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Executive Summary

This deliverable follows D28.5. *Detailed phase 1 regional training action plan* in both structure and approach. The purpose of this deliverable is to define and refine the objectives that were set out in D28.5 and provide a detailed plan for phase 2 training.

The key change in phase 2 training is that the DBE project is opening up and expanding the regional communities over the project partner boundaries. This is a challenge, but a requirement to achieve the objectives of the project. While the Phase 1 training and content creation challenges were creating consistent training with little experience from the actual trainees, the challenges in Phase 2 are processing the experiences from Phase 1 into training content and activities and providing that not only to the project partners but also Drivers, implementers and other partners involved in the training activities in Phase 2. Thus the emphasis will be put into clarifying the messages, providing required content for training purposes and increasing the transparency of the project as a whole in order to create trust with different partners.

The link between regional needs for training and the content creation is accomplished by using training evaluation of Phase 1 as the grounds for the content creation of Phase 2. This process cycle will be continued in the following training Phases in the similar manner.

After phase 2 the regional cooperation will be increasing and the preparation for that will be begun during this phase. Also the SME DBE community will multiply from approximately 10 drivers to involve roughly 100 SMEs in just a few months. This puts a natural pressure for the regional catalysts as well as other partners, but also provides the opportunity to pass part of the pressure to the final beneficiaries of the DBE – the SMEs.

The deliverable is structured as follows. The first chapter introduces the grounds of this deliverable and links it into other existing deliverables. The second chapter is a recap from the deliverable 28.7. and reveals the essential findings from Phase 1 Training Evaluation. The third chapter describes the Phase 2 regional training actions in detail for each three initial regions of the DBE. The fourth chapter is about the content creation in Phase 2 training including the detailed descriptions of Phase 2 learning modules. The fifth chapter studies the critical support actions needed to accomplish the objectives of Phase 2 training. Finally chapter six concludes the essential findings of this deliverable.

1 Introduction

This deliverable provides a detailed plan for the regional training activities that will be carried out in the regions in the project months 22-26. The bases for this document are in the D28.1. *DBE preliminary training resource plan*, in D28.5 *Detailed phase 1 regional training action plan* and in D28.7 *Cross-regional phase 1 training evaluation report*.

The second training phase concentrates on regional expansion by encouraging the development of self-dynamic sub-communities. Initially, the second phase training was planned to begin in project month 18, but due to delays in technology releases the driver SMEs were unable to begin their work until later than originally planned. For this reason, phase 2 training began in project month 22 (August 2005). This delay makes the objectives defined in D28.1 for phase 2 training possible to achieve. Correspondingly, phase 3 training has been delayed to begin in project month 26.

The deliverable begins with a recap of the evaluation of phase 1 training derived from D28.7. Based on those experiences the third chapter provides the detailed regional training plans that aim to achieve the set objectives in the specific regional business environments. In relation to the training activities the fourth chapter deals with content creation and distribution plan with a special emphasis on learning modules. The fifth chapter presents specific critical support actions that are crucial for phase 2 training to succeed. Finally in the sixth chapter the conclusions of the detailed phase 2 regional training action plan are presented.

2 Evaluation of phase 1 training

The objective of phase 1¹ training was to initiate local DBE communities in all three pilot regions. From that phase we hope to establish a group of about 15 – *Driver* companies – that would form the heart of the DBE community in the early stages and the basis for its longer sustainability. The prior estimation of – technical as well as knowledge - readiness to engage with the DBE project on the one hand as well as clear commitment to its goals on the other hand were the main measures for the ability of an SME to become a Driver. Selection of Drivers was based on the contact network of the regional catalysts and previous experiences with the firms as well as on a series of general information workshops and discussion sessions in the regions.

The first experiences with Driver SMEs are promising. In particular we found DBE usage scenarios² that are evolving with the active participation of Driver SMEs to be more compelling than those developed in theory. The analysis of these usage scenarios will not only impact the Business Vision of the project but will also serve as a basis for the further dissemination of the DBE idea. In addition, SMEs started their own peer discussions on their usage scenarios and document their struggle with the early stage DBE technology in web logs and discussion forums.

¹ For a more detailed description see Deliverable D28.7 « Cross-regional phase 1 training evaluation report »

² Example of a Driver company: Nemein in Finland (Tampere region) is an Open Source software developer and consulting company. They are engaged both in a larger OS community around the Midgard content management system as well as promoter of their own OS project management suite: OpenPSA. By integrating OpenPSA with the DBE infrastructure they aim to turn their stand-alone project management application into a distributed solution that would enable co-operating companies to share project information or expense reporting.
<http://www.nemein.com/en/news/press/openpsa-enters-the-digital-business-ecosystem.html>

In the sense of building a DBE identity, these first actions of the DBE community were very helpful. The first Drivers also demonstrated a good identification with the project once they became active – e.g. working on their own application case, getting in contact with our experts, trying the technology.

We also found that communication towards Driver SMEs has to be clear, realistic and open with regards to the current project status, backlogs and problem areas. Drivers were conservative towards any upfront “marketing” of the DBE. We realized that creating initial awareness for the project’s long-term objectives is important but it cannot replace the motivation that springs from concrete involvement based on tangible results. Instead, we found that most Driver SMEs had little interest to engage into something where they could not see immediate benefits.

However, this was also correlated to the competence structure of the Driver SME. In fact, we found that the willingness to engage with our project was highly correlated with a Driver’s technical as well as business experience in corresponding areas as e.g. web-services or service oriented architectures.

One related observation was that those SMEs that were experienced in the Open Source domain could more easily adapt to being confronted with *work-in-progress* instead of *ready-to-consume* solutions. They also tended to be more willing to co-develop application cases by bringing-in their existing OS software components – whereas developers of proprietary software were hesitating to do so claiming security and stability concerns. In addition, the less technologically up-to-date an SMEs proprietary software products were the more difficult it turned out to engage the SME for the project. Finally, the less proprietary software providers trusted in the initial maturity of the DBE, the more reserved they tended to be in the engagement process.

Finally, we had good experiences with the concept of bringing first users (Discoverers) into the project indirectly through the Driver companies. As Drivers were requested to choose Discoverers from their own customer base, this on the one hand increased the motivation of Drivers to build real DBE solutions. On the other hand their previous experience with a specific user sector could be leveraged to make the DBE case fit better to specific business requirements of the Discoverers. We still estimate the potential to engage a user directly for the DBE as low given the current development status as a merely “empty” infrastructure.

Recommendations for Phase 2 are:

1. Use Drivers actively in the extension of the DBE community. In that context, build on their own preferred communication forms (e.g. web logs) and adapt the DBE communication infrastructure (knowledge platform, web-site) to it.
2. Build on application cases from Drivers to make the DBE more concrete for SMEs. Be open in the communication between Drivers and the project and integrate them as equal partners.
3. Continue with the indirect recruiting of users. Request that software developing SMEs bring something to the project from their side (usually an existing application). Build joint cases with users that address a concrete business need.

4. Improve cultural fitness with the Open Source world. Care for motivational factors (e.g. visibility in the community or rewards) and observe OS rules of behaviour. Increase engagement of OS experienced SMEs.
5. Better synchronize regional knowledge transfer with release planning and technological readiness of the DBE. Avoid big “code drops” followed by months of non-releasing.
6. Take recommendations for improvement and blind-spot detection by Drivers seriously and feed it back into the Computing and Science domain. However, also encourage SME to take ownership of the DBE infrastructure and work on their own improvements.
7. Build-up equivalent – technical - DBE knowledge within the regional catalysts to improve direct regional support for the growing SME community.

3 Training activities in phase 2

The objective of phase 2 training is to encourage self-dynamic evolution of initial sub-communities. In this phase, the DBE project is expected to move from a strong push-approach towards a role of a facilitator. Here independent interactions between the parties are actively encouraged and rewarded by the DBE project, with the aim to strengthen the natural evolution of initial, strongly supported sub-communities.

The DBE project encourages the initial actors to extend the communities in order to attract new contributors and users, called as Implementer and Discoverer SMEs. Initial actors are supported by the project in this activity. In its new role, the DBE project concentrates mainly on facilitating the knowledge transfer between the actors, to increase transparency of the interactions and to build reward mechanisms depending on contributions and on successful integration of new actors.

The training activities, as mentioned above, concentrate on implementer and user SMEs with the help of the driver SMEs and other collaborative partners. The DBE community enlarges and it is natural that the initial members of the community, the Driver SMEs, take a larger role in the expansion process. For this reason the continuity of the engagement of the Driver SMEs is very important for the success of phase 2. In the following phases the roles between drivers and implementers may change, but in phase 2 the drivers are the key actors in achieving the training objectives.

As the number of participants in the DBE regional communities increase, the role of one-to-one training activities that has been the main delivery mode in the engagement of the drivers will decrease. Instead, small events aimed for specific target groups will have a more important role in phase 2 training. The training activities will vary in different regions based on the experiences from phase 1 training. The region-specific training activities will be presented in detail in the following sub-chapters.

3.1 Finland – Hermia

3.1.1 Lessons learned from phase 1 training

The main objectives for the first phase of training activities in the Tampere region were defined in the D28.5 as follows:

1. Attract a sufficient number of potential driver companies

2. Integrate 3-4 driver SME to work with the consortium with a strategic business vision that is in line with DBE vision
3. Integrate the regional intermediate organisations and programmes (Regional Catalysts) with the project
4. Ensure the support of regional policy makers for DBE
5. Attract 10-20 potential explorer SMEs
6. Make local software business companies generally more “DBE ready” by increasing their knowledge and awareness about Service Oriented Architectures (SOA), Web Services and Open Source business potentials.

The engagement and training of the driver SMEs was successful, 3 motivated and competent companies began their driver projects in the beginning of project month 20 (June 2005). The start was slightly delayed from the planned, but as the drivers needed the DBE technology to be in their hand for experiment and testing, June 2005 was the earliest point in which they could start. The first public releases of the Execution Environment ServENT -component was made in June and thus the Drivers really had to work from the scratch. In June there was arranged in which the Drivers got a very practical course in how to the existing parts of DBE and crucial information was transferred to them from the computing team. The engagement was successful, as mentioned earlier, but it was very close to fail because of the uncertainties on the technology readiness. Time is an essential factor in here as there are certain time limits in which the objectives need to be achieved by the business domain, but again the SMEs need the technology until they can create business solutions with it.

The drivers’ comments on the DBE technology and processes of providing the technology available for the open source community have had strategic impact in the project. The driver projects were decided to be communicated openly through web logs written by them, which provided the learning of the SMEs available for other SMEs, other regions and other project partners. An integrated weblink, called as DBE Planet³, was created to aggregate the most recent adding in different web logs together in one place. The work of the SMEs has been in line with the DBE business vision, but their active contribution has also helped the consortium to sharpen the business vision to meet the challenges of the day-to-day life of (open source) software development SMEs.

The role of the regional catalyst, Technology Centre Hermia (TCH), has been essential in the first training phase. TCH has worked as an intermediary between the consortium and the SMEs and also in close collaboration with other regional partners such as universities, different development programmes and other projects. This work has been very fruitful, and has been conducted mostly in face-to-face meetings as the concept of the DBE has still been rather complex and communicating the benefits of the DBE platform has been a task that requires interaction.

In Tampere region the activities aimed at achieving direct support from regional policy makers have not been very strong in the first phase. The work in the first phase has been done mostly with small software development SMEs and contacting and ensuring them has not required the acceptance of regional policy makers. Rather than that, convincing the SMEs in Finland can be done most effectively by proving the robustness of the technology to some leading figures of the SME business community. They can provide

³ Currently situated in <http://www.nemein.com/planet-dbe/>

the judgement that the other SMEs can trust. In Finland the regional scope has been widened to cover also Helsinki region because of the tight connections between Tampere and Helsinki in ICT business. As it is, two of the driver companies have headquarters in Helsinki. Thus it has not been crucial to prove the positive impact of the DBE for the regional policy makers in Tampere Region at this point.

Later, as the DBE community grows and the tangible results are more visible, the importance of gaining the direct acceptance of regional policy makers grows. Another reason that lowers the need for the support of local policy makers at the moment is the fact that the regional catalyst organization, TCH, is the leading actor in creating and implementing the regional ICT strategy, which provides the project under TCH a naturally high profile. Also, DBE-project has been communicated as one of the main success stories of the five-year (2001-2005) knowledge society programme eTampere.

The user SMEs have been decided to be engaged through the developer SMEs and thus there has not been dedicated training for this target group. The potential explorer-SMEs have been contacted through seminars in which the DBE concept has been presented and there has been some specific interest towards it, especially from large corporations. The engagement of Tampere region software development SME's, both drivers and implementers began by raising their DBE readiness through conducting workshops and seminars on technologies that the DBE is based on. This proved to be effective in Finland, especially emphasizing the role of open source in DBE.

The training activities in Tampere region have been rather successful. The SMEs require a lot of attention and the communication with them must be very straightforward, realistic and truthful. Trying to provide a wide vision of future possibilities of the DBE or presenting large corporate marketing is more likely going to repel the SMEs rather than attract them. In this context, the very specific role of open source from the SMEs perspective has been demonstrated. SMEs have clearly expected that the whole development process of the DBE technology platform should follow the principles of open source development.

TCH as a regional catalyst has used a lot of effort in creating trust relationship with the SMEs and it has been very successful. In the next phase when the engagement furthers into a larger number SMEs this approach is going to be much harder to implement and thus the engagement approach must be modified. In the future approach the driver SMEs will have an essential role.

3.1.2 Specific regional goals for phase 2 training

For the second phase (emphasis on months 22-26 even though phase continues after phase 3 begins) the main objectives for DBE training in the Tampere Region are:

1. Attract 20-25 implementer SMEs to work with the consortium
2. Extend the engagement of Driver SMEs
3. Build a regional community from the engaged SMEs
4. Provide the engaged SMEs the tools to engage their customers as the users of DBE
5. Improve the DBE readiness of the local software developer SMEs, user SMEs and other collaborative partners.

3.1.3 Phase 2 training delivery plan

The main target group for the regional engagement activities is the implementer SMEs. Also the extension of the engagement of the driver SMEs is equally important. The main reason for this is the fact that the drivers are used as a tool in convincing the implementers of the technical capacities and business opportunities of the DBE. This is initiated at events in which the drivers present their own DBE integration projects to potential implementers. The drivers will also start integrating the software components of Tampere SMEs together and provide training for the implementers in their efforts to integrate new services into the DBE and taking part of the DBE community.

As the DBE technologies are delivered for the SMEs to use in their business, they can create services that are attractive to their customers, i.e. users of the DBE. The engagement of user SMEs will be conducted through the driver and implementer SMEs. This process, then, will be supported by the training activities in Tampere region. This mission must also be reflected in the content creation that will be provided for the developer SMEs.

The acceptance of the developer SMEs, user SMEs and other collaborative partners is driven further by arranging events focusing on the technologies and approaches used in DBE, e.g. open source development and business models in general, open standards, service oriented architecture, java and model driven architectures. These are already rather well known by most software developers, but the link between these technologies and DBE as a way of creating business opportunities with them needs further elaboration.

3.1.4 Timeline for training activities

The timeline presented below covers the four months that are in between the beginning of phase 2 and the beginning of phase 3.

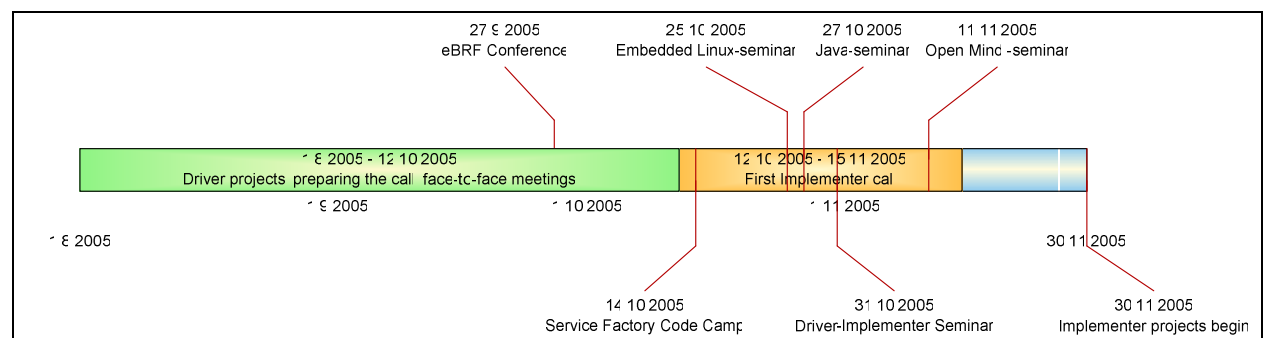


Figure 1. Timeline for phase 2 Training activities in Tampere Region

In Figure 1 are presented the continuous activities *inside the timeline*, planned events provided for SMEs participating the DBE *below the timeline* and events arranged by other parties that DBE will be participating or co-arranging *above the timeline*. The list of activities is not complete, but the events mentioned have been confirmed.

3.1.5 Regional conclusions

The engagement motivation of Finnish SMEs in DBE has been found to be based on open source software approach and validated information about the technological possibilities available in the DBE at the moment. The engagement can be achieved by creating an open trust relationship with the SMEs. In phase 1 this trust relationship could be done by one-to-one meetings with the potential driver-SMEs, but as in the second phase the number of engaged SMEs will increase considerably, this approach is not possible for the regional catalyst alone. For that reason the driver SMEs will be used as a vehicle of gaining the trust of the potential implementers. In the training sessions at the end of phase 1 the driver SMEs have found this approach reasonable and attractive for them.

The training activities in phase 2 are divided into three categories:

1. Engaging the Implementer SMEs with the help of driver SMEs (workshops and one-to-one meetings between the RC/drivers and implementers)
2. Providing the drivers and implementers the tools for engaging their clients in the DBE (content provision, seminars, one-to-one meetings)
3. Training in DBE-related technologies and emphasizing the link between DBE and existing technologies (seminars)

3.2 Spain – ITA

3.2.1 Lessons learned from phase 1 training

This section is divided according to lessons learned from phase 1 training by different agents within the region of Aragon.

Developer SMEs (Drivers and Implementers)

Most of the efforts have been dedicated to the Induction phase and engagement. ITA has a good reputation among the ICT companies in the region, and we have worked in different projects with them, therefore we have good relationships which let us have open conversation with them. We had initial one-to-one meetings with 3-4 potential driver companies at the beginning of the project in order to collect real feedback from the beginning. These were followed by one-to-one meetings and several interviews with 8 potential Drivers (Mr. Miguel Vidal, DBE Technical Director attended some of those interviews). We did not want to have one-to-many meetings, such as, workshops or seminars, because we wanted to manage SME reactions as far as possible and ensure that their experience of the DBE was positive. Additionally, at that time we did not have access to any technical components and if the Developer SMEs asked questions in public and we could not provide a clear answer it could have a negative impact on their engagement with the project. Once these technical components were released at the end of phase 1, two workshops (in Saragossa and in Huesca) presented by the main politicians (in Saragossa) of the region were organised with the attendance of 40 Developer SMEs.

The feedback received from the Developer SMEs has been positive about the potential of the project, but SMEs have been requesting continuously to “touch” the platform to obtain a Guidance Manual, an Installation Manual, main blocks of the architecture and description of each of them and how they can be used, and an example of “how to adapt a service to the DBE” and “how to create a service in the DBE”.

As a general comment, all Developer SMEs are very “practical”, in the sense that they prefer to receive explanations with real examples over the real platform. We tried to react to this requirement by having a close collaboration with SUN (Technical coordinator), and indeed, we got it. We have some meetings with them in order to receive information about the ExE (which is the concrete piece they are in charge of) and they let us see the code even the first official release. After the first official release, we started to work with these components (even without any documentation) and we generated an installation manual of the ExE (ServENT and FADA) and developed different simple services with the corresponding documented manuals and code (Oxigen) which shows how to create and adapt services to the ExE. This information may be found in www.ita.es/dbe which corresponds to the “DBE Service Development” Learning Module.

Another important point of feedback is that, even if we are working in very innovative projects and Developer SMEs would like to engage, they need to have a work plan with a clear timeline of what has to be achieved, since we have to bear in mind that they have other customers and they have to plan their work. The way we have reacted to this request is the following; we have prepared a concrete Work Plan with the Drivers with different work packages and results per work packages (more details are given below). It has to be taken into account that the work plan includes only activities to be done by the Driver SMEs with regard to existing SW components which were available when the work plan was written. Indeed, the work plan has been done considering the ExE.

Users

The lessons learned with the Users have been very interesting and the approach to them has changed over the course of phase 1. It was planned to make a deployment in three different places. However, it has been necessary to make a strategic change. We have identified a better way to reach final user SMEs than the previously planned approach. Every SW Developer (both Drivers and Implementers) will bring 2 final users to the project and will enable them to use the updated application. One of the criteria for engaging a SW Developer is that the company already has real customers using the application and will encourage them to use the DBE. In this way, resources are optimized since DBE partners do not spend resources in searching for User SMEs and additionally, User SMEs are introduced to the project by the agent they trust more from a technological point of view, namely, their ICT provider. User SMEs also know the application quite well and they have to learn how to use the new modifications introduced by the DBE project.

Influencers

We consider that the approach we have made has been very good and we have had positive results. There were two main objectives: on one hand, we needed the positive feedback from the policy makers and key influencers in the region so that when SMEs request advice about the project to these people, then they will obtain positive feedback. On the other hand, we wanted to have additional funding from the local Government. The former objective has been reached by having personal interviews with the regional department of the Government in charge of the IST and other key economic people, explaining them the potentials of the project. The second objective has been reached thanks to the access that ITA has to the regional Government, namely, we contacted the regional department of the Government in charge of the IST, then we studied their strategy for 2005-2008 and we integrate the DBE into that strategy and obtaining in this way additional funding, indeed, 100K euros has been reserved for 2005 and 100K euros

has been reserved for 2006. Once the budget has been “reserved”, we are working now on how to distribute it considering the local legislation.

3.2.2 Specific regional goals for the 2nd phase and training delivery plan.

The specific goals for the Developer SMEs in the second phase are the following:

Drivers

In the beginning of this second phase, we have made a concrete Work Plan in order to check and guarantee as much as possible the work progress of the Driver SMEs. In order to guarantee interoperability among the different applications of the different Drivers, we have decided to work all together and define the deployment scenarios together. The work plan has been agreed during July and the official kick-off meeting took place on September 1st 2005. The concrete objectives of each work package are the following (the complete work plan document is 14 pages long and it is planned that work will finish at the beginning of January 2006):

- WP1. Definition of the Scenarios to be developed (Week 36-Week 37). This work package will complete the set of scenario propositions made in this document. The scenarios will be specified as much as possible and all the three SW Developers must agree with them. The definition will take into account the current functionalities of the different applications.
- WP2. Common analysis of the scenarios (Week 38-Week 39). Every scenario will be analysed in detail. It will be analysed as a business case, the agents (applications) involved, the message flow within the detailed parameters of every message, possible forks and joins, error cases, ...
- WP3. Individual analysis of the scenarios (Week 38-Week 39). Detail individual analysis of the interface of every individual application to the DBE in order to be compliant to the common previous scenario definition.
- WP4. Development of the Adapter (Week 40-Week 46). Drivers will receive courses about how to use the ExE (Execution Environment) which is the current available component. The Drivers will use the DBE platform using the different services developed by DBE partners and learning how to use the ExE and adapt services to it. This task is related to get enough knowledge about the ExE platform in order to deploy services and adaptors into the DBE servENT.
- WP5. Test (Week 47-Week 49). Every partner will install the servENT in one of their machines with a public IP and the needed ports open. The corresponding adapters and services to the individual applications will be deployed in the servENT. Execute a set of test to show that the different scenarios work and are integrated through the DBE.
- WP6. Deployment in real users (Week 50-Week 52). Every SW Developer will install the new version of the SW application in at least 2-3 real final users. Then, install the adaptor to those applications in the servENT
- WP7. Feedback from Drivers and Users (Week 1, 2006). Provide feedback, both SW Developers and Users about the experience in the project about all the aspect.

Implementers

Engage 20-25 Developer SMEs in the 2 phases of the call tender. 10-12 SMEs will be engaged in the first phase of the call in October 2006, and 10-12 SMEs will be engaged in the first phase of the call in January 2006. All the regions have agreed that the engagement can be achieved by creating a trust-relationship with the SMEs. In phase 1,

this relationship was obtained by arranging one-to-one meetings with the potential driver-SMEs, but in the second phase the number of potential Implementer SMEs will be so high that this approach is not possible for the regional catalyst. For that reason the driver SMEs are used as a vehicle of gaining the trust of the potential implementers and additionally we think we are able to make one-to-many seminars thanks to the better knowledge of the platform we have acquired.

Users

As it has been explained in other deliverables, Users are brought to the project through the Developer SMEs. Once the Developer SMEs have created the adaptor from the DBE to the application that Users are working with, they will install this new SW version in those real users that will use it. Drivers currently working in the project will bring 2-3 Users each one in WP6 “Deployment in real Users” in the middle of December 2005.

Influencers

In the first phase of the project, when we integrated the DBE into the strategy of the IST Government Department, they “reserved” 100 KEuros for 2005 and 100 KEuros for 2006. In this second phase we have to work according to the terms of this funding.

3.2.3 Regional Conclusions

We must have always in mind the final objectives of the training:

“We want to recruit SW Developer SMEs, which and have them adapt an existing service they have already developed and is currently being used by real final users using the maximum number of the components of the DBE architecture, namely, if possible (and available) by: defining the service at a business level using the BML tool, defining the service with SDL using the tools available in the Software Factory and deploying the service into the Execution Environment of the DBE to make it work. Finally we want User SMEs to use those adapter applications and provide feedback about their experience”.

On one hand, the different Developer SMEs enter the project at different times (Drivers, Implementers phase 1, Implementers phase 2), and on the other hand, the different components of the architecture are under development and at different stages of development. Thus some Developers will only be able to work with some components of the architecture.

In phase 2 training the following group of activities are crucial in order to achieve the objectives:

- Engagement of the Implementers SMEs with the help of the Drivers and Influencers. All this activities include the preparation of the call for tender and the corresponding Seminars.
- Generate interesting and relevant training content for the Drivers and for future Implementers. In this part, we have to pay attention that we do not provide all the information generated by the project, but only the information which is useful for the activities they have to do.

3.3 UK – UCE

3.3.1 Introduction

The phase 1 training plan was formulated by UCE to align to the SME recruitment strategy presented in D28.1 and to support the following actions:

- Push the early adoption of the DBE concepts in the region.
- Selection of 5-10 Driver SMEs and enable active engagement in the DBE project.
- Integrate influencing regional organisations and funded projects with the DBE project and ensure continual support and backing to the DBE intervention in the West Midlands region.
- Create attractive DBE services for the selected ‘opportunity spaces’ to invite 10-20 Discoverer SMEs through the Driver SMEs to use these services. Explore jointly the potential benefits of these services to the SMEs and derive the opportunities for regional development.
- Support the continual interaction and knowledge transfer to the SMEs and regional organisations.

The West Midlands team in common with the other regions has adopted the vital few approach of focusing training and learning activity on the needs and interests of the four to five driver SMEs, during the later stages of phase 1 and the early part of phase 2. We have kept in mind as we have done so, the need for our approach to be capable of larger scale activity post DBE project, i.e. in many regions and with larger numbers of SMEs. We have therefore used web-based technology whenever possible in the design, delivery and evaluation of our training with SMEs. Examples are given below. Yet this phase may be unique in that once the DBE is functioning, later adopters will not face the same learning issues as the early adopters and will require different content and processes. Further our evaluation of our work is continuous rather than summative. The effectiveness of our work has been proved in practice, but remains to be proved in terms of ultimate results, e.g. in number of services integrated in the DBE, and number of SMEs joining the project.

3.3.2 Lessons learned from phase 1 training

The needs of a group of SMEs are related to their task in the project, their existing internal resources such as knowledge, skills, client base, technological capability, and to their perceived learning needs and preferences in the light of plans towards the DBE.

As a consequence of this situational influence the training needs to be based on a dialogue with SMEs that produces a timely and specific diagnosis and prompt delivery of appropriate training and learning opportunities.

We have seen with the drivers that the availability of the DBE system is a crucial factor that has been necessarily in the background of regional work at all times, adding uncertainty and incompleteness to an at times abstract and confusing portrayal of the DBE.

In general SMEs prefer tangible representations of the project and to focus on their own role in the project. In consequence we have as regional catalyst to balance our concern for scalable learning solutions with the immediate need for individual and group attention. This we have managed by combining group workshops with a series of individual meetings that have in turn used web based simulations. We expect to continue to use this approach but to adapt our style as more of the DBE becomes available and as more training content is available on the web-including web logs.

Training activity as implemented and delivered

The plan given in D28.1 has been implemented as intended and designed. Situational needs have modified the plan to some extent by requiring changes in time scale-generally slowing the achievement of some planned knowledge and skills gains e.g. whilst contractual, legal, IPR⁴ issues were resolved, and technical services become available to us in the regions. However the main thrust of the plan has been implemented and has proved to be effective with the small number of SME engaged to date.

Type 1 SME training

Much of our work in phase 1 has been concerned with initial awareness and education for engagement of SMEs and especially the 4-5 SME drivers appointed in the region. We have held two main workshops for SMEs. These have deployed standard project documentation and bespoke presentations which in turn have become part of the standards. These have been made available to the project team. A list of the SMEs in this category is section 1 of Appendix A.

Type 2 Stakeholder involvement

A second aspect of our training work has been with the stakeholder agencies in the region such as AWM, ICentrum; Business Link, Chamber of Commerce. We have continued to engage them in conversations and publicity about the DBE project e.g. with AWM re-opening discussions in August and September on EC projects on ICT in the region; connecting AWM with our European partner regions Tampere and Aragon, and being more a part of the AWM regional strategy. These discussions have been related to others involving leading Telcos such as BT(formal) and 3(informal).

Type 3 DBE regional catalyst team training

A third aspect has been to maintain the development of the regional team. We have strengthened our team by recruiting one full-time researcher Dr. Victor Bayon, in April 2005, to undertake work on the GUI WP20. Dr. Bayon has quickly developed several demonstration applications which have helped our communications with SMEs. This was crucial as we were keen to leapfrog our skill sets to match with the SME Developers to enable us to effectively transfer internally generated knowledge.

We have almost completed the recruitment in July-August 2005, of a part time researcher and started on another's engagement, both to support SME training. This staffs essentially augment our computing expertise-though there are still gaps.

Type 4 Experts

We have sought to fill knowledge gaps by requesting support from experts within the project, some of whom have been able to visit the region for events with SME drivers and

⁴ Intellectual Property Rights

others. Pierfranco Ferronato of Soluta, Italy, in particular, has visited our events and met one of the SMEs, Domain Solutions. Paolo Dini has also represented the science and technology domains well in the region. We believe we need more of this type of support and are seeking it inside and outside the project team - e.g. from the University of Birmingham. Dr. Jon Rowe, Dr. Behzad Bordbar, Dr. Russell Beale and Peter Stanbridge have attended events to work directly with our SME drivers addressing SME training workshops e.g. at iCentrum and a UCE meetings. They have played a key role in effecting knowledge transfer. During many occasions we have also felt that it is vital for internal knowledge to be managed efficiently and coordinated.

Training approaches

We have used **workshops** to enable SMEs to form concepts of the potential of DBE and to ground their thinking in the reality of other SMEs, i.e. Peer-to-peer development. This marked a significant qualitative shift towards authenticity in DBE workshops i.e. away from abstract descriptions of the ecosystem concept towards the practical demonstration DBE services that are capable of being implemented. Co-development of services with SMEs will follow this stage in phase 2 and 3.

We have used **meetings with SMEs** after the workshop phase. We have made visits either as individuals or as a team of 2 or 3 to SME premises and often met several employees at once to talk about the DBE. These meetings have been used to refine the basic agreements we have the SMEs about their contributions to the project so that in turn their emerging skill and knowledge needs can be recognized and fulfilled in a timely and relevant way. This training diagnosis then becomes part of the agreement we form with SMEs to specify our support for them and for their own customers in the project.

A key point has been that we have been operating with an incomplete DBE architecture and have therefore had to improvise by constructing demonstrations and tutorials based on simple applications created by or with our partner regions e.g. Aragon. Examples of these can be accessed by reading the web log opensoa.blogspot.com. Otherwise a summary is offered here.

Moodle e-learning platform implemented at UCE has been very helpful in collating and distributing content during and after meetings and events. Moodle platform implemented in Finland has been made available to us. We have made arrangements to transfer contents from the UCE platform the DBE Moodle platform. We are keen to use this platform for all virtual learning and collaboration needs.

3.3.3 Specific regional goals for phase 2 training

1. To continue to provide support for the activities of the SME drivers who remain in the project for later phases
2. To diagnose and provide for the learning needs of larger groups of DBE actors i.e. Software developer implementers, user SMEs and regional stakeholders.

3.3.4 Phase 2 training delivery plan

The UCE training delivery plan has been made for the period of months 18-36 as presented in the following table:

	May-June 2005	July-August 2005	Sept-October 2005	Nov-December 2005	Jan-February 2006	March-April 2006	May-June 2006
Objectives	Action 1	Action 2	Action 3	Action 4	Action 5	Action 6	Action 7
Recruitment of SME Implementers	Publication of Call for Interest	2 Open days and 4 sessions - Induction, Business Potentials, Service Development	Tender Call 1	Workshop for Bootstrap Strategy and Project for Service Development	Tender Call 2, One-to-one and workshop to discover business potentials	Workshop for Bootstrap Strategy and Project for Service Development	One-to-one and workshop to discover business potentials
	Key learning materials: Call Specs	Key learning materials: Macro view of DBE - Intel Presentation, UCE DBE Presentation, Pilot DBE Services - Date Service, Camera Service, Purchasing Business Process	Key learning materials: Tender submission guide, Software services to manage business processes 1	Key learning materials: FADA, ServENT, Eclipse, DBE Studio, BML & SDL, Wrapper Development	Key learning materials: Tender submission guide, Software services to manage business processes 1, Key business processes, Current ROI/TCO, DBE ROI/TCO	Key learning materials: FADA, ServENT, Eclipse, DBE Studio, BML & SDL, Wrapper Development	Key learning materials: Key business processes, Software services to manage business processes 2, Current ROI/TCO, DBE ROI/TCO
Pilot implementation of DBE services through SME Drivers	1 Workshop on DBE Architecture	One-to-one sessions	One-to-one, Workshops and Project for Service Development	Workshop and Projects			
	Key learning materials - Service Factory, Execution Environment, Evolutionary Environment, Bluetooth service	Key learning materials: FADA, ServENT, BML	Key learning materials: Business processes, Eclipse, DBE Studio, BML & SDL, Wrapper Development	Key learning materials: Software services to manage business processes 2, Exploring current ROI/TCO, Understanding DBE ROI/TCO			
Regional Awareness – RCAs	One-to-one sessions	One-to-one sessions	One-to-one sessions	One-to-one sessions	One-to-one sessions and workshops	One-to-one sessions and workshops	One-to-one sessions and workshops
	Key learning materials: Macro view of DBE - Intel Presentation, UCE DBE Presentation, Pilot DBE Services - Date Service, Camera Service, Purchasing Business Process	Key learning materials: Regional Ebiz Strategic Alignment, Macro view of DBE - Intel Presentation, UCE DBE Presentation, Pilot DBE Services - Date Service, Camera Service, Purchasing Business Process	Key learning materials: Regional Ebiz Strategic Alignment, Macro view of DBE - Intel Presentation, UCE DBE Presentation, Pilot DBE Services - Date Service, Camera Service, Purchasing Business Process	Key learning materials: Regional Ebiz Strategic Alignment, Project Extension, Regional Support Infrastructure Continuity Programme, SME Case Studies	Key learning materials: Regional Ebiz Strategic Alignment, Project Extension, Regional Support Infrastructure Continuity Programme, SME Case Studies	Key learning materials: Business Potentials and Ebiz implementation through DBE	Key learning materials: Business Potentials and Ebiz implementation through DBE

Table 1. UCE phase 2 Regional Training Action Plan (RTAP) - Month 18 to 36

Effectiveness of the contents delivered

We have found that SMEs have responded well to references initially comparing the DBE to web services and service oriented architectures. The training content has been mainly based on Web Services and Service Oriented Architectures. These two areas are very close to the DBE project in terms of the technology architectures, protocols, business potentials and service concepts. This closeness provides an opportunity for reasoning of technology choices, current gaps, business benefits and potentials of DBE.

SMEs have supported us in identifying public domain resources for the development of the learning content. The contents have been useful in supporting awareness of the emerging technology concepts, business opportunities and gaining interests in the DBE project. However they do not equate to the DBE and new business potential needs to be created in the DBE to offer a valued, distinctive and unique contribution.

The articles related to the following themes have been found interesting among the SMEs.

- Return On Investment,
- Implementation challenges
- Real world case studies
- Business process analysis
- Migrating existing applications
- Services/logic reusability
- Service oriented architecture for enterprise application integration

Also the SMEs have been keen to explore the possibilities of entering the EAI arena within large enterprises through the DBE project. This was felt to be a new capability to be gained by SMEs through the DBE project.

Training and Dissemination

The work we have been doing on the DBE has generated research findings which we plan to disseminate in public conferences and journals during 2006. The process of creating and discussing these contributions to academic and practical debate have been developmental for the staff concerned, e.g. by providing basic grounding and connecting inter-disciplinary areas of study. The articles/conference papers we have worked on are:

N. Konda PhD research plan for approval by University of Central England in Birmingham University research Committee on the emergence of new business models influenced by Digital Business Ecosystems.

Bayon, V., Corello, A., Konda, N., Shelton, R., Tommasi, M. de (2006) Conference Paper. Modelling Business to Business Transactions in Digital Ecosystems Using the Business Modelling Language

This paper introduces the concepts for the integration of Model Drive Architectures (MDA) with User Centred Design techniques (UCD) such as

Activity Theory (AT) using the Business Modelling Language (BML). BML is being developed within the Digital Business Ecosystem (DBE) Project.

Trehan, K. and Shelton R. (2005-6) Book chapter on Leadership and Human Resource Development a Critical review for Routledge and Kegan Paul series. A draft chapter has been accepted including reference to the potential impact of DBE on SME leadership patterns.

Reflection on the Regional Catalyst role

This has been a continuous learning process in which we have been helped greatly by conversations with our partners and SME colleagues. The recent **balanced score card** exercise created by Neil Rathbone where we conducted an evaluation of the region (reported separately) was also useful in providing a process and structure for substantive objective evaluation of the regional catalyst that will probably help new regions orient themselves rapidly to their role options in the DBE.

Our main reflection was to recognize the need to recruit more expertise to the team to carry out the training tasks and to work within our natural role as an educational establishment.

Future actions and support needs

Actions planned for phase 2 of the learning delivery included:

- Development of DBE specific learning material based on internal documentation and extraction from public domain documents
- Create regional case studies and customised materials for each opportunity space such as tourism to explore business potentials
- Development of business presentations focusing on the business drivers for adoption
- Usage of multiple dissemination modes such as web logs, web contents, targeted publications and promotion events

The web log documents two applications which required the installation of servENT and FADA on the SME's computers. They demonstrated what a real world service might be like and, more significantly, how to create and implement it in the DBE. These tutorials took some five days for the team to create. They are now at the pilot phase i.e. they need feedback from other regions and from SMEs. But the basic purpose has already been successful, i.e. in providing a resource for meetings between the regional team and the SMEs that have stimulated thoughts about further developmental needs.

Each tutorial is expected to take the learner some two hours. Ultimately these tutorials could be made available in a variety of channels such as Moodle-the open source e- learning platform (that is in wide use in UCE) or on Planet DBE. In order to enable effective learning in the region it is critical for the timely delivery of the DBE architecture and coordinated transfer of internal knowledge. We will evaluate this service by:

1. Relevance of business services and User satisfaction
2. Number of users
3. Number of services deployed on DBE

Some initial evaluation has been conducted already by the socio- economic team including Mary Darking and Antonella Passani which has indicated the SMEs' satisfaction with the process of practical demonstration. These tutorials are significant in allowing the learner to reflect on their level of understanding and then form new learning goals. Some learning points will be reported separately.

3.3.5 Regional conclusions

In phase 2 we will be engaging with larger group of SME Developers and also creating an opportunity for expanding interests in the DBE project. It is important to create a self sustaining environment for knowledge creation, 'sustained learning' and knowledge sharing to foster collaborative development. We take the approach of an 'adaptive environment' by creating and supporting a basic infrastructure using currently popular forms such as Moodle, web logs and Portals, and to populate them with information and learning content. We aim to support an environment of collaboration through focus groups, workshops and projects. Phase 2 training activities will target the SMEs and regional stakeholders. The focus will be on business potentials, benefits and services development. Case studies will be used as inputs to, and outputs from, this activity. We will continue to do research into the responses of SMEs to the DBE as an instance of new business models formations. In this we will seek to generate diversity in business applications and in innovative business forms.

Training will be one of the elements we will offer in our regional activity i.e. making a contribution to regional education and training in this field.

4 Content Development in phase 2

The training content is developed so that it reflects the regional needs, characteristics and priorities as stated in 28.1. There is a strong link between the content creation and the regional settings, which can be seen in the cyclical process between content creation and training evaluation. Thus the experiences from the Phase 1 training evaluation are fed directly into the process of Phase 2 content creation.

Phase 2 training concentrates on regional expansion by encouraging the development of self-dynamic sub-communities. The DBE project encourages the initial actors to extend the communities in order to attract Implementer and User SMEs. Initial actors are supported by the project in this activity. To achieve this objective, the regional actors already involved in the DBE, namely Drivers at the moment and Implementers in the near future, must be provided with tools to expand their communities. The DBE project starts to concentrate on facilitating the knowledge transfer between the actors, to increase transparency of the interactions and to build reward mechanisms depending on contributions and on success of new actor's integration. This puts new challenges for the content development of the project, because the

content is no longer created solely for the use of project partners, but also for the use of actors that have different kinds of interests in the project.

The main challenge of content creation for phase 2 training is not developing new training content, but instead collecting the existing training materials, commoditising them and organising their distribution among the different learning blocks.

4.1 Content development in phase 1

The deliverable 28.5, *Detailed phase 1 regional training action plan* described phase 1 content creation in detail as divided into distinct learning blocks. As phase 1 training is a continuous training activity, not all of the planned content development was finished by the beginning of phase 2 training. The content created in phase 1 is described in detail in Deliverable 30.3.1, *Training Content Report*.

4.2 Content development for different platforms

The training content has been agreed to be published under creative commons license⁵ as well as the rest of the deliverables, which in turn supports the engagement of new members of the DBE community. This is also very important signal in the process of increasing openness in the DBE project and promoting the open source aspect of the DBE as a whole.

There is an abundance of content developed already in the DBE project, as noted above. The major challenge in content development for different platforms is thus not the creation of new content but classification and distribution of the existing content in appropriate platforms.

4.2.1 Knowledge platform

The knowledge platform has been implemented for the three regions and other project partners as described in the deliverable 28.10, *Implemented Knowledge Platform in Regions*. The knowledge platform (KP) is based on LCMS Moodle and the pilot implementation can be found from <http://dbe.moodle.fi>.

The knowledge platform has been used for internal purposes only in phase 1 regional training. In phase 2 the knowledge platform will be integrated as part of the renewed website and applicable parts are simultaneously distributed for the use of SMEs and other collaborative regional partners. The knowledge platform will not be presented for participants outside the project as a separate environment, but as an integrated part of the DBE website.

Content development for knowledge platform includes those learning blocks that are distributed using the KP instead of other distribution channels. DBE Induction is the only learning block that is based solely on the knowledge platform as it is a course with three sub-modules. The role of knowledge

⁵ For detailed information see <http://creativecommons.org/>

platform in each learning block will be presented in the respective sub-chapters.

4.2.2 Web content

As described above, the website of the DBE project is being renewed and prepared also to be taken over by the DBE community. This is an enormous challenge for the website structure and content creation. The new website will be put online in autumn 2005, before the Implementers are engaged in the DBE. Regional websites have also a very important role as they act as the regional stepping stone to the DBE website and link the project with the regional catalysts.

The web content is the most crucial content group at the moment and it is described in more detail in the learning block description in sub-chapter 4.3.6 *DBE Community tools, processes and development*.

4.2.3 Other content

Most of the content provided by the project will be in electronic form and available through the new DBE website. The regional Catalysts have a strong supporting role towards the Driver and Implementer SMEs in their work of expanding the DBE community and provide help in content development and distribution as well as in other forms. Other content in this sense refers to flyers, leaflets, folders, posters and other physical marketing materials. The materials provided for the use of SMEs must be created specifically for them as the regional settings differ in all regions and the materials must be very concrete to be usable by the Drivers and Implementers.

The regions are responsible for defining the needs of other than electronic content and working together with the partners that are needed in creating the content requested.

4.3 Content Development for Learning Modules

The learning modules for phase 2 regional training were revisited in the Business Domain meeting in London in August 2005. The active learning blocks for phase 2 and the partners leading the blocks are:

- DBE Induction (TCH)
- SME Engagement (UCE) (previously DBE Bootstrap strategy and processes)
- Business Potentials and Practices (UCE)
- DBE Service Development (ITA)
- DBE Regional Policy impact & potential (T-6)
- DBE Community tools, processes & development (Intel)

4.3.1 DBE Induction (Hermia)

Description of the learning block

The Induction learning block provides the learning content for the first engagement with different groups of agents, namely software developers, software users and influencers. The learning block begins when the agent (developer/user/influencer) gets the first knowledge about the DBE Project and it ends when the agent decides whether or not to participate in the DBE. The purpose of the Induction learning block is thus not to give a perfect and complete training on the different dimensions of the DBE, but instead a basic overview with adequate amount of relevant information for the target group to make the decision on whether or not the DBE is something to investigate further.

The different target groups have different needs for the information required from Induction. The training content is divided into three sub-modules that provide different approaches to the DBE. The different target groups are provided from one to three sub-modules to go through based on the amount of information required to make the decision of taking part in the DBE. The sub-modules and respective target groups are presented in the following Figure:

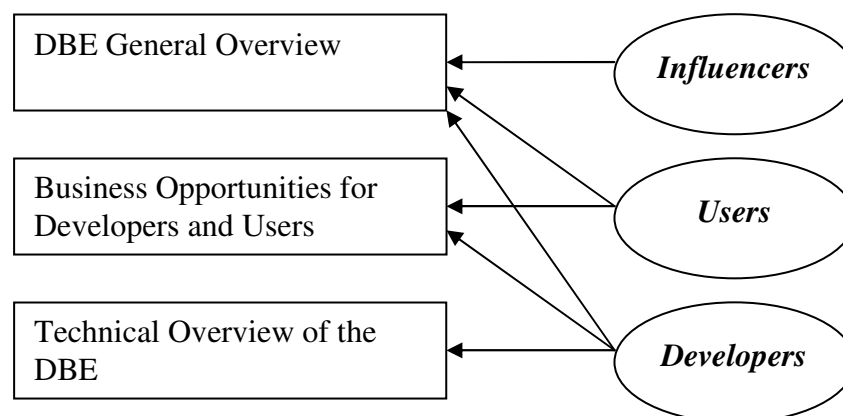


Figure 2. Induction target groups and learning sub-modules

The **Influencers** look at the DBE from regional impact point of view and a general overview includes all relevant information for most of them to put DBE into context with the regional setting.

The potential **Users** of the DBE need to understand the general overview and thinking behind the DBE, but more importantly they need to have an understanding on the business opportunities DBE provides for them.

The **software developers** are in a position that in addition to the general overview they also need to address the business opportunities that DBE opens up for them. The business opportunities for users and developers are naturally linked, but differently. An equally important piece of information for the SW developers is the technical overview of the DBE, namely the technologies used and required to participate in the DBE.

Development of learning content

The general overview is presented through an animation that describes the DBE approach and the concepts of business ecosystem and digital business ecosystem. It also provides general information on the benefits of the DBE for SMEs and the contact information for further information.

The business opportunities are presented in the user point of view and in the developer point of view. These different approaches are not conflicting with each other as the DBE provides competitive advantage for both groups. The business opportunities sub-module content is created in line with the deliverable 5.1.1, *Assessment of Business domains and integration into a unique vision*. The contents will be created in close association with the business domain.

The technical sub-module is created as an animation of the different technological building blocks that the DBE is created added with figures presenting the processes of the DBE. The content for the sub-module is created in close association with the technology domain.

Delivery mode

In phase 1 the Induction was delivered mostly by one-to-one meetings, but the transition towards web-distribution of induction begins in phase 2. Thus the delivery of Induction learning block will be made mainly utilising the knowledge platform and DBE website.

Support needs

Essential for the Induction to succeed is the transition of knowledge and best practices between the regions.

4.3.2 SME Engagement (UCE)

Description of the Learning Block

The purpose of this activity is to support the engagement of SMEs in the regions in the three stage engagement process described in D30.1. Currently the DBE architecture, which is partly developed, is being implemented and tested by the SME Drivers who have been involved in the stage 1 engagement process. These SMEs have been supporting the project in the development of key knowledge and creation of learning materials in different forms. Further involvement of SMEs will increase the population of DBE services implemented to support the target domains in each of the regions such as a tourism and manufacturing. Hence this learning block will provide learning support for enabling the engagement process of SME developers and also to support the engagement of their customers, the users of DBE. From these perspectives this learning block has been renamed to reflect this reality.

The learning block will focus on facilitating the quick realisation of the following aspects from the perspectives of existing and new services:

- Business opportunities of offering services through the DBE

- Simple ways to implement the DBE architecture and integration of services
- Reach, reliability and the coordination of the services offered

Development of learning content

This learning block will have a strong linkage with the next two learning blocks – Business potentials and practices and service development. This learning block will cover aspects of business potentials, benefits and service opportunities to make it appealing for SMEs to engage. Hence, towards the development of learning content, this block will draw upon the contents being developed and offered in the next two learning blocks. Also key research findings through supporting activities such as Market Watch will be used to construct the learning content. The learning content will focus on:

- Business opportunities
- Opportunity space and business processes
- Business models
- MDA, BML, DBE Architecture, Implementation
- Service creation, converting existing services, converting web services, technology standards, service examples, case studies and case based consultancies

Delivery Mode

The focus will be to use new technology and delivery modes that are emerging and are likely to become common for knowledge transfer and information sharing for this audience. The current approaches such as one-to-ones, workshops, etc. will be used and in addition information sharing and knowledge transfer will be supported through wikis, blogs and moodle.

Support Needs

The key support requirements for managing this learning block are:

- Internal knowledge flow between project partners
- DBE rollout plan for technology architecture aligning training content with technology component availability
- Technical documentation
- Regional events such as code camps and service demonstrations
- Technical support teams from the computing domains.

4.3.3 Business potentials and practices (UCE)

Description of the Learning Block

The purposes of this activity are to help our participants to identify and realise the business potential we believe is inherent in the DBE concept. This will operate at several levels, including the value chain, cluster, business model, and the regional innovation system. Our purposes involve assisting SMEs to realise what the DBE might achieve with and for their businesses, especially as ecosystems, as well as initiating action that will reduce limiting factors on forward movement by these businesses. The organisation of learning and training in this field is on the basis of the role of each organisation in the project, i.e. SME developer ‘drivers’; SME developer ‘implementers’; SME

users; internal regional catalysts; external regional catalysts; policy- makers and constituencies. Though the primary focus is the SMEs, the regional stakeholders will be actively involved to build a formal/informal information oriented network within the regions. Further this learning block will focus to provide insights from the management, functional and technological perspectives offering a rich and much required capability to the participants in the DBE project to meet their full objectives.

Development of learning content

This learning block will use the current experiences and knowledge from public domain case studies to explore the aspects of business potentials, business benefits and service opportunities that are being realised by businesses engaging in such technology initiatives. As concrete examples within the project are at very early stages the reliance will be higher on the research findings from external sources such as Market Watch and research being conducted by CENSIS to construct the case studies required for the development of learning content. ICT adoption has remained a challenge for the SMEs particularly due to the issues of cost of ownership, issues of trust and security, issues related to skill set and technology management. The case studies will be used as a means to create an understanding how these challenges can be managed effectively by SMEs and to explain the current trends in the area of software services for improved business benefits.

The learning content development will also focus on the aspects of business models from the perspectives of business patterns and will seek to explain why and how patterns form and to develop the understanding of those factors that can influence successful business interactions. These actions will support the critical development of the management expertise of the SMEs and the regional support infrastructure in order to understand the DBE business vision. The learning content will focus on:

- Business opportunities
- Opportunity space and business processes
- Business models
- Total cost of ownership and return on investments
- Technology trends and ICT adoption challenges

Delivery Mode

A variety of delivery modes will be used depending on the target audience and will be in line with our experiences in the past. This will include the current approaches of one-to-ones, workshops, etc. will be used and in addition information sharing and knowledge transfer will be supported through publications & articles, wikis, blogs and moodle.

4.3.4 DBE Service Development (ITA)

Description of the Learning block

The concepts, objectives and approach to this content block have not changed from the initial definition in D28.5 “Detailed phase I Regional Training action plan”.

“This module is first focused on the RCs so that they can acquire the knowledge about the platform and services and be able to transmit this knowledge to the Developer SMEs in the region. After that, this module is focused only on the Developer SMEs and it is started just after the Developer SME has decided to enrol the project”. Indeed, Developer SMEs go through this learning module after they have gone through the Induction learning module where they are engaged.

The steps (phases) may be overlapped, namely, once a specific knowledge is acquired by the RCs, they can diffuse it to the Developer SMEs and at the same time acquire new knowledge.

This content block is focused on the SW Developer SMEs, both Drivers and Implementers. The knowledge which must be provided to these agents must be aligned to what is expected to be produced by them, so that the limited resources available for SMEs are used in an optimum way. Namely, we need to have very clear what we expect from the Developer SMEs, and then produce and provide the contents which help them to reach those objectives. We have learned from the experience in this project (one-to-one meetings and workshops) that Technical people from the Developer SMEs prefers concrete practical information about the features that the DBE provides supported by examples which are running over a platform that they can “touch and play with it”. If they can do that, then they are more motivated and engaged to the project.

Then, the contents may be structured in two main blocks: Software Factory (BML is included here) and Execution Environment.

Additionally, one further classification of the contents produced in this content block may be carried out. The contents are of two different types, namely, Reports and SW, whereas in the other content blocks there are only Reports.

Materials produced in this learning block

At the moment this document is written, there are two types of contents produced.

On one hand there are the most interesting theoretical documents about the DBE Technical points (architecture components, application example to concrete sectors and how the DBE works, features work plan of some future components, ...) which may be found temporarily in Collabnet in the project “**dbe/training**” and in the following folder: **Deliverables/D30.3/ DBE Service Development**. A brief summary of them may be found in D30.3 Training Content Report”. On the other hand, we have started to create practical examples based on the current available components of the architecture, namely the ExE (ServENT + FADA) and to document those examples which are the “reaction” we have made to the Drivers requests.

As we have indicated, the second type of content has been started since SUN has the first beta-version of the FADA platform for the Execution

Environment (it may be found in sourceforge: <http://fada.sourceforge.net>). Additionally, they have a first beta-version of the complete execution environment (ServENT) in their CVS platform and available internally to the project members. The ServENT may be found in: <http://swallow.sourceforge.net>.

These contents include:

- An installation manual for the ExE which may be found in <http://swallow.sourceforge.net>.
- A set of examples that shows different features of the current beta-version are available in www.ita.es/dbe. For each example, it may be found:
 - o The source code.
 - o The source code documented on line with DOxygen.
 - o An English Manual (objective of the example and service description, service architecture, step by step to create the service, SW components and version needed for the example, ...)
 - o A Spanish Manual (same as before, but in Spanish).

The available examples are:

- o Hello world!
- o Date
- o ITA News.
- o ITA Jobs.
- o ITA Dateui
- o ITA Calcui

They show how to create the first service in the DBE, how to adapt a web service to the DBE, how to discover a service which is not in the ServENT you are connected to, how to develop a legacy system in other platforms, such MS .NET.

There are more examples, but they are not yet published because some bugs need to be solved first, for example, an example which shows how to aggregate services.

Two more examples are available in <http://opensoa.blogspot.com> created by UCE, which are based in the tutorials and examples created by ITA as they indicate in the web page. This is a good example which shows how the community may be created with real examples over the platform. Touching the code motivates people to create other examples and experiment with it.

Future planning and critical support

As it's been indicated in the previous point, the contents may be structured in two main blocks: Software Factory and Execution Environment.

The planning for this content block with regards to the SF and the future features of the ExE is to go on as we have done up to this moment with the available features of the Execution Environment. However, two points should be improved: the new pieces of code should be documented (a manual) and the code should be as stable as possible, otherwise the effort and time spent by the regional catalyst to understand the code and make examples is extremely

high and this is the previous step to provide the knowledge to Developer SMEs.

It will be very helpful for the training team (the DBE team is working on it) to have a roadmap of the different SW parts of the DBE in order to manage the expectations of the SW Developer SMEs, and to make a good planning of the activities that the SMEs have to do. The contents production will be based on that roadmap.

Then, these two technical groups will provide the information about what is the expected result they would like to receive from the SW Developer SMEs. In that way, the manage of expectations from the SMEs would be correct and the resources invested by the SMEs would be perfectly optimized.

4.3.5 DBE Regional Policy impact & potential (T-6)

Description of the Learning block

The purpose of this learning block is to ensure the acceptance of regional policy makers for the DBE project. This task will be approached from two angles

1. Regional level, creating relationships and providing information for the important contacts in the regional policy making organisations
2. EU level, promoting a EU-level acceptance for the DBE concept and communicating this to the regional actors

The ground work of networking with the regional policy makers will be done by the regional catalysts. From RC:s point of view it is important that the regional policy makers would see DBE as an innovative and potential approach to support regional SME business and could comprehend the long term tangible advantages of the DBE. This requires very clear communication from the project side.

The Induction module includes the initial training to involve the policy makers and provide them the basic information on the project. There is a need for more specific training including one-to-one meetings and seminars to meet the challenges of this learning block, however.

Development of learning content

The induction module already includes the basic presentation of the DBE. For the purposes of this learning block the regional vision of the DBE should be revised and compressed into a concrete and easily comprehensive shape. Regional vision in this context is a concrete, short document that describes the DBE approach to fostering the regional SME industry and the means in which this will be done as well as estimates of the concrete outcomes of these activities. The business vision is in this work more important than the technology vision. As the regional policy makers cover a range of different disciplines and areas of interest, it is impossible to create a generic learning module for the policy makers. For this reason the regions are required to

conduct the regional policy maker training with the best applicable approach by using the regional vision.

Delivery Mode

The main delivery modes of this learning block are seminars targeted for regional policy makers and one-to-one meetings. Even though it is very probable that the training in different regions will greatly vary, the experiences should be exchanged in order to find best practices. This is very important also to document the regional engagement processes for the use of future regions.

Support needs

Induction learning block provides the basic content and acts as a stepping stone for this learning block. The regional catalysts as conductors of the training are in key role, but it is extremely important to create the regional vision for the use of the RCs. This is a collaborative work of the whole training team.

4.3.6 DBE Community tools, processes and development (Intel)

The DBE project is entering in a critical phase. The project team needs now to communicate to the target audiences the existence of the DBE, the benefits it will bring to each of them, how they can get started and provide them with contact information.

The primary communication medium is the DBE Website. This website will contain all of the relevant information, dedicated sections for each audience, dedicated country, region and community specific areas, focus area specific sections, etc.

As the potential audience of the DBE is very diverse, the website will need to accommodate the target audiences, and enable visitors to the site to find relevant information for their requirements, level of understanding and awareness of the DBE. This means that the site may need to be organized into areas of relevance for the visitor, for example SME and Business information, or Community or Regional development. In each area, information such as what the DBE is, the benefits, contact details, and more advanced information, such as news, access to tacit knowledge, etc will need to be provided. Of course, all this information must use the appropriate universe of language and vocabulary. The knowledge and the creation and management of tacit knowledge will be auto-managed by self-managing and self-forming communities of practices. This implies that the access to the relevant communities of practices' spaces, where members exchange information, best known methods and other knowledge, must also be accommodated from this website. Ideally, the integration of all required technologies and solutions should be done transparently.

As there are many facets to the DBE, not only must the website accommodate the different visitors, but it must also be populated by authoritative and domain savvy content experts, as well as main contributors from regions and communities. Some of the content will be time and domain sensitive. The site

must be maintained using a light process, quality and content review workflow by the domain content owners, or delegated content owners. The content management solution must, therefore, be easy-to-use for content owners, and give them the ownership and autonomy to manage their domain themselves, and publish the right information at the right time.

The final vision for the website is that this site will be the main Portal entry for DBE information and knowledge. All of the information will be managed via the CMS and by content domain owners without the need of third party administration and coordination. Of course, information in the portal itself may be synchronized and managed by an authoritative group (such as the DBE Foundation Board) if needs be but it doesn't have to be: it can be self-sustaining. The organization of the sub-sites combined with technology such as RSS will also allow for simple navigation for users, and in the time, consolidate information from other websites, blogs, wikis etc.

Community and Regional Proliferation Tool

One of the key functionalities of the website, in addition to providing information and knowledge about the DBE, the project and other ancillary facts and data, is the support of communities. Communities can be formed based on several parameters. The most obvious is the forming of communities of practice within the same region, language or professional sector. It is very likely that the initial communities will be created around the existing Regional Catalysts and the initial drivers.

The Website will accommodate the knowledge creation and the sharing of the knowledge by providing a set of tools, such as Blog, community pages and private areas, community Content Management Systems, forums, chats, links to e-Learning material, etc. The website also provides RSS⁶ functionality that will allow users, community members, developers and the others to be kept up to date on the latest information and syndicate the latest news, events, forum entries, etc. The syndication will also work by gathering information from other sites and aggregate the information on the core DBE Website. These other sites could be managed and created by SMEs, drivers, organizations, local governments or Common Interest Groups that want to use the DBE as a part of their offering or topics.

The tools are made available to communities, so that these can be formed, coordinated and/or moderated.

Blogs will enable knowledge creation in a very fast and simple way. Other users can search this information and reuse it. With RSS, this content can also be referenced in other sites, or aggregated in a RSS reader.

Forums will allow users to discuss, to ask for help, to help and assist the community. These are also a great tool to gather feedback and create discussion around an idea, a concept, a piece of software, etc...

⁶ RSS file format. For more information see http://en.wikipedia.org/wiki/RSS_%28file_format%29

The timelines for the website are:

End September: Look and Feel and first version ready

October: Launch of the site

December/January: Hand over for self sustaining website

4.4 Conclusions from the content development

The content creation for Phase 1 was very challenging as there were no experiences from the training subjects. Thus there were a lot more unknown things than in Phase 2. In phase 2 the objectives of training widen to cover groups that the project partners do not necessarily have direct contact with. As this happens also the challenges regarding content creation change from tackling the unknown into managing the needs and expectations of wider audience. Phase 2 content development must be made in close collaboration with the actors that are using it. Those will include Regional Catalysts, but also Driver and Implementer SMEs and other regional partners.

The above reasons add a need of adaptation in the content creation of phase 2 training. Thus even though phase 2 is a short period not all of the content developed and used in Phase 2 training are not explicitly decided and introduced in this deliverable. Instead, there is a lot of emphasis on processes and tools available for content creation and distribution in regions.

The DBE website and regional websites will have a major role in content development at this phase. They will act as the front-end of the project to actors that get their first experience on the DBE. In phase 1 this was done in most cases in face-to-face meetings.

5 Critical support actions

In addition to specific training activities, there are several support actions that are needed in Regions in order to deliver the training successfully. These actions link the Regional activities to the project setting and provide support from the DBE project to the Regions. The critical support actions in this context are collaborative activities involving actors also outside the training team.

5.1 Technical support for SMEs from DBE project team

Implementation of the DBE technology is a very demanding task and the initial Regions differ in the capabilities of their human resources in technological matters. As the DBE technology is very challenging in itself, all regions require support in the introduction of new DBE building blocks.

In phase 1 there were code camps arranged in Regions to give the Driver SMEs an introduction to the two open source projects and that was considered a very good and important way of giving the SMEs a flying start in their work of integrating services into the DBE. In phase 2 training the first releases of the Service Factory will be made and the code camps are considered to be

given again for the Drivers. Concerning the Implementers that will be engaged in this phase, the code camps held by computing group teams are difficult to facilitate as the number of Implementers will be around 25 in each Region. The further training of Service Factory will be made using the competence gathered by the Drivers, so the technical support of the DBE computing group is not required in the form of physical presence after the initial introduction.

After the initial introduction there is a natural need for community building and technical support in the collaborative environment of each released technological part of DBE. It is acknowledged that as the DBE is an environment consisting of several building blocks and the development process during the project time is very tight, there will be limitations to the technological support that the computing group can provide. For example feature requests will be hard to fulfil. That has to be communicated to the SMEs that will be taking part of the DBE communities, but also the computing team must recognise the need for this kind of support and address ways in which the feature requests will be fulfilled in the future.

5.2 Inflow of DBE project knowledge to regional partners

The regional training partners are remote to the inner core of the project's science and computing groups, as mentioned in deliverable 28.5. This has actualised in phase 1 training very clearly. The support need from the computing group was described in the previous sub-chapter.

Communicating the results of the scientific group is also required by both the regional partners and the SMEs. There is a great deal of research conducted in the project that involves the SMEs and regional catalysts either directly or indirectly. The results of this research have to be distributed for the use of the regional training teams.

There is a stronger link between the business domain and the regional training teams and the knowledge transfer between them should work well. A very challenging task for the business domain is to communicate the DBE business vision in appealing but realistic ways to the regions so that it will support the take off of the regional communities.

5.3 Backflow of DBE training experiences to the project and overall training

The backflow of training experiences is very important for the sustainability of DBE. The DBE training is a process of different phases, as described in detail in Deliverable 28.1, and in the future as the DBE is implemented in new regions they will go through similar phases of training. For that reason it is very important to be able to conduct this in the most effective way utilising the experiences from the DBE project time.

The regions with software developer and user communities provide a very attractive research target. The regions have been facilitating numerous

interviews from the project team in phase 1 and that will continue in phase 2 as that is the best and most effective way of transferring the experiences back to the project and validating the scientific research results.

Important means of providing information on the training experiences the SMEs have had are the web logs they have written on their experiences working with the DBE. The blogs reflect the success of the training activities as well as the views the SMEs have on the DBE from their points of view. The blogs also provide training material for other SMEs going through the same stages later.

5.4 *Interregional cooperation*

Phase 3 is the actual stage for cross-regional integration, where the SMEs from different regions will be supported to cooperate. However, it is very important that the regional partners work closely together already in the second phase. This is something that has to be improved from phase 1 training. There are many similar things in the regions and the more collaboration between regions can be achieved, the more all regions benefit from it.

Also, the Driver SMEs are interested on the other companies from different regions that are in the same position with themselves. There have been several interviews covering all regions and the beginning of interregional cooperation of SMEs will be providing them results from the interviews and research in comparison to other regions.

Also the web logs will be aggregated into a single planet that includes content from all regions. That will encourage interregional cooperation between different actors as well. The transition to phase 3 is made easier by providing as much cross-regional integration beforehand as possible.

5.5 *Conclusions from critical support actions*

The critical support actions are culminated in the unhindered flow of information and knowledge over domain specific and geographical boundaries. In the stage where the first steps with the DBE technologies are taken by the SMEs, technical support is essential. At the same time, the training activities are in the most crucial point and the time of making the enhancements and picking up best practices is at hand. The critical support actions are thus equally important both from project to SMEs and from SMEs to project.

6 Conclusions

Engagement of SMEs in phase 1 training went as planned in all three initial regions. The training activities were implemented according to the overall strategic plan for engagement although differences between regions were noted. Building trust has been a challenging process that was carried out

slightly differently in each region reflecting the varying priorities of regional SMEs. One-to-one meetings played a critical role in building trust in phase 1.

Phase 2 training increases the challenges from phase 1 as the responsibility of training will be divided between a larger group of actors that not all are project partners and who do not have as strong ties to the project as initial project partners. This challenge can be answered by providing the driver SMEs and other outside actors participation in the training; on one hand the with motivation and rewards for being the first-movers in the DBE, and also the tools to deliver training.

The rewarding possibilities in terms of monetary compensation are very limited, but instead emphasis should be put into securing the first-movers position in the community and supporting their efforts in contributing to the technology. Status is a very important motivator in open source projects. Also the trust in the technology and transparency of the project activities are important to the SMEs involved in the DBE community.

The tools for delivering the training include training content in different forms but also the support activities from computing team and different regional catalysts as well as other partners in different situations are equally important. The main challenge in phase 2 training is to open the project for outside actors, namely SMEs and thus begin the real building up of the DBE community.