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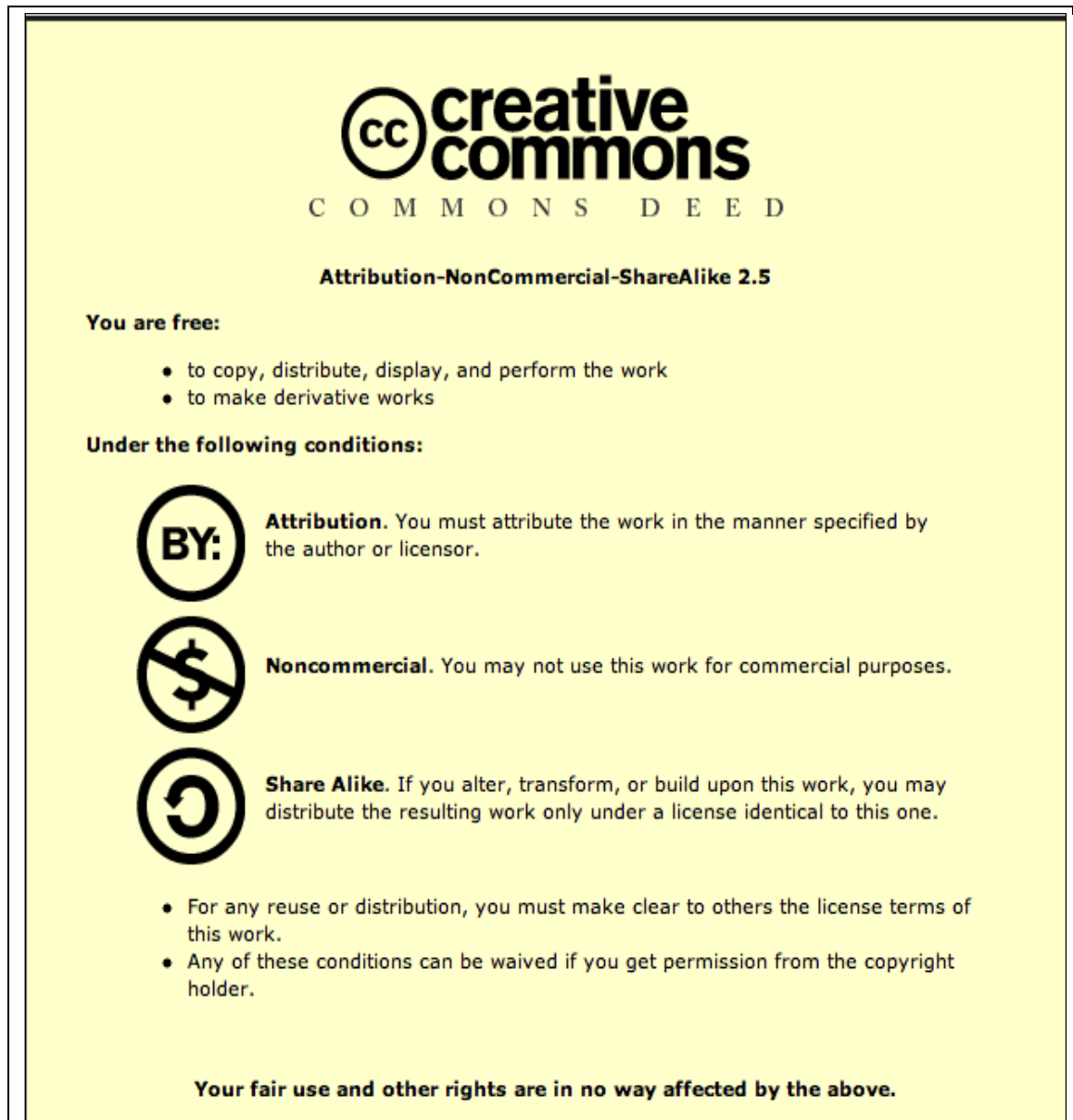
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Introduction

The primary aims of this activity were to:

- Clarify issues and positions on DBE sustainability and governance models and approaches;
- Overcome lack of response to online forum;
- Resolve apparently conflicting views.

With reference to second point, this activity has to be taken into consideration together with the online consultation process lead by LSE researchers starting in February 2005 (<http://www.digital-ecosystem.org/Forums/WhoWeAre> and <http://www.digital-ecosystem.org/Forums/dbesustainability>). The activity's aim, in both threads, was to allow ecosystem stakeholders to identify themselves using the 'who we are thread' and taking part in open discussions on the 'sustainability thread'. The introduction of these threads was supported by project-wide e-mails and through discussion at domain meetings, but the participation was not as high as expected. The lack of responses received proves that an open dialogue on those issues were difficult. A supplementary approach, based on face-to-face interviews with different stakeholders took place too. Particularly SME and computer partners have been interviewed on sustainability issues.

Social science research helped computer partners in opening up a debate about sustainability; at the end of the discussion a paper has been drawn and discussed in a dedicated meeting. Some fundamental decisions were taken, beside others inputs, it was agreed that all contributions to the coding effort should be voluntarily made, we'll see that this possibility is also presented in the Delphi survey output. As Mary Darkling (LSE) pointed out "It was also agreed that an organisational structure for the developer group should be put in place that could exist regardless of the project structure. To this end, it was decided that 2 leadership roles were needed: a synchroniser for the execution environment; and a synchroniser for the development environment. These decisions were recorded as meeting notes that were circulated among developers. As a result of this, a nominations process by which a developer was nominated to each synchronise role respectively for a trial period of 2 months" (see Del.32.7).

In a business domain meeting held in Berlin at the end of November 2006, the idea to approach the sustainability issue one more time before the project end, and the possibility to use the Delphi methodology to do this, emerged. This methodology has been seen as a possible solution to the problems emerged in the public consultation process; Delphi method, in fact, thanks to its multiple iteration helps in achieving a consensus in an "at-a-distant" setting. People are enabled to express their view publicly, in total anonymity; at the same time everyone can see other opinions but without being influenced by personal characteristics. As we'll better describe in the next paragraph, Delphi is a useful method when we have strong separation in a group or a not so high level of trust among stakeholders.

This report wishes to support the sustainability deliverable and more generally the discussion on the DBE future. Unfortunately the time shortage (the activity started only two months before the project end) impacts on the participation intensity. The first phase shows the participation of 64 people, an extremely positive level of partaking in fact, but the second phase has been less participated (23 answers). For this reason we report here both the outputs on the first and the second phase, when normally using Delphi technique means to focus only on the final outputs. The research process will be described more in details in the following page, here is important to introduce the issue only in order to explain the report structure. A first section is dedicated to the methodology used and the process developed, the second one accounts the first phase's output using a qualitative approach by describing the answers gathered question by question. The third chapter describes the second phase outputs in the form of the DBE future scenario developed by participants.

1. Methodological frame

1.1. *The Delphi technique*

This technique aims to develop consensus about future scenarios when there is little or no hard data available to support forecasting. It is a well-established technique with many variations in its structure and application. Common implementations work by asking questions of a panel of invited experts and have a natural tendency towards consensus after a few iterations, through a process of iteration in which the experts see each other unascrivable (i.e. anonymous) views.

The anonymity of published contributions during the process removes the influencing effects such as personality, status, or allegiances, particularly with regard to politically or emotionally charged subjects. At the same time, the contributing authors are known to the facilitator and are recorded, so the process of conducting the study is both transparent and auditable.

While a consensus of expert opinion and forecasts is not necessarily accurate, especially in the field of technology where unexpected or disruptive elements can create dramatic effects, it represents a good option to discuss the DBE's future basing it on the knowledge and views of different stakeholders.

Even in situations when it's impossible to achieve consensus (as in polarized communities), the Delphi method has been shown to be extremely helpful in structuring and clarifying competing arguments into a coherent view, even if that view contains unresolved elements that are incompatible.

1.2. *Delphi technique adapted for DBE*

Our implementation of Delphi aimed at reaching a consensus among different issues related to DBE sustainability and governance. It was opened to a wide spectrum of people and not only to a restricted number of experts, and this is the main difference from the traditional Delphi technique.

We invited not only all the project partners on a personal basis (not as representatives of the organization they are engaged with) and also all people (about 270) that signed up to the DBE official website (www.digital-ecosystem.org). We interpreted, in fact, the signing up to the website as a sign of interest for the projects and a 'proof' of the project related concepts and characteristics' knowledge. (It's important to consider that, for instance, in order to download DBE component is necessary to sign up to the website, this is, in fact, not only a communication tool but also a community building instrument through which not only researchers but also SMEs and software developers can access to DBE services and modules).

In view of the divergent opinions and the need for transparency and fairness, respondents' answers have been kept strictly anonymous and all contributions included have been modified in order to make impossible to identify the contributors. 64 people answered the first questionnaire (see appendix A), we used their answers to build the second questionnaire.

Within reason, all the expressed opinions have been used in drafting the second questionnaire, in other words we simply break up the answers and transform in into interrogative form. The following phase has been the aggregation of the sentences in specific themes. After creating the second opinion poll, this has been put before the participants. This time not asking wide answers, but simple answers of agreement or disagreement.

With regards to results presentation, the outputs of the first round are presented in a discursive and interpretative form, while the second round outputs are presented strictly following the Delphi technique. This require to report, without verbatim modification, all the sentences on which an agreement emerged. paragraph 2.2, consequently, may appear poor written but only because the research aim is to report the participants opinion exactly in the way it emerged. In this way, the reader is stimulated to become an interpreter and, having direct access to the research outputs, may put forwards his own interpretation.

1.3. *The process*

1. A small number of key DBE actors (mainly from the PMEB and Business Domain) were involved in the question selection and in the drafting of the first questionnaire.
2. A list of possible participants was drafted; also in this phase the support of DBE key actors have been encouraged. A list of about 270 people has been delineated; they were all invited and actively encouraged to participate in the survey through email and direct telephone call.
3. A first on line survey round was held, it length 16 days.
4. A second survey round was launched. The questions of this second questionnaire come directly from the answers gathered in the first survey. Due to the impressive participation we got in the first survey phase, the second questionnaire became very complex and demanding (with around 900 items). We decided to avoid an arbitrary selection of the items gathered in the first round, even if we're aware that this choice could disincentive the participation to the second part of the activity.
5. In order to facilitate the participation in the second round the system was modified in order to allow participants to fill the questionnaire in more than one session by saving their answers from time to time. With the same purpose, the deadline has been postponed twice and support in term of communication and technical assistance have been increased.
6. The data elaboration took the following form: all the items on which more then 75% of participants expressed their agreement have been interpreted as statements about the DBE's future. Correspondingly all the items on which more then 75% of the interviewed showed their disagreement have been interpreted as not possible/not desirable future scenarios. The statements on which the community reach a consensus are here reported in chapter number 3.
7. Due to the low level of participation we got to the survey's second round we decided to rework the outputs of the first round in order to map all the different opinions arose, this interpretation is reported here in chapter number 2.

1.4. Classification of respondent

The below tables, show the typology of respondents in term of main occupation and different ambit of DBE project participation. These data are related to people who took part to the first survey phase. The participants to the second survey phase represent a non-statistical sub-group of this first sample.

Tab.1 Respondent classification

Respondent classification	Percentage
Software developer	10.7%
Software consultant/engineer	17.9%
End user of applications - Micro organisation (<5 people)	2.8%
End user of applications - Small organisation (<50 people)	2.8%
End user of applications - Medium organisation (<250 people)	3.8%
End user of applications - Large organisation (>250 people)	1.8%
Industry association (e.g. IT association)	1.8%
Regional economic agency	6.2%
Economic policy-maker	3.5%
Open Source supporter	12.5%
Other software community supporter	2.7%
ICT standards specialist	1.8%
Researcher in ICT	14.3%
Researcher in economics	3.5%
Researcher in social science	8.9%
Other Researcher	5.3%
Total Answers	61
<i>Percentages sum differs form 100% because more then one choice was possible</i>	

Source: Censis, 2007

As evident from table n°2 the majority of respondents are from the Business Domain, which include the regional catalysts.

Tab 2. Participants distribution for Project Domain

Project Domain	Percentage
Science domain partner	16.67%
Computing domain partner	33.33%
Business domain partner	50,00%
Total Answers	30
<i>Percentages sum differs form 100% because more then one choice was possible</i>	

Source: Censis, 2007

1.5. *The survey technical aspect*

UCCASS system (www.bigredsparl.com/survey.html) has been chosen as platform for the online survey. UCASS is based on PHP language and use MySQL as backend server. It's released under GNU/GPL licence.

This system showed to fit perfectly with the survey design and the necessity of flexibility that the Delphi technique implies. The platform assures the full anonymity of the participants and the impossibility to associate answers to respondents.

By the way it has been modified in order to improve its functionality coherently with research necessities. Main modification has been:

- possibility to import contact details through comma separated values;
- advanced management of communication with participants: automated way to send invitation, recall, info and so on;
- possibility to export data in different formats and in a personalised way.

In the start up phase difficulties emerged for participants to receive message and invitation. The problem was due mainly to anti-spam filter strictness and specific configuration of mail servers (the problem, in fact, impact only to private server and not to commercial servers as Gmail, Hotmail, Yahoo, etc). The problem caused a delay of only one day thank to the prompt replay of the platform responsible, by changing the server and the senders addresses.

2. Findings

2.1. Survey first phase – Identification of different positions/options

As we have mentioned in the methodology description paragraph, following standard Delphi technique means to take in consideration only the outputs of the last process phase, i.e. to focus the attention on those opinions upon which there's a clear agreement. Due to the specificity of the DBE project and its complexity in terms of sustainability and governance, we think it's important to consider also the outputs of the first phase of survey. We're going to use the answer gathered in the first phase in mapping all different opinions emerged on different issues. By the way it's important to highlight that this mapping exercise corresponds to the work done in constructing the second questionnaire. The second questionnaire, in fact, is only the translation in question form of the answers got for the first survey. Reading the second questionnaire, in other words, means to read the first survey results, here reported in order to explicit better all the process phases.

Main terms under discussion are:

- DBE success;
- DBE technical assets and infrastructure maintenance.

2.1.1. Imagining the DBE success

Most believe that the Digital Ecosystem concept will succeed, its innovativeness in the field of ICT and also in the field of local innovation is widely recognised. If the DBE concept is seen as thriving at the same time many stress that it needs further development. What is needed for achieving the success, i.e. how to develop it further and how the success will look are considerations on which opinions dissent.

When invited to imagine the DBE success, participants focused their attention on different possibilities, often not self-excluding. Those differences indicate different perceptions of what the core of DBE can be.

For the majority, the success of DBE looks like the adoption of DBE by SMEs worldwide, the creation of several independent but interlinked communities, which will develop and adopt their instruments and theoretical approach.

For others, the focus is mainly on the technological aspect of DBE, in this case a strong attention to the Open Source character of the DBE platform emerges. A synthetic sentence for describing this option could be: *"long-term success will be the capacity to involve the open source communities in the development of the platform, this development will have a clear support by the users"*.

The role SMEs and policy makers can have in the DBE success offers two more visions, correspondingly:

"Long-term success will be indicated by the existence of a number of SMEs communities regularly using the DBE to further their business and that will improve their business by using the DBE infrastructure, this also thanks to SW SMEs developing services over the platform".

"The public sector will have an important role to play in promoting and supporting DBE deployments in specific territorial contexts, as feedback regional policy makers can use DBE to help developing their regions".

In this way we have four main ideas of what the DBE can be, focusing respectively on its socio-relational/territorial dimension, on its technological innovativeness and Open Source Nature, on SMEs centrality and on regional development. On the last dimension the possibility for DBE to have an equalisation effect in developing territories was also mentioned.

With reference to timeframe in which the success can be achieved, different visions arose. Timeframe goes from 1-2 year up to 15-20, but the majority is concentrated on the 3 to 5 years' option.

One question pointed out the geographical dimension of the DBE, we asked where the success was more probable. The adaptability of DBE clearly arose, respondent seems to see possible both

a full implementation in European country as well in developing, non-European countries. Of course this vision was not unanimous, as a strong opinion emerged that less developed countries have more to gain from DBE, seen here as part of wider ICT adoption. The term 'leapfrogging' arose more than once. Some emphatic sentences about the possibility that developing countries will adopt DBE more quickly and effectively are present, but also opposite views come into play. For some respondents European SMEs are more ready to use the DBE. Key verbatim responses on this issue, that can synthesize different options, are the following:

"I think that the issue is not perhaps how developed areas are rather how fast they are developing and if (???) they are early adopters".

Adoption can be faster in less developed countries where no legal system exist"

"Less developed countries and regions could be placed at a disadvantage in facing such [digital knowledge economy] competition".

Requirements for achieving success

Many respondents see the Open Source character of DBE as a *conditio sine qua non* for its success; they explicitly mention the necessity to assure that there will no be central point of control both at technological and at governance level. The engagement of the Open Source community is also mentioned together with the recognition of the regional dimension centrality. With reference to the local dimension, other requirements are the engagement of new regions, more intermediate actors (SMEs associations, Chamber of Commerce, etc.).

In order to sustain the SMEs uptake of the DBE solution, an improvement in its stability and robustness is recommended, to support the need to multiply the services available on the platform, its simplicity for SMEs users and a valid support mechanism.

2.1.2. Technical maintenance

When dealing with the DBE technical assets and infrastructure maintenance different visions become clear. Those opposite visions can be draw in the following way:

- The Open Source community can maintain it
- Licensing and commercial models can be an option (in particular a model where the core technology is centrally licensed and supported commercially while an open source version is free)
- An extended Public Administration network can sustain it (i.e. University and local/regional Chambers of Commerce, development agencies, employers Associations and similar)
- DBE partners and other DE Cluster project will maintain it

Partially linked to this issue there's the topic of a DBE development roadmap.

Many feel that creating a roadmap is very important, citing credibility and coordination as current need. Most of the respondents express some concern about adopting a top-down approach while others call for a hierarchical and prescriptive approach. Some feel it is useful but it is too early and that there are other priorities at the present stage before the road map.

Key verbatim responses are:

"It is important to delineate a roadmap, but the 'anarchy' of the community of developers brings lots of new and unexpected ideas"

"It's the most critical piece of information that should be produced now. It's the document that provides a path of the development of the technology and allows the community to engage and invest time on the different components/functionalities needed and/or foreseen"

"It gives the image that the DBE is planned to be there for the long term It's important to have "more than one roadmap (thus avoiding to put all the eggs in one basket)".

2.1.3. Community structuring and governance structure

When answering the question “To what extend you think the DBE community needs structuring in order to survive? Will structure be a pre-requisite for progress, or can structure be left to emerge from practice?”, the following was exposed:

The majority is in favour of the last. Indicating that a structure or a governance model should emerge from community practice. Half of the respondents were against structuring in general, the other were in favour a very light structure. Typical answers were:

“The structure should emerge from practice and from a shared process because the strongest point of the DBE is network. Having a strict structure now will kill the common process and development”.

“There seems to be no need for other types of structuring, except the two-level structure proposed for computational/technical/operational reasons”.

*“I think it makes more sense to let each separate community/sector/geographical region discover how DBE can work for them. I would not introduce structure artificially because this will inevitably be restrictive, even if issues of central control and agenda setting were not a problem. I would very much advocate an emergent process driven by a mix of market opportunities, technological advances, and community formation. We should not forget that digital ecosystems are based on an extremely diverse set of communities of practice, some in applied fields, some in theoretical fields, some in business, some from the public sector, some from Europe, some from outside the EU, some from developing countries, etc. Learning how these communities can interact and communicate is *itself* an open question and a subject of research. We cannot pretend to know ahead of time what structure will be best for the productive integration of such a constellation of communities. I strongly advocate an emergent process.”*

“Every stakeholder group has different needs. Groups will structure themselves using both formal and informal means and in many senses it is best that they are left to do so, since only in this way can their diverse needs and priorities come to the fore. What is required is some lightweight coordination, to enable diverse stakeholders to communicate and exchange feedback. Any coordinating body should have limited powers so that the act of coordinating itself is not used to influence decisions”.

Some think structure is only needed at the beginning, before the community become self-sustaining:

“I am afraid that we need structure for a few year”.

“Without structuring DBE community will not survive. It can not be left to emerge from practice at least at the beginning”.

“A good cocktail between organization and anarchy is very necessary”.

“Some structure is necessary if only to guarantee the decentralized character of the system”.

Among already existing models, or element models for a self-sustaining community the respondents come up with a wise list of possible models to adopt. The Open Source community model is the general principle frequently cited. The complete list is the following, but as we will see in the next chapter, no agreement emerged on those models except for the World Wide Web.

- Debian x3
- Jboss x2
- Apache x2
- Linux
- MySQL
- PHP
- Ututo
- dotnetnuke
- Mozilla
- KDE

- Canonical
- rosetta net
- ebXML foundation
- Wikipedia foundation
- Eurocities
- MySpace
- Bebo
- YouTube
- www

Several respondents were in favour to a Foundation like structure. Issues of trust, transparency and openness were also associated with this idea. Key verbatim responses are:

"I think that probably a no profit association or ONG should be taken in consideration in the next 3 years. For sure not now."

"DBE foundation of some sort. ALL OPEN SOURCE PROJECTS HAVE A FOUNDATION THAT WAS SET UP (emphasis in the text). Might be interesting for a social science experiment to see what "emerges", but not practical."

"A foundation taking care of basic funding and support (e.g. legal), governance for the tech development Already there are many (successful) examples of voluntary associations and networks operating across Europe for the benefit of their members. These tend to be open membership organizations and value-added services to members justifies their continued subscription and participation. The main focus of activity tends to be on sharing 'good practice' and in forming of new project consortia (partner brokerage). As I mentioned these are still largely research questions that should be explored with an open mind and an business- and research-opportunistic attitude. The little I know for sure can be summarised by saying that transparency is fundamentally important. There is nothing wrong with having an agenda. If the agendas are discussed openly all the stakeholders can work together to find synergies and overlaps. This builds trust. Communities that are based on trust are capable of sustaining and in fact creating economic systems."

When the respondents pass from expressing their view of governance structure to the possibility to have a DBE legal owner, they show to be evenly split.

Those definitely wanting an organisation want it to be lightweight and to have limited remit and not to be the 'owner' so much as the servant of the community, then several see a legal owner as necessary in particular for DBE credibility: "Absolute legal ownership should be considered with care, as it may raise the issue of product liability, etc.; but some form of legal entity would be desirable to maintain credibility and professional image".

As the answer below show, those wanting an entity, mostly talked of non-profit and foundations model rather than commercial.

"A NPO, a foundation-like organisation. All responsibilities necessary to ensure that DBE vision is not compromised or subverted, and this will allow the developers to focus on creating the software to create that vision."

"It does not need an organization legally owning the DBE. In any case, if such a legal entity would be made, it should be a no profit entity, should adopt an inclusive decision making process, should be committed to free software licensing, should avoid dual licensing practise."

But some strong statement against the legal entity are also present:

"A legal entity too soon would bring a few short-term benefits but could endanger the whole initiative"

"No not yet - it is LGPL and CC, so no need of legal entity yet"

"No, no a legal owner would represent a form of centralization, and this is not compatible with the DBE approach."

2.2. Survey second phase – toward a consensus

We report here the outputs of the survey second phase, as already mentioned in the methodological paragraph, Delphi results assume the form of vision, scenario. This chapter reports all the sentences that emerged from the first round survey, on which more than 75% of respondent agree. There were no, or very little, elaboration by researchers, languages choice, expression, emphasis come directly from the participants voices (please see par.1.2).

2.2.1. Future of the DBE concept

Long-term success vision

The real success will be obtained when a large cloud of DBE nodes and services will be visible and stable and it will have more actual implementation of post-experimental cases. Success of the DBE will see the creation around major development poles of a significant number of regional and inter-regional ecosystems and will cover a wide spectrum of industry sectors.

The source code will be sustained by a community of developers, initially funded, and gradually self-sustaining and the codebase with all its tools will maintain its open source character and it will continue to evolve in an open, cooperative manner.

Long-term success will be the capacity to involve the open source communities in the development of the platform, with a clear support by the users. It will be indicated by the existence of a number of SMEs communities, regularly using the DBE to further their business, who will make money from using the DBE infrastructure. The final scenario will have SW SMEs developing services over the platform.

Long-term success will be a community of SMEs, academic institutions and large industry players relying on a variety of public and private funding sources and involved in DBE research, adoption, maintenance and development.

The success will be marked by the adoption by regions, the creation of several independent communities which will develop and adopt the instruments and the methodology and local communities efforts.

It will involve an on-going DBE Governance working group engaged in a consultative and participatory process leading to a DBE Foundation, that will ensure that it will balance the interests of all the involved parties and will protect its decentralized character.

The DBE success will not be achieved by pushing from the top, i.e. a government making compulsory to adopt DBE, but the DBE will be used by regional policy makers to help developing their regions. In fact, the public sector will have an important role to play in promoting and supporting DBE deployments in specific territorial contexts.

The DE will be an emerging concept in several application domains and it will answer in a better, more efficient and cost effective way to the need of an integration of service and knowledge sharing within enterprises and individuals.

Requirements for success

A definitive key to obtain the success of DBE will be the trust and the main issue will be to achieve a critical mass of real users. Long-term success of DBE will be huge if 10% of European SMEs will adopt tools based on DBE. In order to achieve this goal it will be necessary to enrol more mediator actors as companies association, development agencies (business start-up advices, regeneration projects) which are currently being funded by EU and SME organization.

In other words, the DBE success will pass through the engagement of more regional catalysts and regional authorities across many regions of the EU, one or more geographically dispersed ecosystems of live SME services. It will depend on policies in support of enterprise networking and a bottom up approach to governance.

Other requirements for achieving success will be an evolving community of SMEs users for bootstrapping the whole process step by step and the adoption by the software developer community.

DBE success will rely on its Open Source nature. It will be free for participants and the success will be achieved by the creation of a vital developer community, involvement of F/OSS supporting organizations, open source communities that will be informally involved in DBE technology maintenance and all the components being part of the DBE core infrastructure that will be released under OSS licenses.

A very open, receptive and inclusive presentation and management of the DBE concept and the insurance that there will be no central point of control of the technology and of the governance will be the key for the success.

The requirements to realize DBE will be supporting further research and development in the area of DE to complete the technology with the missing parts, creating effective new services, demo applications and different application scenarios robust and reliable user orientated software. At the same time it will be necessary a wide local testing and demonstration to SMEs of the benefits from their participation a clear proof of concept, clearly-defined business model(s) which give measurable business benefit for all participants, high interoperability with existing platforms and services, organizational and relational infrastructure and natural language capability at the user interface level, that finally means usability and accessibility. Key requirements to achieve the success will be the usefulness of services aggregated and offered through DBE.

In order to achieve success the DBE will need funds so the Structural/Cohesion Funds can become an important financial instrument in supporting a widespread deployment of the DBE. It's very important to point also on popularity and promotion of the project to ensure its adoption, simplicity (ease-of-use) and supply of services to DBE architecture.

In synthesis, the key factors in achieving the success of DBE will be:

- wide spectrum of solutions to offer to SMEs users;
- a multiplication of territorial nodes with relative Regional Catalyst
- a key support mechanism;
- continuous development and releases of the software based on user feedbacks;
- favourable legal environment for knowledge sharing;
- brings in money;
- wide business adoption;
- rise of real business interest;
- improving networks with businesses and supply chains;
- a collaborative opportunity with industry partners;
- absorption of DBE in the mainstream economy of software production.

Timeframe for achieving success

The time frame for achieving success will not be indicated as certain. It is sure that it will not be in the short term (1 year) neither in longer term (15 years). The most part of the participants lean towards a medium time frame of approximately 5 years.

DBE approach to ICT use

The concepts that the DBE will offer are absolutely innovative. The Digital Ecosystem approach indeed represents a different and more holistic approach to ICT use and deployment in the business (SME) sphere because it allows SMEs to define their own business, technology and regulatory environment around their own needs and priorities and because it relies on SME tailored solutions.

The DBE will create the infrastructure of connectivity to cooperate and develop the regional economy and new business models for small companies and other social actors.

The project will fulfil the need of an ICT strategic view as a relational technology, as an instrument for connection and cooperation, obviously also other approaches will retain legitimacy and relevance, especially in terms of ICT use and deployment for citizens and for the public sector.

Only the most solid parts of the technology will survive in the community.

Possible reasons for DBE concept success and failure

The DBE will achieve the success for the greater part of the participant. The only reasons for its failure will be the lack of funds. The success of the DBE will depend on the direction that will be taken by all the partners of the project and other cluster projects.

Primarily, the DBE will succeed because it will much more focus on developing a community, the cooperative model of economic evolution will take place and more companies clusters will directly connect to global markets.

As has been already mentioned, the DBE will succeed by getting it into small businesses, by introducing it step by step starting with the most useful part and having a greater integration of theory and practice, in particular through collaborative R&D between SMEs and academic

institutions. In fact the platform will succeed through a wide adoption by SMEs and customised domain specific solutions.

The DBE will succeed because SMEs will find it useful, there will be a good dialogue between the SME community and the developer community and a core community of developers and SMEs will promote the concept.

DBE will have the government support at local and at EU level, its success will be guaranteed by its bottom up approach and because it will be tested in different regional context.

The DBE concept will succeed because of new (young) ICT specialist will be open to F/OSS and can accept the modular and "not 100% locally owned/controlled" system/process, it will have a more user-friendly and more effective BML and different instances of the infrastructure.

Other reasons that will help the DBE to achieve the success will be that some one will start to use it and will start to create a real service, so it will provide answers to the problems that exists, such as scalability.

Trans-national dimension of DBE: an overview

The DBE will be important as it will connect businesses for trade that will be exploited in different countries, it will fulfil important needs and it will have a part in the processes of development in the more developed and less developed countries.

Co-operation on DBE solutions between more developed and less developed countries will be important for both European and non-European countries, but – with reference to developing country - its relative importance will depend on how much they will be early adopters.

Focus on developed countries

The advanced post-industrial nations will strive to compete in an emerging 'digital knowledge economy', DBEs will assume growing importance and will be shown to provide value-added aspects to stakeholders (profitability, competitiveness, sustainability).

DBE will have a significant impact on the SMEs in developed countries since SMEs are about 50% of the GDP of Europe, DBE will have an important impact there because it will take up by SMEs.

In Europe, the DBE will be perfect in countries where main actors are small companies where there is a need to create clusters and cooperation between SME's. It will be applied in countries like Italy where small companies need to find new ways to be competitive and to innovate.

In EU countries, where most of the IT and more basic infrastructures are already available, DBE will offer an opportunity to transform the way business is done.

Focus on developing countries

There will be a lot of interest from countries such as Brazil or India with emerging economies investing a lot of resources in research and innovation. In Brazil, the DBE will complement digital inclusion programmes of the Brazilian Government like the Pontos de Cultura of the Ministry of Culture and the Telecentros. DBE will support some ICT projects in Brazil that are going to have important results among indigenous population (for example in Amazonia). DBE will be an opportunity for less developed countries to take control of the process of building technological infrastructure and to tailor the technological environment to meet their own needs and the needs of their citizens.

Generally, DBE will take place more effectively in less developed countries since its holistic approach will be easier for countries that need to start in a structured way the way to digitalization.

In less developed countries, DBE will carry out an important role of start up of processes even if less developed countries and regions will be more disadvantaged in implementing DBE due to lack of other pre-conditions.

The impact of DBE will be greater in less developed countries as it will enable greater globalisation of small services and of craft industries.

But of course, the importance of DBE in less developed countries will depend on the actors supporting its deployment and implementation, available or competing infrastructures, the complexity of the regulatory and the policy environment.

In less developed countries the government will give some support and the network resulting from the DBE will necessarily require the participation of local actors. DBE will offer a collaboration platform through which universities will engage initiatives more closely with government development.

DBE adoption will be faster in less developed countries because they will not have so many already established "traditional" ICT managers and CEOs. DBE will have a relatively greater impact if the ease-of-use and natural language facility will be extended to the languages used and the open source character of the platform will seem to benefit especially less developed countries.

2.2.2. Sustainability of technical infrastructure

DBE technical assets and infrastructure's maintenance

The resources and organisation of the DBE technical assets and infrastructure will be maintained by Open Source developer's communities. In the longer terms, sustainable DBE deployments will show such a value-add as to justify stakeholder investment and engagement.

DBE project partners will guarantee the core project maintenance and they will provide the last layer support, so the customer may be confident because they know that the software creator is there. A distributed, layered approach to maintenance and user support will be established by an interface between the developer group and user communities to ensure good communication and feedback and not by a licence fee for development built into business model.

The resources and organisation of the DBE technical assets and infrastructure will be maintained on one hand expanding its applications and exploring various model of sustainability, on the other hand via a self sustainable open community of users and by user enterprises which will pay the community of software enterprises to develop services for them to conduct business.

Possible role of developer's communities

The resources and organisation of the DBE technical assets and infrastructure will be maintained by a community of contributors, following the open source philosophy, which will propose changes and new features that will be a good source for the developer community as students and part time people.

It will be very important to leave the free software community to improve it and adopt it. DBE will maintain its open source strategy, some governance will be described (e.g. procedures to include new modules, etc.) and some core developers will be supported (remunerated) by open source developers.

The existing EU projects will maintain for the next 2 years and provide developer support. DBE will be utilised in further projects and parts of the code, and by SMEs in the regions.

DBE will be maintained thanks to a multi step approach in which a community version, totally open and free of charge, will be produced and it will be the big community who introduce new features/projects into it following a total open source philosophy.

A particular formula of maintenance will be personnel time donations of:

- small and large software companies;
- economic development agencies of local and national governments;
- university students, researchers, and faculty;
- the various stakeholders;
- individual developers, that will feel motivated to participate for free, according to the open source model.

Possible role of enterprises

The resources and organisation of the DBE technical assets and infrastructure will be maintained not in commercial terms but through a community of software enterprises which will develop services over the platform, those services faster and with innovation components which make them be more productive and make their services more attractive to other enterprises which consume those services.

Some larger companies will give resources in the way that Sun does to OpenOffice, it will be pioneering individuals that will drive it.

The systems will require revenue streams and resources to pay for development by means of software SME's contribution, those small software companies will contribute when an end user critical mass is achieved.

Possible role of public sector and institutions

The resources and organisation of the DBE technical assets and infrastructure will be maintained through a mix of public and private funds, using extended Public Administration (i.e. University and

local/regional Chambers of Commerce, development agencies and employers Associations) and additional funded projects will emerge. It will be interesting to have governmental infrastructure by regions. Public investments will be necessary to kick-start deployment, sustained or justified beyond the relative short term. The model will be created bottom-up and be different in each region and country. The diversity of models will be the strong point of the ecosystems.

The resources and organisation of the DBE technical assets and infrastructure will be maintained working and benefiting the people and the local development. It will be organized in a distributed manner at the participating Regions following a model similar to the one adopted by its computing infrastructure (i.e. two-level organization, Region nodes and SME nodes). Different regions will adopt it, and a community of open source developers will flourish and it will be integrated with other open source projects.

The resources and organisation of the DBE technical assets and infrastructure will be based on regional and open source efforts with open source license for all the issues.

As long as local communities adopt and use it, the resources and organisation of the DBE technical assets and infrastructure will be based on open source communities.

Organisational structures' typologies

A lightweight organisational structure will be required to mirror the de-centralised nature of the infrastructure and assure that services implementation will be decentralized.

There will be adoption of federated governance combined with a network/community model. A Technical committee of elected representatives will coordinate the technical maintenance, in fact maintenance of the core technical infrastructure will need to be organized and systematic and the DBE technical assets (hardware, networks) will have dispersed ownership.

Open Source structure will donate funding of a few full-time developers to act as maintainers.

DBE maintenance/development: organisation typologies

The DBE will need to raise to a level of significant community of users and applications for the rapid establishment of a maintenance structure.

The characteristic of the organization will be made by individuals with an open self-governance structure with by people appointed by the community itself. It will be in contact with and open to a continuous sharing with local development agencies and policy makers for SME development, supporting running deployment project and new development of the DBE infrastructure.

DBE maintenance and development will be supported by a network organisation that will be governed with instruments of sharing strategy and involvement of the various actors.

The organization will take the form of an association, but it will not be an EEIG (European Economic Interest Grouping)¹.

DBE maintenance/development: possible protagonists

All technical DBE partners will commit in opening and maintain DBE nodes and the regional catalyst will continue at national and local level to support the DBE approach.

DBE maintenance will be provided by IT infrastructure that will use the DBE infrastructure and the DBE service.

DBE maintenance and development will be supported by software houses that saw it as opportunity to promote their technology/products/services in the future and software developers working in companies already active in one or more open source communities and interested in the new aspects of P2P, BML, etc.

The panel of participants has identified various categories of possible supporters to the DBE, starting from open knowledge and developers communities, individual researchers and R&D businesses up to individual developers and people who will benefit from it.

An important role will be carried out by development agencies, regionally funded projects and another possible protagonist will be a non profit foundation.

¹ A European Economic Interest Grouping (EEIG) is a type of legal entity created on 25th July 1985 under EU Council Regulation 2137/85. It is designed to make it easier for companies in different countries to do business together, or to form consortia to take part in EU programmes. Its activities must be ancillary to those of its members, and, as with a partnership, any profit or loss it makes is attributed to its members. Thus, although it is liable for VAT and employees' social insurance, it is not liable to corporation tax. It has unlimited liability. It was based on the pre-existing French groupement d'intérêt économique (G.i.e.).

Possible protagonist: national/regional public sector

On the other hand, DBE maintenance and development will be supported by the public sector of regional and national government bodies, governmental organizations and agencies together with public organisation and institutions.

The regional level will be the appropriate level to develop the project. In fact, Regional Authorities will provide the DBE services to their SMEs, free of charge, as an incentive for greater productivity with the appropriate technical support of local research organizations.

A central DBE support in the different territories will depend on regional/central governments and local authorities.

Possible protagonist: private sector and SMEs

DBE maintenance and development will be support by early adopter SMEs, who will have an edge in the development of new business models, and SMEs which will use some parts of the DBE tools. Moreover, existing SME communities and SME software producers will provide to the maintenance of the project, because software SMEs will obtain new customers through the adoption of such technology.

DBE maintenance and development will especially be support by organisation who will benefit from it and commercial projects and organizations.

Possible protagonist: open source communities

The subjects that will be motivated to support the maintenance and the development of DBE will be agencies to do with open source, open source projects, bodies, communities and developers who will incorporate DBE into their products.

DBE maintenance/development requisites

The DBE development will depend on the context and the local social and economic characteristics. It will only work once the model becomes self-sustaining. Some support to help this transition will be provided at the European and at structural level.

For the DBE development will be important that the other projects in the Innovation Ecosystems cluster to maintain the momentum and consolidation of the infrastructure and the SME and regional communities that have been built during the project. There will need to be a favourable economic proposition for participants. In a long term the motivation will have multiple funding for maintaining autonomy and independence. It will depend on what proves to be a mutually beneficial arrangement for all stakeholders being provided by the users.

The OPAALS NoE will maximize the impact, will push for DBE adoption and will define a more pragmatic and flexible approach.

The roadmap importance for DBE development

The trust and the process will be a priority for the DBE development. Even without a traditional industry-driven roadmap, work will be done to improve the infrastructure and the languages upon which digital ecosystems are based.

On the other hand, it will be important to have a roadmap for DBE development and it will be created by the current computing team, which will be the core of the DBE Community at this moment which can give this information.

It will be essential for DBE to have a roadmap with specific and measurable objectives that will be benchmarked and assessed. In fact, a roadmap will help to establish a common view and common standards and will expand its ambit and subject itself to wider validation and introspection.

Moreover, it will be useful to have a shared roadmap that will help SMEs to plan the future integration using the DBE.

The roadmap will be very important for many reasons: at first it will give the image that the DBE is planned to be there for the long term; then it will give a serious image.

It will be essential to have a roadmap for availability of models, for improve adoption and involvement on more developers.

Roadmap will allow the community to engage and invest time on the different components/functionalities needed and/or foreseen. A roadmap for the vision of DBE around which loosely affiliated contributors will organize themselves.

The development of a future strategy and sustainability model will be more important than a roadmap because a roadmap will be a natural consequence of sustained value and interest. Besides a roadmap, to have more code camps will be important. It will be essential that the work will not end in a disassembly of the whole package in its sub parts.

How will roadmap be created

It will be important to provide a roadmap/vision that will have to be defined by all DBE project partners before the end of the project. The roadmap will have to be designed to be demand driven (i.e. based in the experiences of the early adopters) and it will be user driven. In creating a roadmap it will be more important to point on the goals. A roadmap will have to be subject to constant debate and updating.

To create a roadmap open source project management will have techniques, suggestions will be made by anyone and online voting will be take place. In fact, the creation of a roadmap will develop and be maintained in a similar to a major OS product (like KDE, GNOME, OOo, etc.).

The DBE stakeholders will know what will be needed to improve the system and how to tell each other what progress will be made and when (e.g. SourceForge).

A “research” roadmap will be easier to contribute to in a decentralised way, but it will not be safe if only a few players will develop it. Each domain (computing, science) will provide an overview of its vision outlining what has been achieved, what needs to be completed in the short and the long-term and the different domains might need to coordinate.

Roadmap will focus on...

A roadmap will have to be treated flexibly as a guide to action and it will focus on take-up and usability, constantly getting feedback from its members. The roadmap will be based on sustainability i.e. among others on gathering of funds.

The roadmap will be centred on adopting communities’ bottom up contribution and on how the key relationships (projects in the Innovation Ecosystems cluster, SME and regional communities, developer group) will be maintained in the short term. The roadmap will focus on the contribution to strategies of local development focused on knowledge and on possible applications and use in regional development, both in the EU and abroad.

A roadmap, or roadmap, will be useful in allowing the setting of targets and the monitoring and evaluation of these and in providing direction for ongoing research and deployment efforts within a strategic framework.

The roadmap will be proposed to research centre, government and industry and it will point on promotion through mediators and maturing the middle ware.

In synthesis, the roadmap will mainly focus on:

- the service catalogue;
- the interest of the adopting communities;
- the diversity of each kind of community;
- the discussion;
- the standardisation bodies opinion;
- the interest of the open source;
- the involvement of software houses.

To what extent do you think the DBE community needs structuring in order to survive?

DBE community will need to be led by a team of visionaries that understand the holistic approach of the DBE.

Structure will be needed if the idea of a Digital Business Ecosystem will be followed as a whole.

DBE community will need some structure to assure quality on improvements and governance. Structure meant that a governance process will be necessary to guarantee the decentralized character of the system.

In order to survive, the DBE community will need low structure. An initial set-up structure will be beneficial and will need to be self-sustaining. At the same time, a typical open source governance will be established as an independent community. The self-organisation of the DBE community will require a structure.

DBE will focus on building a house for the developers and it will not remain empty because everyone will be willing to participate.

The DBE will need of a policy coming from a mix of actions, a shape of collective government, coordination and a wide freedom of local experimentation, in order to facilitate eventual emergent processes. Issues of central control and agenda setting will be a problem for structuring.

The structure of DBE will focus on the enlargement of the community through the restart of a community building action, around a wide and comprehensive DBE roadmap. The digital ecosystems will be based on an extremely diverse set of communities of practice in applied fields, in theoretical fields, in business. These communities will be from the public sector, both European and non-European, also from developing countries. Learning how the communities of practice will be able to interact and communicate will be "itself" an open question and a subject of research.

At a EU level, some common frameworks and structures will help support the development and sustainability of such DBEs allowing the sharing of good practice and common solutions across territories and across sectors, improving the competitiveness of the EU and its SMEs.

There will be an emergent process driven by a mix of market opportunities, technological advances and community formation. To encourage adoption until DBE "takes off" on its own will be needed concerted advertising and public relations efforts. People interested will push or promote the project and will identify what structure they require, and a structured technology centre for the core will be important to push DBE up the hill.

A very small open organisation will be enough to act as guardian of the critical aspects such as legal rights, it will be largely voluntary.

Will structure be a pre-requisite for progress?

The structure will be necessary in order to reach the DBE goals. The basic tenets of the infrastructure (as SME-focused, as distributed, as open source) will be instated in a manifesto of some sort.

To survive DBE will need governance, self-regulation and a good cocktail between organization and anarchy, in particular that no multinational will monopolize this DBE.

There will be a number of EU supported project which will take advantage of the system.

The structure will be achieved through dialogue and consensus. Discussions about alliance formation and future directions will be transparently communicated to stakeholder communities and decision-making. A democratic structure will need to be proposed and adopted. The a core requirement will be any decision regarding the specific form of this governance will be emergent and involve all the interested stakeholders, which will be what will be attempted in the context of the DBE. Every stakeholder group will have different needs and they will structure themselves using informal means. Stakeholders groups will be required some lightweight coordination to enable diverse stakeholders to communicate and exchange feedback and any coordinating body will have limited powers.

It will important to fix possible abuse of the code so to protect the work done insofar.

Can structure be left to emerge from practice?

The structure will emerge from a shared process because the stronger point of the DBE will be network and a framework will be create to help this structure to emerge.

The structure will emerge from community needs as other open source communities. DBE will need structuring and it will have to be structure to emerge from practice at the beginning. This will be a pre-requisite for progress of the project.

DBE will be self-organising, structure will emerge from practice through a critical mass of users. For structuring it will be essential organisation of some facilitation, expert contact points and supportive user groups seems.

2.2.3. Sustainability of the DBE community

What existing models, or elements of models, for a self-sustaining community that you have experience of, do you recommend that DBE should adopt?

The first priority for a sustainable community will be the objective of protecting principles of transparency and trust. Transparency will be fundamentally important. There will have an agenda,

that will be discussed openly, and all the stakeholders will be able to work together to find synergies and overlaps. Communities that will be based on trust will be capable of sustaining creating economic systems. If there will be trust the economy will become sustainable.

The DBE will need defined process for accepting code contributions, people responsible for integration/creating builds and regular communications and it will need to explore other accelerators and multipliers.

The Wikipedia foundation and community will be the model, the foundation will simply create to protect the Wikipedia brand and codebase. The Wikipedia model will have influence on how will work the knowledge community (who patrol and update the encyclopaedia) and the developer community (responsible for maintaining and improving the software).

It will be very important to create cooperation and links between the open source communities, the local governments, the representatives of industries, university and institutes of research to build through the DBE an integrated and sustainable innovation policy.

Possible models will be studied further, related questions will be explored with an open mind and a business attitude. The DBE will keep an open source strategy because the competence and the participation will be the unique way to be a leader. This will get profit from added value services like e-learning and DBE software certification.

The starting template will not be like the Dotnetnuke, Mysql Model, Php Model or Ututo Model, maybe it will be more similar to Linux.

For a self-sustaining community the DBE will adopt the model of Open Community networks and Open Source communities, and surely not the model of consortia, NGO or Debian KDE.

DBE will be worth looking into some mature open source projects, such as Apache and Mozilla and will adopt a model similar to the WWW.

The participants indicated a series of existing models that the DBE will surely not hark back to, as:

- MySpace;
- Bebo;
- YouTube;
- Rosetta net model;
- www.canonical.com;
- such network as Eurocities.

Other possible model for a self-sustaining community will be a foundation taking care of basic funding and support (e.g. legal) and governance for the tech development. These communities will use their own organisational and decision-making processes, which will emerge historically from seeing what worked. The key will be allow self-organising communities to emerge who can generate and be free to act according to their own priorities and motivations. The Pontos de Cultura tested in Brazil by the Minister of Culture will represent a model for the connection structure with the "real" and productive communities, based on the 12 principles of on-line communities.

Path towards adoption

Self sustaining will be achieved in different modes, the cost of running such organization will be low and will remain low. These will tend to be open membership organizations and value-added services to members will justify their continued subscription and participation.

The main focus of activity will tend to be on sharing 'good practice'.

The sponsors will be the technology companies who will see a big business in supplying DBE software and services.

First of all, we will have to make training, many people as possible will know your platform as in depth as possible and the objective is to create the community to do business. In fact, some possible activities will be through dissemination activities training and events.

A JBOSS model will be adopted and the cost will be the community of developers and the e-lawyer if it will accepted. The incomes of a model like a JBOSS will be funds, in the short term, enterprises paying for maintenance and training and certification (10%).

There will be very different levels of maintenance, from 1 hour to 3 business days with different costs. We will start to have certified partners which are the contact with the final customer, they will provide the core support and, at the first level, they provide the customer support. DBE will want

the know how to be distributed as much as possible, then the product will be saved because there will always someone who will be able to contracted by the company and provide support.

Will DBE need a legal owner?

Businesses will want and expect something "concrete" to come out of the DBE project and digital ecosystems in general. It will be needed a foundation to support the DBE technologies and the overall DBE concept.

The DBE will need a group of supervisors to check the misalignment of the DBE practices, a legal support team and a group of volunteers that will be willing to spread the DBE around the world. Some form of legal entity will be desirable to maintain credibility and professional image.

Time will be necessary to understand what the "entity" is before worrying about making it legal or not, in fact, a legal entity established too soon will bring a few short-term benefits. A structure will be established only and when will agree on the governance, the community and the participation of contributors. The governance of the project will be defined through a participatory process and not by imposing a legal owner, that will set rules without consulting the communities.

There will be already plenty of foundations for open source projects it will not be too late for the DBE. Creation of ownership organizations will contradict the nature of DBEs, that will have to be flexible, adapting to the changing needs of stakeholders and the needs of changing stakeholders.

On the other hand, the DBE is LGPL and CC, so there will be no need of legal entity, it will be enough to transfer control to the running network of excellence (OPAALS) that will develop further concepts on the DE and will enlarge the community of researchers.

Typologies of possible DBE legal entity

The organisation that will be best to perform this task will be an open source organisation and a foundation-like organisation. It will adopt the foundation model and it will be a quite flexible model. It will need a lean small structure used only as container of the code and surely not a full-fledged organization.

The participants are sure that the organisation will not be an entrepreneur based organization or an EEIG.

Most appropriate model to run a business will need to find some driving region.

Possible role of the eventual legal entity

The legal entity will adopt an inclusive decision making process, will be committed to free software licensing and will took all the responsibilities necessary to ensure that DBE vision will be not compromised or subverted, this will allow the developers to focus on creating the software to create that vision. It will integrate the life of real SMEs in the DBE system and communities.

The entity will be constitutionally tie the core values of digital ecosystems to the code base as SME focused, as distributed and as open source.

Conclusions

This activity offers one more instrument for discussing in an open way issues related to DBE sustainability and governance. The research outputs reported above are already the conclusions to which the community arrive through the Delphi process, we take in consideration here some of those, only to facilitate the reader and highlight discussion's basic directions.

The DBE concept is seen as a promising one, an approach to ICT and local development widely recognised as successful in a relatively short time frame. The majority of participants expect a full development of DBE in five years that - considering its complexity and its willingness to reach European as well as non-European country - it's absolutely reasonable.

Success, moreover, means for the participants:

- a large number of ecosystems (regionally based) populated by SMEs using DBE in their day to day business; present in developed as well as in developing countries;
- a technological infrastructure fully developed maintaining its Open Source nature, accessible, robust and supportive for its users

The only element envisaged as an obstacle to DBE further development and its success is a possible lack of funding. A key question is the direction that will be taken by all the partners of the project and other cluster projects. The DE projects come into play also when speaking about the technical maintenance of DBE. Respondents agree in seeing those projects as a logical continuance of DBE, able to sustain its further development and maximize its impact by pushing for DBE adoption and by defining a more pragmatic and flexible approach. Beside this, the support of Open source community is also indicated as crucial. Its role in term of technical maintenance is going to be with the support of DBE partners that will ensure the core code maintenance.

When taking in consideration possible governance structure, a lightweight organisational structure is seen as necessary at some point to mirror the de-centralised nature of the infrastructure and assure that services implementation will be decentralized. The form of an association emerge as possible solution.

The panel of participants has identified various categories of possible supporters of the DBE, ranging from open knowledge and developer's communities, individual researchers and R&D businesses up to individual developers and people who will benefit from it.

An important role will be carried out by development agencies and regionally funded projects.

With reference to the technological aspect, the governance problem seems to have been resolved. Those interviewed recognise the possibility to have a Technical committee of elected representatives. It will coordinate the technical maintenance; in fact maintenance of the core technical infrastructure will need to be organized and systematic.

When we asked to indicate the main protagonist of DBE sustainability, participants indicate equally the role of Open Source community, that of local government (especially regional bodies) and SMEs using the platform for their business. Obviously those actors have different role, of support technical maintenance for Open Source members and SMEs using DBE or deploying service upon it, and a more strategic long term role for local actors. The approach used during the project to have Regional Catalyst as support and sponsor of the DBE seems to be possibly maintained in the future of DBE.

Participant see the creation of a roadmap as an important output of the DBE project, they assign to project partners the role of designing it. The creation of a roadmap will help to develop and maintain DBE (similar to a major OS product such as KDE, GNOME, OOo, etc.) with the participation of all the stakeholders in an open and transparent way.

In synthesis, the roadmap will mainly focus on:

- the service catalogue;
- the interest of the adopting communities;
- the diversity of each kind of community;
- the discussion;
- the standardisation bodies opinion;
- the interest of the open source community;
- the involvement of software houses.

In terms of organisational structure, some confusing statement are still present. With regard to this issue, probably a third round of Delphi would be beneficial, but the time shortage makes it impossible to do this. Generally respondents agree that a very small and open organisation will be enough to act as guardian of the critical aspects such as legal rights. They indicate that can be largely voluntary and probably will be needed only for some years.

A key verbatim here can be the following "To survive DBE will need governance, self-regulation and a good cocktail between organization and anarchy".

The basic tenets of the infrastructure (as SME-focused, as distributed, as open source) will be stated in a manifesto of some sort, and the structure is seen as emerging from practice and thanks to an open process of consultation. The concept of Community of Practice emerged as strongly related to DBE that can be seen as a combination of different community of practices that need to interact as in a network.

Trust is a word that often appears in participants' answer, and it is seen as fundamental for the progress of DBE generally as well for the creation of a governance structure.

The Wikipedia experience is seen as a possible model of governance model, quoting directly one participant: "The Wikipedia foundation and community will be the model, the foundation will simply create to protect the Wikipedia brand and codebase. The Wikipedia model will have influence on how will work the knowledge community (who patrol and update the encyclopaedia) and the developer community (responsible for maintaining and improving the software)".

But the necessity to study other models for self-sustaining community is also recognised. About the possibility to establish a legal entity, participants see at the same time it as necessary for the protection of DBE core parts and give it a credibility, but at the same time they say that establishing it too soon will have negative effect on the community.

The participants are sure that the organisation will not be an entrepreneur based organization or an EEIG but more than one model have been mentioned, what they have in common is to be open, flexible and basically focusing on protect the DBE core components and the concept. Again in the term directly used by respondent, even if the legal entity has not a clear definition its role is here described: "The legal entity will adopt an inclusive decision making process, will be committed to free software licensing and will took all the responsibilities necessary to ensure that DBE vision will be not compromised or subverted, this will allow the developers to focus on creating the software to create that vision. It will integrate the life of real SMEs in the DBE system and communities".

Due to the unenthusiastic participation to the second phase of Delphi activity, we cannot say that what has been here described can be taken as automatically ready to be implemented. Nevertheless, we can say that all the DBE partner and DE cluster participants would agree on it totally. Moreover we think it can help understand what alternatives come into play, and those here presented take view this from two dimensions: the Open Source nature of the project and its regionally based engagement model.

Appendix A – First Questionnaire

Section 1 - Future of the DBE concept

- 1.1 What would long-term success look like, what are the key requirements for achieving success, and how long will it take for such success to be achieved?
- 1.2 Do you believe that the Digital Ecosystem concept fulfils the need for a different approach to ICT use and deployment? Will it succeed or fail? Can you say why?
- 1.3 How do you see the relative importance of DBE in the more developed and less developed countries, both European and non-European

Section 2 - Sustainability of technical infrastructure

- 2.1 How could the DBE technical assets and infrastructure (e.g. source code, user support, model creation) be maintained in terms of resources and organisation?
- 2.2 What types of organisation or people would be motivated and likely to give technical or human resources to support DBE maintenance and development?
- 2.3 How important is it to have a roadmap for DBE development, and if it is important then how should one be created, and on what should it focus?

Section 3 - Sustainability of the DBE community

- 3.1 To what extent do you think the DBE community needs structuring in order to survive? Will structure be a pre-requisite for progress, or can structure be left to emerge from practice?
- 3.2 What existing models, or elements of models, for a self-sustaining community that you have experience of, do you recommend that DBE should adopt, and how should it go about adopting them?
- 3.3 Does the DBE need an organisation to be a legal "owner", and if so, then what type of new or existing legal entity would be best to perform this task and what would be its roles and responsibilities?

Supplementary Question

What actions do you or your organisation plan to take, now or in the future, which are connected to or relevant to DBE?

Appendix B – Second Questionnaire

D3 - What would long-term success look like, what are the key requirements for achieving success, and how long will it take for such success to be achieved?

LONG-TERM SUCCESS VISION

Long-term success will be a community of SMEs, academic institutions and large industry players

- relying on a variety of public and private funding sources
- involved in DBE research, adoption, maintenance, development

The real success will be obtained when a large cloud of DBE nodes and services will be visible and stable

Long-term success of the DBE will be increased take-up and adoption of DBE platform

The long term success will be marked by

- the adoption by regions
- the creation of several independent communities which will develop and adopt the instruments and the methodology
- local communities efforts

The source code will be sustained by a community of developer (initially funded, and gradually self-sustaining)

The codebase with all its tools will

- maintain its open source character
- continue to evolve in an open, cooperative manner.

Long-term success will be the capacity to involve the open source communities in the development of the platform

- with a clear support by the users
- based on open source communities efforts

Long-term success will be indicated by the existence of a number of SMEs communities

- who will make money from using the DBE infrastructure
- who will have a strong 2-way dialogue with the developer community responsible for maintaining and improving the infrastructure
- regularly using the DBE to further their business

The final scenario will have SW SMEs developing services over the platform

- paying to the DBE community to maintain and evolve the platform

It will involve an on-going DBE Governance working group engaged in a consultative and participatory process

- leading to a DBE Foundation
- starting from a DBE Foundation
- where each member will represent him/herself and not their organisation

The governance structure of the project

- will ensure that it will balance the interests of all the involved parties
- will protect its decentralized character

The DBE success will be achieved by pushing from the top, i.e. a government making compulsory to adopt DBE

The DBE will be used by regional policy makers to help developing the regions.

The public sector will have an important role to play in promoting and supporting DBE deployments in specific territorial contexts.

Success of the DBE will

- be represented by deployment at European level
- see the creation around major development poles of a significant number of regional and inter-regional ecosystems
- cover a wide spectrum of industry sectors
- have an equalization of economics specially in underdeveloped countries
- have an improvement into lower class

The DE will be an emerging concept in several application domains

The DE will answer to the need of an integration of service and knowledge sharing within enterprises and individuals:

- better
- more efficient
- cost effective

Long-term success of the DBE will be its technical stability

Long-term of the DBE success will have

- less theory
- more actual implementation of post experimental cases

REQUIREMENTS FOR SUCCESS

A definitive key to obtain the success of DBE will be the trust

The key requirements for achieving success will be:

- the participation of social actors
- an evolving community for bootstrapping the whole process step by step
- the adoption by the software developer community

The main issue for success will be to achieve a critical mass of real users

The key factors to achieve success will be

- involvement of F/OSS supporting organizations
- DBE will be free for participants
- the creation of a vital developer community
- open source communities that will be informally involved in DBE technology maintenance
- all the component being part of the DBE core infrastructure that will be released under OSS licenses

Long-term success of DBE will be huge if 10% of European SMEs will adopt tools based on DBE

- be trained to share

The key requirements for achieving success will be

- a very open, receptive and inclusive presentation and management of the DBE concept
- the insurance that there will be no central point of control

* of the technology

* of the governance

The key for the future success of the DBE will be bottom up approach to governance

The key factors to achieve success will depend on

- local authority decision
- government plan
- policies in support of enterprise networking

The key factors to achieve success will be gather and enrol more intermediary actors as

- companies association
- development agencies (business start-up advices, regeneration projects) which are currently being funded by EU
- SME organization

The key requirements for achieving success will be:

- the engagement of regional catalysts and regional authorities across many regions of the EU
- one or more geographically dispersed ecosystems of live SME services
- the adoption of DBE in less developed countries

The key factors to achieve success will be:

- supporting further research and development in the area of DE to complete the technology with the missing parts

- effective new services
- a wide local testing
- demonstration to SMEs of the benefits from their participation
- creation of demo applications
- a clear proof of concept
- clearly-defined business model(s) which give measurable business benefit for all participants
- different application scenarios
- usability
- robust and reliable user orientated software
- accessibility.
- high interoperability with existing platforms and services
- organizational and relational infrastructure
- natural language capability at the user interface level

Key requirements to achieve the success will be the usefulness of services aggregated and offered through DBE

The key factors to achieve success will be

- software houses involvement
- solutions to offer to clients
- a key support mechanism
- continuous development and releases of the software based on user feedback
- standardisation of database models/schemas
- standardisation bodies will be informally involved in DBE technology maintenance
- favourable legal environment for knowledge sharing
- brings in money
- strong commercial orientation with business benefits

- wide business adoption
- rise of real business interest
- different drivers committed in using the DBE for their private use
- improving networks with businesses and supply chains
- a collaborative opportunity with industry partners
- absorption of DBE in the mainstream economy of software production

In order to achieve success the DBE will need funds

The Structural/Cohesion Funds can become an important financial instrument in supporting a widespread deployment of the DBE

The key factors to achieve success will depend on

- popularity
- promotion
- * in University

The DBE project will still alive if the SMEs

- will use the project
- will create service

The key requirements for achieving the success of DBE will be

- adoption
- simplicity (ease-of-use)
- supply of services to DBE architecture
- web services development

TIMEFRAME FOR ACHIEVING SUCCESS

The time frame for achieving success will be

- 1 year
- 2 years
- 3 years
- 5 years
- 10 years
- 15 years

D4 - Do you believe that the Digital Ecosystem concept fulfils the need for a different approach to ICT use and deployment? Will it succeed or fail? Can you say why?

DBE APPROACH TO ICT USE

The Digital Ecosystem approach indeed will represent a different and more holistic approach to ICT use and deployment in the business (SME) sphere.

The DBE and its development will represent

- a different approach to the ICT
- a new approach to the ICT investment policy
- a real evolution of the network toward the creation of "Digital Commons"

The DBE will create the infrastructure of connectivity to cooperate developing the regional economy and new business models

- for small companies
- for other social actor

The project will fulfil the need of an ICT strategic view as a relational technology

- as an instrument for connection
- as an instrument for cooperation

Every DBE partners will share the same views as to what the idea of openness means or what it will cover

- these core values (openness, cooperation, transparency, decentralization, etc.) will be applied in the same manner in every context

The DBE will be a new concept more spin on the social/political aspect

The Digital Ecosystem concept will constitute a different approach to ICT use and deployment because

- it will be SME focused
- it will allow SMEs to define their own business, technology and regulatory environment around their own needs and priorities

DBE will succeed because SMEs in the near future will aim on

- ICT systems
- ICT strategical organization

The Digital Ecosystem will justify the need for an involved business model highly affected by social and economic factors

- which will be still rather vague

The Digital Ecosystem concept will be a future use of the Internet

DBE will survive as a SME oriented SOA

Only the most solid parts of the technology will survive in the community

The free software as a whole will have DBE as a component

The Digital Ecosystem concept will fulfil the need for a different approach to ICT use and deployment by improving the use of ICT in developing countries

Other approaches will retain legitimacy and relevance, especially in terms of ICT use and deployment

- for citizens
- for the public sector

The DBE approach to ICT use and deployment will not last longer because

- it will increase the complexity of development and TOC
- upgrading, scalability and flexibility of ICT will be a barrier

* to ICT adoption

* to ICT support of business operations

The Digital Ecosystem concept will constitute a different approach to ICT use and deployment because

- it will rely on SME tailored solutions
- it will be very complex, but it will hide the complexity
- it will need big investments

The concepts that the DBE will offer will be absolutely innovative

- the technology will evolve and offer new things every month

POSSIBLE REASONS FOR DBE CONCEPT FAILURE

The Digital Ecosystem concept will fail because:

- the ecosystems will be too difficult to create
- of lack of funds
- the interdisciplinary and multi-stakeholder approach will be transformation and perceived as high-risk
- some successes Word and systemic complexity means this will be submerged by other more rapid and successful solutions
- it will not look at existing communities doing interesting/similar concepts
- it will go and do their own DBE thing, without bringing tangible advantages
- as a technology, the DBE will get superseded very quickly by something else

The success of the DBE will depend on the direction that will be taken by all the partners of the project and other cluster projects

POSSIBLE REASONS FOR DBE CONCEPT SUCCESS

The DBE will succeed

- with appropriate PR and training
- by getting it into schools and universities
- by getting it into small businesses
- having a greater integration of theory and practice, in particular collaborative R&D between SMEs and academic institutions.
- on the whole scale
- by introducing it step by step
- starting with the most useful part
- personalising it for each participant

The Platform will succeed through

- a wide adoption by SMEs
- a customised domain specific solution
- a simpler architecture (albeit less flexible)

The DBE will succeed because

- it will much more focus on developing a community
- the cooperative model of economic evolution will take place
- more companies clusters will directly connect to global markets
- * need such adaptive evolutionary architecture

For achieving success DBE will require

- investment by the private sector
- the take over by a technology platform or a group of ICT companies

The DBE will succeed because

- SMEs will find it useful
- there will be a good dialogue between the SME community and the developer community.
- a core community of developers and SMEs will promote the concept
- the Commission will continue the funding to support all the aspects of the DBE (business, social science, computing)

- of its bottom up approach
- it will have the government support
 - * at local level
 - * at EU level
 - * at extra-EU level
- it will be tested in different regional context
- new (young) ICT specialist are open to F/OSS and can stand to the modular and "not 100% locally owned/controlled" system/process
- will have a more user-friendly and more effective BML
- will have different instances of the infrastructure
- will be robust and mimetic
- some one will start to create a real service
- some one will start to use it
- it will provide answers to the problems that exists, such as scalability
- the concept will take over by the community
- it will address the economics and usage shortfall of actual ICT deployment
- it will be based on the rules of nature-evolutionism
- it will be the natural way to sustain complexity
- of its interdisciplinary approach

D5 - How do you see the relative importance of DBE in the more developed and less developed countries, both European and non-European

TRANSNATIONAL DIMENSION OF DBE: AN OVERVIEW

The DBE will be important as it will connect businesses

- for trade
- for business cultures and ideas
 - * that will be exploited in different countries

The DBE will have the same importance in the more developed and less developed countries

The DBE will fulfil important needs and it will have a part in the processes of development in both the contexts

DBE will be relevant for all countries

The DBE will create bridges between less developed regions and more developed ones

- as far as such countries will have sufficient digital network infrastructures

The DBE will be important

- for both European and Non European countries

Co-operation on DBE solutions between more developed and less developed countries will be important for both European and non-European countries

The DBE will be important

- locally
- globally
- outside Europe
- inside Europe

The relative importance of DBE will depend on

- how fast the areas will develop
- how they will early be adopters

FOCUS ON DEVELOPED COUNTRIES

Developed countries will adopt and apply the DBE much more quickly and easily than less developed ones

Developed areas will have more initial users

The DBE will have more importance in the European countries

In EU countries, where most of the IT and more basic infrastructures are already available, DBE will offer an opportunity to transform the way business is done

- through more openness and collaboration

Open source and DBE will have more success in the developed countries because it

- will gain consensus
- will achieve large economies of scale and scope

The advanced post-industrial nations will strive to compete in an emerging 'digital knowledge economy'

- DBEs will assume growing importance
- provided they will be shown to provide value-added to stakeholders (profitability, competitiveness, sustainability)

DBE will fly in developed countries because

- large corporations following the outsourcing model will be willing to open up their value chain

- will already have commercial solutions
- companies will invest on them

DBE will have a significant impact on the SMEs in developed countries

- since SMEs are about 50% of the GDP of Europe, DBE will have an important impact there because it will take up by SMEs

In Europe the DBE will be perfect in countries where main actors are small companies where there is a need to create clusters and cooperation between SME's

- it will be applied in countries like Italy where small companies need to find new ways to be competitive and to innovate

FOCUS ON DEVELOPING COUNTRIES

DBE will have a relatively greater impact in less-developed countries

- if the ease-of-use and natural language facility will be extended to the languages used

In the less developed countries DBE will carry out an important role of

- action system
- start up of processes
- social construction for the development

DBE will take place more effectively in less developed countries

- as they will have new thing to create
- since its holistic approach will be easier for countries that need to start in a structured way the way to digitalization

In developing countries DBE will offer a collaboration platform through which universities will engage initiatives more closely

- with private-sector
- with government development

There will be a lot of interest from countries such as Brazil or India emerging economies investing a lot of resources in research and innovation

- in Brazil, the DBE will complement digital inclusion programmes of the Brazilian Government like the Pontos de Cultura of the Ministry of Culture and the Telecentros

- DBE will support some ICT projects in Brazil that are going to have important results among indigenous population (example in Amazonia)

Less developed countries and regions will be more disadvantaged in implementing DBE due to

- lesser endowments
- lack of other pre-conditions

Developing countries will prefer a more complete systems

- they will be more likely to uptake it once it is more developed

It will be difficult to introduce the DBE without great experience in software engineering

Less developed territories will 'leapfrog' their more advanced competitors provided they will develop and deploy a successful strategy for DBE deployment

- such leapfrogging will call for a significant and sustained intervention from public authorities

The impact of DBE will be greater in less developed countries as it will enable

- a strategy of 'technology leapfrog'
- greater globalisation of small service
- greater globalisation of craft industries

The importance of DBE in less developed countries will depend on

- the actors supporting its deployment and implementation
- available or competing infrastructures
- the complexity of the regulatory
- the policy environment

In the less developed countries

- the government will give some support
- the development of the DBE will facilitate its use on behalf of local actors
- the network resulting from the DBE will necessarily require the participation of local actors

The importance of DBE will be more relevant in developing countries

- as less developed will be the country
- as less infrastructures (network and software) will have
- because it will be a good model and IT infrastructure for regional development
- because of the lower intermediation that will be present in these countries

DBE adoption will be faster in less developed countries because

- no legacy systems exist
- they will have not so much already established "traditional" ICT manager and CEO.

DBE will be an opportunity for less developed countries

- to take control of the process of building technological infrastructure
- to tailor the technological environment to meet
- * their own needs
- * the needs of their citizens

The open source character of the platform will seem to benefit especially less developed countries

The DBE will be the perfect solution to build an integrated public policy for digital inclusion that will be applied in the less developed countries

DBE will be very important for less developed countries because it will provide them an easy to use framework as start up

In less developed countries it will be easier to introduce new ideas (especially thinking of security and trust)

Sustainability of technical infrastructure

D6 - How could the DBE technical assets and infrastructure (e.g. source code, user support, model creation) be maintained in terms of resources and organisation?

DBE technical assets and infrastructure's maintenance

The resources and organisation of the DBE technical assets and infrastructure will be maintained using online developer's communities

A number of full-time people will be provided by DBE Computing domain partners

- 3-4 for the ExE
- 3-4 for the DBEStudio
- more if the EvE features will intend to be integrated in the ExE

* DBE will guarantee the core project and they will provide the last layer support, so the customer may be confident because they know that the SW creator is there.

The resources and organisation of the DBE technical assets and infrastructure will be maintained by a DBE Foundation

A core group of developers will be partly hired for the development and code base maintenance

In the longer terms, sustainable DBE deployments will show such a value-added to justify stakeholder investment and engagement

A distributed, layered approach to maintenance and user support will be established by

- an interface between the developer group and user communities to ensure good communication and feedback
- distribution under licence
- a licence fee for development will be built into business model
- an entity that will be safeguard the legal standing of the code base

* this entity will be able to influence the developer group who will be allowed to organise themselves

The resources and organisation of the DBE technical assets and infrastructure will be maintained

- expanding its applications
- exploring various model of sustainability
- via a self sustainable open community of users
- by user enterprises which will pay to the community of SW enterprises to develop services for them to make business

Possible role of developers communities

Some core developers will be supported (remunerated) by open source developers

DBE will maintain its open source strategy

- some governance will be described (e.g. procedures to include new modules, etc.)

It will be very important to leave the free software community to improve it and adopt it

The resources and organisation of the DBE technical assets and infrastructure will be maintained by

- Source Forge community
- Mediawiki
- a DBE community of developers which will be paid to maintain and make the platform evolve
- a community of contributors, following the open source philosophy, which will propose changes and new features that will be a good source for the developer community
- * students
- * part time people

The knowledge will be transferred to OPAALS (in which there are 70% of the DBE partners).

The existing EU projects will maintain for the next 2 years and provide developer support

DBE will be utilised in further projects

- parts of the code, by SMEs in the regions
- by everybody through the Source Forge platform

DBE will be maintained thank to a multi step approach in which:

- a community version, totally open and free of charge, will be produced and it will be the big community who introduce new features/projects into it following a total open source philosophy.
 - a certified version of DBE will be provided and a company after a democratic voting would decide to include it in their projects and develop it further
 - a business/certified version will be provided. This will be a complete stable version for large companies and it's going to be completely under control of the DBE community. Complete control and quality.
 - * customer of this version will put it in production without any risk. Indeed, it will be offered a guarantee in which DBE will pay 1/3 of the expenses caused by the SW certified by them.
- A dedicated organisation or project will be funded to maintain DBE
- The resources and organisation of the DBE technical assets and infrastructure will be maintained
- using non profit foundation
 - by volunteers
 - * in particular software SMEs
 - * that will be interested and existing technical/infrastructure owners agreed, they will take it over
- The resources and organisation of the DBE technical assets and infrastructure will be maintained through personnel time donations
- small and large software companies
 - economic development agencies of local and national governments
 - university students, researchers, and faculty
 - the various stakeholders
 - individual developers
 - * that will feel motivated to participate for free, according to the open source model
 - personnel time donations will cover about 2/3 of the costs
- Regarding source code, there will be other approaches to create a "DBE" like code that will have already a community

Possible role of enterprises

- The resources and organisation of the DBE technical assets and infrastructure will be maintained
- in commercial terms
 - by a large number of contributions from commercial
 - by a community of SW enterprises which will
 - * develop services over the platform
 - * pay to be sure that the platform keep stable and will be evolved
 - * be certified by the DBE community
 - * develop those services faster and with innovation components which make them be more productive and
 - * make their services more attractive to other enterprises which consume those services.
- Some larger companies will give resources in the way that Sun does to Open Office
- it will be pioneering individuals that will drive it
- The systems will require revenue streams and resources to pay for development
- by means of software SME's contribution
 - * those small software companies will contribute when an end users critical mass will be achieved
- The resources and organisation of the DBE technical assets and infrastructure will be maintained by
- online pay-as-you-use systems
 - online pay-according-to-your-benefits systems

Possible role of public sector and institutions

- The resources and organisation of the DBE technical assets and infrastructure will be maintained
- through a mix of public and private funds
 - using extended Public Administration (i.e. University and local/regional Chambers of Commerce, development agencies and employers Associations)
 - by University
- DBE will be maintained under the European Commission
- Additional funded projects will emerge
- It will be interesting to have governmental infrastructure by regions
- it will be very important to make citizens participate
- The resources and organisation of the DBE technical assets and infrastructure will be maintained working and benefiting the people and the local development
- It will be organized in a distributed manner at the participating Regions following a model similar to the one adopted by its computing infrastructure (i.e. two-level organization, Region nodes and SME nodes)
- Different regions will adopt it, and a community of open source developer will flourish and it will be integrated with other open source projects

The resources and organisation of the DBE technical assets and infrastructure will be based on regional and open source efforts with open source license for all the issues

Public investments will be

- necessary to kick-start deployment
- sustained or justified beyond the relative short term

A team of developers will be maintained and supported by the Government

The model will be created bottom-up and be different in each region and country

- the diversity of models will be the strong point of the ecosystems

As long as local communities adopt and use it the resources and organisation of the DBE technical assets and infrastructure will be based on

- scientist
- open source communities
- standardization bodies effort

Organisational Structures' typologies

A lightweight organisational structure will be required to mirror the de-centralised nature of the infrastructure

Open Source structure will donate funding of a few full-time developers to act as maintainers

There will be adopt a federated governance combined with a network/community model.

Implementation services will be decentralized

A Technical committee of elected representatives will coordinate the technical maintenance

There will be a central organisation accountable and responsible for undertaking these activities

A small committee of 2-4 people will make always the final decisions

* these people will be put there by voting of the large community of developers

A consortium will be created and will be composed by the IT enterprises that develop the DBE's services

Maintenance of the core technical infrastructure will need to be organized and systematic

- the natural-language-based formal language of DBE will be part of the core that will need organized oversight to grow and evolve with integrity

DBE company will have certified partners which will make projects for the final customers

A support agreement will be signed between DBE and the final customers

The DBE technical assets (hardware, networks) will have dispersed ownership

D7 - What types of organisation or people would be motivated and likely to give technical or human resources to support DBE maintenance and development?

DBE maintenance/development: organisation typologies

It will be difficult to find people or organizations that will want to support DBE maintenance

The DBE will need to raise to a level of significant community of users and applications for the rapid establishment of a maintenance structure

The characteristic of the organization will be:

- made by individuals with an open self-governance structure with by people appointed by the community itself
- being in contact and open to a continuous sharing with local development agencies and policy makers for SME development
- supporting running deployment project and new development of the DBE infrastructure

The organization will take the form of:

- an association
 - a EEIG
 - international consortia with rules that are agreed and discussed by the DEB community itself
- DBE maintenance and development will be supported by a network organisation that will be governed with
- instruments of sharing strategy
 - involvement of the various actors

DBE maintenance/development: possible protagonists

There will be the need to have full time personnel involved

All technical DBE partners will commit in opening and maintain DBE nodes

- regional catalyst will continue at national and local level to support the DBE approach

DBE maintenance and development will be supported by

- open knowledge communities
- people who will benefit from it
- individual developers
- enterprises which have developed the core code
- developers community

- software developers
 - * working in companies already active in one or more open source communities
 - * interested in the new aspects of P2P, BML, etc.
- DBE maintenance and development will be supported by
- micro ISVs
 - software houses
 - * be directly funded through government funding (e.g. national projects)
 - * saw it as opportunity to promote their technology/products/services in the future
 - Free Software Foundation
 - SLA
 - * commercially oriented
 - big companies and corporations
- DBE maintenance and development will be supported by
- university students
 - universities and faculty
 - individual researchers
 - R&D businesses
 - research institutes
 - chambers of commerce
 - development agencies
 - * regionally funded projects
 - a non profit foundation
 - NGO
- DBE maintenance will be provided by IT infrastructure that will use
- * the DBE infrastructure
 - * the DBE service
- DBE maintainable and development will be provided by
- management companies of techno parks
 - technical institutes
 - * trying to attract more value chains

Possible protagonist: national/regional public sector

DBE maintenance and development will be supported by

- regional and national governments bodies
- governmental organizations
- governmental agencies
- public organisation
- public institutions

The regional level will be the appropriate level to develop the project

Regional Authorities will provide the DBE services to their SMEs, free of charge, as an incentive for greater productivity

- with the appropriate technical support of local research organizations

A central DBE support in the different territories will depend on

- regional/central governments
- local authorities

Possible protagonist: private sector and SMEs

DBE maintenance and development will be support by

- early adopter SMEs
- * who will have an edge in the development of new business models
- SMEs which will use some parts of the DBE tools
- existing SME communities
- SME software producers

Software SME's will obtain new customers

- through the adoption of such technology

DBE maintenance will be provided by the ones that will pay for it

DBE maintenance and development will be support by

- industries highly involved in its adoption
- investor who will need the information to invest in the region
- organisation who will benefit from it
- commercial projects
- commercial organizations

- large companies
 - * their influence would have to be contained to ensure an SME focus
- Some organisation that will be motivated to support DBE maintenance will be
- big pharmaceutical companies
 - large corporate players
 - standardisation bodies
 - private consulting house

Possible protagonist: Open Source Communities

Open source project will run under the organizations that will manage the community of developers
The subjects that will be motivated to support the maintainable and the development of DBE will be

- open source projects
- open source bodies
- agencies to do with open source
- open source communities
- open source developers
- * who will incorporate DBE into their products
- LUGs
- www.canonical.com

DBE maintenance/development requisites

The DBE development will depend on

- the context
- local social economy characteristics

It will only work once the model will be self-sustaining

- some support to help this transition will be provided
- * at the European level
- * at structural level

It will depend on what proves to be a mutually beneficial arrangement for all stakeholders

- be provided by the users

In a long term the motivation will

- have multiple funding for keeping autonomy and independence

There will need to be a favourable economic proposition for participants

For the DBE development will be important

- that the other projects in the Innovation Ecosystems cluster to maintaining the momentum and consolidation of the infrastructure
- the SME and regional communities that have been built during the project

The OPAALS NoE will

- maximize the impact
- push for DBE adoption
- define a more pragmatic and flexible approach

D8 - How important is it to have a roadmap for DBE development, and if it is important then how should one be created, and on what should it focus?

The roadmap importance for DBE development

It will be important to have a roadmap for DBE development

- it will be created by the current computing team
- * which will be the core of the DBE Community at this moment which can give this information.

Beside road map to have more code camp will be important

It will be essential for DBE to have a roadmap with specific and measurable objectives that will be benchmarked and assessed.

A roadmap will help establish a common view and common standards

A roadmap will expand its ambit and subject itself to wider validation and introspection

It will be important to have a roadmap for

- improve adoption
- improve involvement on more developers
- availability of models

The roadmap will be very important for many reasons:

- it will give the image that the DBE is planned to be there for the long term
- it will give a serious image

The roadmap for the DBE development will be the most critical piece of information that will be produced

The development of a future strategy and sustainability model will be more important than a roadmap

The sustained value of DBE will be more important than a roadmap
- a roadmap will be a natural consequence of sustained value and interest
The trust and the process will be a priority for the DBE development
The DBE will evolve anyway without a roadmap
Even without a traditional industry-driven roadmap work will be done to improve the infrastructure and the languages upon which digital ecosystems are based
A roadmap for the vision of DBE around which loosely affiliated contributors will organize themselves
Roadmap will be a crucial point for the community and people to engage
- will allow the community to engage and invest time on the different components/functionalities needed and/or foreseen.
A roadmap will be important because the user will be able to understand what it will be able to use.
It will be useful to have a shared roadmap that will help SMEs to plan the future integration using the DBE
It will be appropriate to have more than one roadmap as part of a larger (EU) strategy
With a roadmap the DBE will be dismantled into a technology platform
A rigid roadmap will
- jeopardize the results
- help to achieve the results
The roadmap works for top-down technology initiatives so it's useless for DBE
It will be essential that the work will not end in a disassembly of the whole package in its sub parts

How will roadmap be created

In creating a roadmap will be more important to point on
- the process
- the goals
A roadmap will have to be subject to constant
- scrutiny
- debate
- updating
It will be important to provide a roadmap/vision that will have to be defined by all DBE project partners before the end of the project
The roadmap will have to be designed demand driven (i.e. based in the experiences of the early adopters)
The creation of a roadmap will need to be done using a hierarchical approach
A roadmap will be created by 3 to 6 months work by a team of consultants
The roadmap will be user driven
To create a roadmap new developers will be engaged
A roadmap will be create
- adopting existing standards
- replacing current components with standard ones
The roadmap will be created by a non profit foundation
The roadmap will be determined later on
- because it will unavoidably lead to issues of central control and agenda setting
To have a roadmap will be the result of an action of diffusion on the territories
A "research" roadmap will be
- easier to contribute to in a decentralised way
- safe if only a few players will develop it
* because anyone else will simply initiate an additional research activity in any aspect whatsoever
Each domain (computing, science) will provide an overview of its vision
- outlining what has been achieved
- what needs to be completed in the short and the long-term
- the different domains will might need to coordinate
The DBE stakeholders will know
- what will be needed to improve the system
- how to tell each other what progress will be made and when (e.g. Source Forge)
To create a roadmap
- open source project management will have techniques
- suggestions will be made by anyone
- the maintainer will decide
- an online vote will be taken
The creation of a roadmap will develop/maintain similar to a major OS product (like KDE, GNOME, OOo, etc.)
The role of the technical manager will be critical at this stage

- being the missing of the roadmap a way of leaving external developers and contributors in the impossibility of participating in the community development.

Roadmap will focus on...

A roadmap will have to be treated flexibly as a guide to action

The roadmap will focus on

- who or what will be responsible for representing each stakeholder group ensuring that communication continues to flow
- many 'forks' of the project to be useful in a 360 degree way
- definition of critical mass
- promotion through mediators
- maturing the middle ware

The roadmap will focus on sustainability i.e. among others on gathering of funds

The roadmap will focus on

- solving business problems
- service catalogue
- the interest of the adopting communities
- spontaneous emergence of ideas
- diversity of each kind of community
- the discussion
- the standardisation bodies opinion
- the interest of the open source
- involvement of software houses

The roadmap will be based on

- adopting communities bottom up contribution
- how the key relationships (projects in the Innovation Ecosystems cluster, SME and regional communities, developer group) will be maintained in the short term

The roadmap will focus on the contribution to strategies of local development focused on knowledge

It will focus on possible applications and use in regional development

- both in the EU and abroad

The roadmap will focus on coordination of government policies

A roadmap, or road maps, will be useful in

- allowing the setting of targets and the monitoring and evaluation of these
- providing direction for
 - * ongoing research
 - * deployment efforts within a strategic framework

The roadmap will focus on

- natural language user interfaces
- just nice technology
- take-up and usability

- * constantly getting feedback from its members

The roadmap will be proposed to

- research centre
- government
- industry

D9- To what extent do you think the DBE community needs structuring in order to survive? Will structure be a pre-requisite for progress, or can structure be left to emerge from practice?

To what extent do you think the DBE community needs structuring in order to survive?

DBE community will need to be led by a team of visionary that understand the holistic approach of the DBE

Structure will be needed if the idea of a Digital Business Ecosystem will be followed as a whole

DBE community will survive without structuring

People interested will

- push or promote the project
- identify what structure they require

The self-organisation of the DBE community will require a structure

An initial set-up structure

- will be beneficial
- will have to be self-sustaining

In order to survive the DBE community will need

- low structure
- high support from standard creation organizations

The structure of DBE will focus on the enlargement of the community

- through the restart of a community building action
- around a wide and comprehensive DBE roadmap

The only structural body DBE will need will be a sort of council of adopting communities

- whose role will be to support other communities in adopting DBE approach and technologies
- it will be owner of the DBE
- it will be an ideas think tank

The digital ecosystems will be based on an extremely diverse set of communities of practice

- in applied fields
- in theoretical fields
- in business
- from the public sector
- from Europe
- from outside the EU
- from developing countries

"Learning how the communities of practice will be able to interact and communicate will be ""itself"" an open question and a subject of research"

- we will be able to know ahead of time what structure will be best for the productive integration of such a constellation of communities.

DBE community will need initially some support in a form of a consortium

A typical open source governance will be established

- as an independent community
- as an affiliate to some larger communities (e.g. Apache, JBOSS or Java)

DBE is an open source community, and will remain as it is

DBE will focus on building an house for the developers

- it will remain empty because no one will be willing to participate

A structured technology centre for the core will be important

- until the tipping point is reached
- to push DBE up the hill

DBE will need other types of structuring

- two-level structure will be proposed for computational/technical/operational reasons

Any such structures will be subject to regular review and operate with 'a light hand'

- by the creation of permanent regulatory bodies

A very small open organisation will be enough to act as guardian of the critical aspects such as legal rights

- it will be largely voluntary

DBE community will need some structure to assure quality on improvements and governance

Structure meant as governance will be necessary

- to guarantee the decentralized character of the system

The DBE will need of

- a policy coming from a mix of actions
- a shape of collective government
- coordination
- a wide freedom of local experimentation

* in order to facilitate eventual emergent processes

At a EU level, some common frameworks and structures will help support the development and sustainability of such DBEs

- allowing the sharing of good practice
- allowing common solutions across territories and across sectors
- improving the competitiveness of the EU and its SMEs

There will be an emergent process driven by

- a mix of market opportunities
- technological advances
- community formation

"To encourage adoption until DBE ""takes off"" on its own will be needed"

- concerted advertising
- public relations efforts

The DBE community will need a very good structuring in order to survive

The structure will be needed for a few year

The project will need 2-3 year before structuring

- for sure a better and less political dissemination

Start-up money and market will be necessary to cover the first 2 to 3 years.

The initial structure will emerge at a moment in time will need to be formalized

A business model will be developed

- a structure will be established to exploit it

Structuring will

- increase the chances of DBE survival
- solve the problems of DBE
- become a driven force

For structuring DBE will need a more open approach, more clear and participative

The DBE will introduce structure artificially

- the structure will inevitably be restrictive
- issues of central control and agenda setting will be a problem

DBE will remain as

- a closed system
- a proprietary software.

To discover how DBE can work it will make more sense to let each separate

- community
- sector
- geographical region

Will structure be a pre-requisite for progress?

The basic tenets of the infrastructure (as SME-focused, as distributed, as open source) will be instated in a manifesto of some sort

The structure will be necessary in order to reach the DBE goals

To structuring is one of the DBE goal

The community will need to grow to a sufficient size before there will be a need to structuring it

To survive DBE will need

- a good cocktail between organization and anarchy
- that no multinational will monopolize this DBE
- governance
- self-regulation

Having a strict structure will kill the common process and development

The structure will be achieved through

- dialogue
- consensus

Discussions about alliance formation and future directions will be transparently communicated to

- stakeholder communities
- decision-making

A democratic structure will need to be

- proposed
- adopted
- enforced

Every stakeholder group will have different needs and they will structure themselves

- using formal means
- using informal means
- only in this way their diverse needs and priorities will come to the fore

Stakeholders groups will be required some lightweight coordination

- to enable diverse stakeholders to communicate and exchange feedback
- any coordinating body will have limited powers
- the act of coordinating itself will be used to influence decisions

The a core requirement will be any decision regarding the specific form of this governance

- will be emergent
- will involve all the interested stakeholders

* which will be what will be attempted in the context of the DBE.

There will be a number of EU supported project which will take advantage of the system

It will important to fix possible abuse of the code so to protect the work done insofar

Can structure be left to emerge from practice?

Structure emerging from practise will be a pre-requisite for progress of the project

DBE will be self-organising, structure will emerge from practice

The structure will emerge from practice through

- a bottom-down involvement
- a critical mass of users

DBE will need structuring and will have to be structure to emerge from practice

- at the beginning

- " - if the DBE will have a ""killer"" feature"

The structure will be left to emerge from practice as the goals of uniform access of resources to all it will be compatible with the interaction models preferred by some

The structure will emerge from community needs

- as other open source communities

For structuring it will be essential

- organisation of some facilitation

- expert contact points

- supportive user groups seems

Will be create a framework to help this structure to emerge

The structure will emerge from a shared process

- because the stronger point of the DBE will be network

D10- What existing models, or elements of models, for a self-sustaining community that you have experience of, do you recommend that DBE should adopt, and how should it go about adopting them?

What existing models, or elements of models, for a self-sustaining community that you have experience of, do you recommend that DBE should adopt?

There will be no existing models for a self-sustaining community that DBE will imitate

Possible models will be studied further, relented questions will be explored with

- an open mind

- a business attitude

- research-opportunistic attitude

It will be very important to create cooperation and links between the open source communities, the local governments, the representatives of industries, university and institutes of research

- to build trough the DBE an integrated and sustainable innovation policy

DBE will need to explore other

- accelerators

- multipliers

The DBE will adopt an entrepreneurial approach

The DBE will need

- defined process for accepting code contributions

- people responsible for integration/creating builds

- regular communications

The DBE will adopt the model of a Community of Practice

For a self-sustaining community the DBE will adopt the model of

- Open Community networks

- associations

- consortia

- no profit association

- NGO

- Open Source communities

- Debian KDE

- free software communities that manage projects (i.e. Debian community)

For a self-sustaining community the DBE will adopt the model of

- a foundation taking care of basic funding and support (e.g. legal)

- governance for the technological development

The first priority for a sustainable community will be the objective of protecting principles of

- transparency

- trust

Transparency will be fundamentally important

There will have an agenda

- that will be discussed openly

- all the stakeholders will be able to work together to find synergies and overlaps.

Communities that will be based on trust will be capable of sustaining

- creating economic systems.

Economics will be a non zero-sum game

- value will be created through labour

If there will be trust the economy will become sustainable.

The DBE will keep an open source strategy

- because the competence and the participation will be the unique way to be a leader

- that will get profit from added value services like

* e-learning

* DBE software certification

DBE will be worth looking into some mature open source projects, such as

- Apache

- Mozilla

DBE will adopt the model of

- MySpace

- Bebo

- YouTube

The Dbe will adopt a model similar to

- the WWW

- such network as Eurocities

- rosetta net model

- ebXML foundation models

- www.canonical.com

The starting template will be like

- the dotnetnuke

- Linux

- Mysql Model

- Php Model

- Ututo Model

The Wikipedia foundation and community will be the model

- the foundation will simply create to protect the Wikipedia brand and codebase

The Wikipedia model will have influence on how will work

- the knowledge community (who patrol and update the encyclopaedia)

- the developer community (responsible for maintaining and improving the software)

These communities will use their own organisational and decision-making processes

- which will emerge historically from seeing what worked

The key will be

- allow self-organising communities to emerge who can generate and be free to act according to their own priorities and motivations

- over-write the norms and rules that groups generate themselves with centrally conceived notions of how things should be done.

DBE will adopt the model like the JBOSS one

The Pontos de Cultura tested in Brasile by the Minister of Culture will represent a model for the connection structure with the "real" and productive communities

- based on the 12 principles of on-line communities

Path towards adoption

Self sustaining will be achieved in different modes

- the cost of running such organization will be low and will remain low

These will tend to be open membership organizations

- value-added services to members will justify their continued subscription and participation

The main focus of activity will tend to be on sharing 'good practice'

- in forming of new project consortia (partner brokerage).

Grants and funding will represent a part where the organization will became the real center for the DBE knowledge diffusion

- funding from private organization will be taken in consideration and accepted by the community in support of further development of the technology

The sponsors will be the technology companies who will see a big business in supplying DBE

- software

- hardware

- services

First of all, we will have to make training

- many people as possible will know your platform as in depth as possible

- the objective is to create the community

* to do business.

We will already have the community

- we will start to make subscriptions and will provide paid support with guarantees.

The experience of 'network' meetings in region on a three monthly basis will be helpful

Some possible activities will be through dissemination activities

- training
- events

A JBOSS model will be adopted and the cost will be the following:

- the community of developers
- there will be an office
- * if the business go ahead, then increase the number of offices.

- The e-lawyer if it will accepted

The incomes of a model like a JBOSS will be:

- Funds (in the short term)
- Enterprises paying for maintenance
- Core of the business (85%)
- There will be very different levels of maintenance, from 1 hour to 3 business days with different costs.
- Training and certification (10%).
- Very specialized and expensive consultancy (5%).
- We will start to have certified partners
- which are the contact with the final customer
- they will provide the core support
- they provide the customer support, the first level.

It will be DBE who will sign the contract with the final customer

- because it will be DBE who will have the final responsibility

DBE will want the know how to be distributed as much as possible

- then the product will be saved because there will always someone who will be able to contracted by the company and provide support

D11 - Does the DBE need an organisation to be a legal 'owner', and if so, then what type of new or existing legal entity would be best to perform this task and what would be its roles and responsibilities?

Will DBE need a legal owner?

The DBE will need an organisation to be a legal "owner"

- in principle
- in practice

Businesses will want and expect something "concrete" to come out of the DBE project and digital ecosystems in general

- a legal entity will help in that direction

It will be needed a foundation to support

- the DBE technologies
- the overall DBE concept

The DBE will need

- a group of supervisors to check the misalignment of the DBE practices
- a legal support team
- a group of volunteers that will be willing to spread the DBE around the world

Without a legal entity individual software admins will decide to go off in different directions with the same code base

Some form of legal entity will be desirable to maintain credibility and professional image

A structure will be established only and when will agree on the governance

- the community
- the participation of contributors

The governance of the project will be defined

- through a participatory process
- by imposing a legal owner

* that will set rules without consulting the communities

Some implementation of specially governments will lead to a 'particular' use of the system

- the process through which such a legal entity will be formed and come to life will be very delicate.

The only possible legal entity will be a technical committee

- that will coordinate the technical maintainance of the platform.

A legal entity established too soon will bring a few short-term benefits

- this will endanger the whole initiative

DBE, as a new constellation of technologies and stakeholders, will need time to find its feet

- to develop its identity or identities

Time will be necessary to understand what the "entity" is before worrying about making it legal or not

There will be already plenty of foundations for open source projects

- it will be too late for the DBE

Creation of ownership organizations will contradict the nature of DBEs

- that will have to be flexible, adapting to
- * the changing needs of stakeholders
- * the needs of changing stakeholders

The DBE is LGPL and CC, so there will be no need of legal entity

- It will be enough to transfer control to the running network of excellence (OPAALS) that
- * will develop further concepts on the DE
- * will enlarge the community of researchers.

A legal representative will be a form of centralisation

- it will be not compatible with the project

Any legal owner will be in contrast with biological evolution and with DBE principles

The DBE will be perceived as a digital common so no legal entity is needed

Typologies of possible DBE legal entity

The DBE will be subject to intense commercial pressure

- it will be able to sustained through the open source model.

Code will be owned by the community through a legal representative

- able to take action from abuse of its use

The organisation that will be best to perform this task will be

- a trusted one
- member owned ltd company
- FSF
- GPL3
- an entrepreneur based organization

It will need

- a full-fledged organization
- a lean small structure used only as container of the code

The organisation that will be best to perform this task will be

- EEIG
- association
- non for profit organization
- a foundation-like organisation

The organisation that will be best to perform this task will be

- a Free Software organization
- GPL
- a consortium of interested parties
- an open source organisation

It will adopt the foundation model

- it will be a quite flexible model
- there will be some little problems to involve
- * mediators
- * administration

Most appropriate model to run a business will need

- a strong board of regional authorities
- to find some driving
- * individual
- * region

All the information about the legal entity will be part of the platform modelled in an appropriate way

Possible role of the eventual legal entity

The legal entity will

- adopt an inclusive decision making process
- be committed to free software licensing
- avoid dual licensing practise
- integrate the life of real SMEs in the DBE system and communities
- took all the responsibilities necessary to ensure that DBE vision will be not compromised or subverted
- * this will allow the developers to focus on creating the software to create that vision

The entity

- will have no powers whatsoever
- will exist purely to protect the code and the brand

The entity will be constitutionally tie the core values of digital ecosystems to the code base

- as SME focused

- as distributed
- as open source

An entity will exist to serve a few core legislative purposes only

- if given too much power it will undermine inter-community trust

Some entity will "own" the core technology

- to guide its continued development
- to assure quality of the core components

A legal entity will help with legal aspects of the software

This entity will fund key software integrator/builders etc. if required

Further considerations

The entity will exert a controlling influence this will lead to polarisation as a reaction

- which will fracture and fragment the community

Slowing down on the formation of a legal entity will be paramount to admitting that DBE will be not ready for the "big time".

The legal entity will be able to control the community

The value of the DBE concept will lie in its technology platform and supported functionality that will ensure the proper operation of the ecosystem.

The technology itself will need to be further

- tested
- improved

The needed will be that all the ecosystem's participants will

- be aware of
- fully understand (and accept)
- * the social/economic factors
- * the regulatory framework that affects the ecosystem
- * its accumulated knowledge

The collaborative processes will need to be better integrated in real business models.

The DBE will be ready to be taken up as a convincing proof-of-concept by a large company

- who will invest into its commercialisation

The DBE itself will be able to be commercialised

- because it will encompass

- * people
- * companies
- * practices
- * processes
- * models
- * technologies
- * research groups
- * research projects