with C52, Contracts and Agreements and C46, Knowledge Base model of the Regulatory Framework. Working together it has been possible for Task B11 to provide input and receive feedback on the research work done by these other two tasks. At the end of the DBE project (EU funding) a final deliverable including the whole of the work package will be submitted summarizing the main research goals gained in the 3 years of work.

In the case of C46, ISUFI has been able to provide a high-order model of the taxonomy using BML that could in future be used in conjunction with software annotated tools to create electronic libraries of trust issues based on domain or sector, which then can be populated by the future DBE members. This model is still under development and will in future be subject to influences from the overall DBE research work. The modelling of the taxonomy to computational models has had great significance in emerging socio-technical and computational research within EU research partners.

In the case of C52, WIT has highlighted the need to develop a library of contracts that can be used to fill the meta-model being developed by C46. Working with a new partner, the University of Zaragoza, discussions were instigated with a view to putting this plan into action, while the task aims through the B11 research work have been to foster the process of putting this plan into action.

By the time the interviews in this document were completed, C52 WIT found that the region used as the Case Study (Aragon) is not using e-signatures, or their use is minimal. Hence, WIT's work is now addressing the lack of use of this technology feature as a preliminary step to use e-contracts software. This is an example of how the Knowledge Base of Regulatory Issues is being used to identify important or relevant areas in which SMEs have or might have to comply to EU, national or regional regulatory frameworks.

Finally, the business workpackages at the core of the DBE have also used some of the findings from the literature review D32.1 to expand their own business models being presented to Drivers and new DBE partners in the consortium. Extending this impact, the business workpackages could take further advantage of the business-related empirical findings and SMEs' views on the business potential of the DBE, as these have been expressed in this document.

Appendices

1. Interview Topic Guide

A. Background questions: company profile and current business situation*

- Core business activities

- History of activities in a digital collaborative environment
- Current opportunities and challenges that the company is facing
- Business collaboration across Europe: levels, sorts of collaborative activities and regions where collaboration takes place

B. Regulatory concerns and legal issues raised by theory

- Privacy & Consumer protection at the level of Tryst types X, Y & Z, and across varying Operational Perspectives (within diverse DBE relationships, for different DBE actors and with different software life cycles)
- E-signatures & authentication at the level of Tryst types X, Y & Z, and across varying Operational Perspectives (within diverse DBE relationships, for different DBE actors and with different software life cycles)
- Jurisdiction & consumer protection at the level of Tryst types X, Y & Z, and across varying Operational Perspectives (within diverse DBE relationships, for different DBE actors and with different software life cycles)

C. Regulatory concerns and legal issues raised by current business practices

Open discussion where other legal issues might be raised by the interviewees, such as **business competition, conduct and liability rules**, **intellectual Property vs. freedom of knowledge**, **confidentiality/sharing of information**, **copyright**, **exploitation rights**, **digital right management**, etc.

D. Underlying factors influencing Drivers' concerns

- What are the main factors affecting the company in the way it deals with the above regulatory issues?
- What is the role that the particular business sector plays in this respect?
- Whether and the extent to which the local factor affects accordingly?

E. Challenges for the DBE

- How do the interviewees anticipate that the DBE might deal with the above regulatory concerns?
- Proposals, suggestions and further remarks from the interviewees regarding the regulatory provisions of the DBE

2. SMEs in the DBE

West Midlands	DBE Companies June 2005		
Domain Solutions (Driver)	Rob Ainsworth; David Pinfold	SOA Design	http://www.ooagenerator.com/services.htm
Hyfinity Ltd. (Driver)	Steve Bailey	Integration and software development	http://www.hyfinity.com/
Redenet (Driver)	David Evans	Asbestos waste management system	http://www.redenet.org.uk/
Meier Pollard (Driver)	Paul Meier	Online accounting and e-commerce	http://www.meierpollard.co.uk/cgihttp://www.meierpollard.co.uk/cgi

			bin/WebObjects/MPMall.woa/wa/viewClientHomePage?site=17
Openscape (Driver)	Ibrahim Khatib	Web design and consultancy	www.Openscape.co.uk
Intelligent Commerce Enterprise (Driver)	Simon Neill (also Moor Lane); John Andrews	E-Commerce	
Aragon			
Barrabes (Driver)		Consultancy and e-commerce in tourist sector	http://www.barrabes.biz/
Gabilos SW (Driver)		Management software in tourist sector	http://www.gabilos.com
EON (Driver)	Angel Miranda (Business Partner)	Travel agency middleware	www.eon.es
DBS (Driver)	Vicente Ferrer Castelar (Director General) Teresa Porta Royo	Travel agency middleware	www.dbs.es
Finland			
Joinex (Driver)	Jukka Harkki	Java-based enterprise information systems integration	http://joinex.com
Nomovok (Driver)		Java-based enterprise information systems integration	www.nomovok.com
Annilinker	Antti Kari (company manager); Lauri Holtta (technical manager)	Java-based enterprise information systems integration	www.anilinker.com
Gofore (Driver)	Perteri Venola	Java-based enterprise information systems integration	www.gofore.com
Nemein (Driver)	Eero af Heurlin; Jukka Zitting; Heri Bergius; Eero af Heurlin	Java-based enterprise information systems integration	www.nemein.com
Integratum (Driver)	Risto Vuori and N.N	Java-based enterprise information systems integration	www.integratum.fi/
MediaMaisteri	Timo Valiharju (CEO)	Partner developing knowledge platform	www.mediamaiteri.com

3. Company Profile

A. Meier Pollard Limited

Meier Pollard was set up in 2000 to design and build an online application to meet the needs of SMEs wanting to do business online, or publish online. The application is called Inrax. Meier Pollard is privately financed by its directors, who have wide commercial experience and run several online businesses themselves.

Based on their experience the key design objectives for Inrax, which have been met in

full, were as follows: - Deliver a sophisticated multi user application online, so the customer does not need to install complex technology;

- Deliver a full user interface, rather than work through a web browser. This is achieved with Java user interface which provides a richer experience than a browser. It is self updating, so no need to manage upgrades.
- Be cross platform. As a Java app Inrax runs on PCs, Macs, Linux and Unix.
- Provide ecommerce and the back office fulfillment and accounting as a single integrated package. This is normally a feature of high end packages, rather than the usual web stores affordable by SMEs.
- Provide content management to allow the efficient production of web sites and deal with content beyond that required immediately to sell stock. Inrax can be used for general online publishing.
- Charge for the service at a rate which reflects the use of system resources rather than limit the number of users by charging per seat.
- And making sure SMEs and non profit organizations really can afford to use Inrax.
- In addition Pollard can help businesses implement Inrax or train and help their consultants or designers to do it for them.

More information on the company and its core business activities can be found at: http://www.meierpollard.co.uk

B. Openscape

Openscape specialises in providing affordable and well thought out IT solutions for all sectors of businesses and organisations. The Openscape team boasts many years of accumulated experience in delivering web sites, web based business-to-to business solutions and database solutions designed specifically to meet the clients' needs.

Openscape are specialists in using the Plone Content Management System to deliver Web Sites, Intranets, Extranets and Portal solutions as well as a tool for collaborative working across multiple sites.

More information on the company and its core business activities can be found at: http://www.openscape.co.uk/

C. Redenet

Redenet provides Asbestos waste management system through the CORE asbestos management system. CORE not only allows the recording of all asbestos survey data, but does so ensuring, exact precision on the location of asbestos; the asbestos containing material; the structure (fire door, window suffitt, etc); condition; etc.

CORE also maintains full details appertaining to properties, allowing the exact mapping of the most complex of sites. CORE calculates the risk scores based on the MDHS100 algorithms. CORE allows the recording and monitoring of any action required arising from the survey; e.g. labelling, removal, etc.

CORE also allows the attaching of photographs and the interfacing to CAD drawings.

AutoCAD drawings can be colour coded based on risk scores and asbestos type; and exact position of selected inspection points can be zoomed to. Likewise the inspection point on the drawing can be selected the relevant details displayed. So it is quick, easy and accurate method of finding and assimilating relevant data.

CORE can produce many report variants from full inspection reports to tasks required. Selected data can also be exported in various formats. The system also retains a full data entry audit, which is an invaluable tool when substantiating compliance, and data quality troubleshooting. The system retains a complete history of all data allowing the viewing of data appertaining to any time in the past.

The survey data can either be entered via the Pc based system or via a PDA. Both work based on the same criteria and rules. Each time the PDA is linked to the Pc via a supplied cradle the two systems are synchronized ensuring rule sets are consistent, and the data entered on the PDA is imported on the Pc. The system also has a full project planning and costing function to manage the tasks arising from the surveys.

More information on the company and its core business activities can be found at: http://www.redenet.org.uk/

D. Nemein

Nemein is a Finnish consultancy producing Open Source-based information management solutions. Nemein's solutions enable organizations to improve their web, sales, marketing, project and customer service operations. Nemein's clients include Anttila, Biotie, BNL, Euore RSCG, Helsinki Business Polytechnic, Datex-Ohmeda, Luottokunta, Oplayo and Sentera.

Nemein is an innovative software company operating globally. Since 2001 Nemein has specialized in web business applications and solutions that are based on the Open Source Midgard application server. By using the Midgard environment it is able to provide tomorrow's solutions today and create a functional and manageable business application environment.

High-quality Nemein products can be adapted in order to meet customer demands, and they are well suited to wide range of user environments in various situations. Nemein's mission is to become the leader in selected market segments in professional services automation

Nemein's connections with the international Open Source community provide the company with ability to deliver and support solutions efficiently worldwide

The aspects of Nemein include:

- Faster time-to market
- Cost-efficient solutions
- Professional consultants
- Fast and consistent deliveries
- Easy-to-use products
- Reliable Open Source architecture

More information on the company and its core business activities can be found at:

http://www.meierpollard.co.uk/

E. Integratum

Integratum is a Finnish consultancy producing Open Source-based information management solutions and software integration. Its costumers are software companies and its key aims focus on building project management that corresponds to managing all types of Open Source.

More information on the company and its core business activities can be found at: www.integratum.fi (in Finnish)

F. Barrabes Business Solutions

Barrabes.com is one of Spain's pioneers in the e-commerce industry, which has taken its mountain-climbing equipment store from a small village in the Pyrenees Mountains to a worldwide online store, which has penetrated such strong markets as the United States, Britain and Scandinavia. Five years ago, overwhelmed by questions from European SMEs, Barrabes launched their own consulting firm, dedicated to help Spanish companies develop their businesses around the world One of the main areas of expertise, due to our location, is the tourism industry. Barrabes has acted as a communication link between IT developers and tourism businesses.

Barrabes Group Webs

- **www.barrabes.biz** − site to the consultancy area
- **www.barrabes.com** − site of the online store and news
- **www.munodgps.com** − site/online store dedicated to the GPS technology
- **www.barrabeseditorial.com** − site/online bookstore of our publisher

The DBE Project

Barrabes wishes to collaborate in the DBE project because of our experience & our background perfectly fit into the purpose of the project. During the past five years, we have been promoting the use of Information Technology (IT) in the SMB. Our goal is to have the SMB realize the advantages of IT and to integrate them in their business process.

Barrabes experience in integrating IT into our own business process has allowed us to obtain a high degree of knowledge in the Information society, which allowed us to gain competitive advantage and greater business yields. That is why Barrabes has become the leading example nationally and internationally when speaking on the advantages that IT has to offer in SMEs.

Barrabes uses its own success model to show other SMEs that want to follow in our footsteps, how technology can be used for each specific business need, how technology can be used to become more productive and efficient, while at the same time accessing new markets, thus achieving a greater competitive advantage.

Additionally, Barrabes has worked with public administrations in establishing and developing public projects to promote information technologies in the SMB, acting as the intermediary of information between the recipient of the actions and the administration

Through our participation in private, public and regional programs of promotion and development of IT in the SMB, Barrabes has coordinated the tasks of giant multinationals with large hierarchies. This has been done without loosing our character or integrity as a SMB.

G. Gabilos Software S.L.

Gabilos Software S.L. originates from an advising company with 20 years of experience in the market. Gabilos is placed in Sabinigo, next to The Pyrenees of Huesca. Sabinigo is a town with businesses, industries and in general, it is a centre of services of the called region Comarca del Alto Gallego.

It applies and uses the meaning of our name Gabilos (spirit, energies to start a new business) to our mean target: the development of management software programs.

Nowadays, some businesses and professionals of diverse sectors (hotel business and tourism, construction, diet, transport, advising and so on,) are working with its products. The permanent contact with its clients has allowed it to know deeply their needs. It means that Gabilos did adapted products, completely, to the specific market.

Gabilos has carried out diverse programs that cover the management of the SMEs: management of rural tourism, management of hotels, accounting, turnover, payrolls, boards of repayment, accounting general plan...

Besides, the software products are always supported by a specialized service of client attention in accounting, taxes, labour, completely different to the remainder of software suppliers, based on our knowledge in business theme.

The user feels the support of a team of professionals that besides helping him in everything that need, it does participant with their proposals, with the only target of achieving a better adaptation and innovation with new services. Gabilos is always incorporating improvements and new product lines that contribute total security and confidence to users.

Among the programs of management that Gabilos Software has developed, it is a Rural Tourism Management product and another of Management of Hotels, already established in numerous clients.

Those software products would be able to be adapted by means of an interface for the exchange of data among the program of Gabilos and the DBE of the European project.

4. Taxonomy: Knowledge Base of Regulatory Issues

***Trust types:**

- Tryst X (service and technological solutions; business activities; knowledge)
- Trust Y (service and technological solutions; business activities; knowledge)
- Tryst Z (service and technological solutions; business activities; knowledge)

***Building blocks:**

- Privacy and consumer protection: jurisdiction, standards, third party countries, reputation, compliance with data protection legislation, unauthorized disclosure, traceability or record keeping
- E-signatures and security: authentication, invoicing and payments systems, certification authorities, validity of contracts, encryption technologies, electronic storage, notification when using e-invoices, compatibility of payment systems
- Jurisdiction and consumer protection: cross-border online contracting, legal recognition of electronic contracts, legal validity of B2B contracts, jurisdiction, information requirements for online contracts, verification of orders, notification of receipt, SME education and awareness, dispute resolution

***Operational perspectives**:

DBE relationship:

- Internal (e.g. DBE legal identity and applicable rules within DBE, legal challenges associated with the envisioned self-organising processes in software creation, issues arising from governance arrangements, issues related to transactions within the DBE, copyright questions, security and data exchange in the DBE, identify of DBE members)
- External (e.g. issues related to external regulations applicable to e-business activities, such as tax rules, consumer and data protection regulations, contract and competition law provisions)
- Both (e.g. issues related to internal data handling processes will be limited by externally existing regulations)

DBE actors:

- SME Service Providers;
- SME Users;
- Business Analysts

***Software Lifecycle*:**

- RAD;
- ISP;
- XP;
- Open Source