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1. Introduction

1.1. *The research process*

This report is the final step in the evolutionary work on the concept and model of regional catalyst in the context of the DBE project. The phases and milestones of the research process have been defined in the technical annex of the DBE project. From the formal project design point of view, the whole process has been designed to progress as follows:

1. Month 12: Deliverable 31.1.
 - i. Analysis and specification of current and potential regional catalysts
 - ii. “the conceptual frame”
2. Month 19: Deliverable 31.2.
 1. First version of the operational model of Regional Catalyst in DBE
 1. “the proposition”
3. Testing and elaboration in practice
4. Month 34: Deliverable 31.5 (this deliverable)
 - i. Revised and completed version of the operational construct of Regional Catalyst in DBE
 - ii. “the manual”
 - iii. the operational construct, emphasis in functional description

In this project framework, an iterative approach was planned between phases 2 and 3 (planning and execution) as illustrated in Figure 1 below.

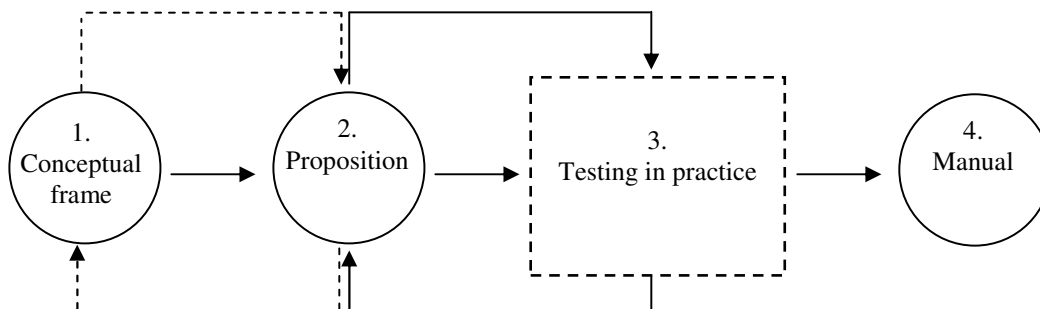


Figure 1. Research process.

The steps of iteration have been documented in detail in internal progress reports and other project documentation, where all the regional catalysts have reflected their experiences. In this document this detailed reporting will not be repeated.

1.2. Structure of the deliverable

The purpose of this report is to provide a summary of the theoretical and conceptual work done in the previous two deliverables, to introduce some additions and modification to the proposed models based on the experiences during the project and finally – in the light of the proposed model – to discuss the experiences and success factors of Regional Catalysts in DBE. The report is meant to help future initiatives and projects in the DBE domain – including the various projects in the DE cluster of the European Commission- to **anticipate, plan, execute and evaluate** the required catalyst operations and related organisational arrangements.

The following chapter presents the findings of the theoretical research work on RC action as described in D31. It also highlights some of the most important dimensions of research framework of regional catalysts and the extent in which the different dimensions of regional catalysts actually seem to evolve at the current state of DBE evolution. The third chapter summarises the key activities of Regional Catalysts in DBE and sheds some light on the dynamics of the regional catalyst operations. In the light of the last 16 months of the project the operational model is further adjusted and a new core process for RCs is identified. The fourth chapter presents a tool- set for evaluation of RCs based on the Balanced Scorecard approach. In the final concluding chapter some of the key findings of the research process are summarised.

2. The concept and research framework of Regional Catalysts

2.1. Research framework

The research framework for the analysis of current and potential Regional Catalysts (RCs) was created in deliverable 31.1 already in 2004. The deliverable is a sound research paper approaching regional catalyst business from the perspective of strategic management sciences. This deliverable will perceive the Regional Catalysts operations based on the propositions of D31.1 and the experiences from the three years of regional catalyst activities in the partner regions.

In the context of the natural sciences, the concept of a catalyst can be referred to as static. In the business context (if not the context of economics), i.e., in the context of the social sciences, the concept of a catalyst is dynamic by definition. The key difference between catalysts, the living organisms, in natural versus social sciences relates to rationale: cause-effects versus choice. Human decision-based organisms can only be partially rationale, on the macro-level. On the micro-level, or individual level, such organisms are very rationale in seeking to maximise utility. The concern arises when the combined utility of individuals is not that of them as a group entity.

Aligning interest is the core challenge of a strategist and this is also the core challenge in creating and conceptualising a Regional Catalyst in DBE. The interests of the owners of such an entity need to be sufficiently aligned and their joint interests need to be sufficiently aligned with operative management. The interests and the mission of the organisation of the Regional Catalyst need to be sufficiently aligned with the other stakeholders (suppliers, clients and customers) of the DBE and the products and services need to create enough value added in order to comprise an image or brand for a sustainable evolution and development of the DBE.

The concept of Regional Catalyst in the context of the DBE is of a changing nature. The challenge is to envision well enough both (1) the basic nature of the Regional Catalyst and (2) the magnitude and types of changes required in each of the elements of the Regional Catalyst.

The research framework for regional catalysts set in the D31.1 is presented in figure 2. According to this framework, the core concept in understanding and defining RCs in DBE is the concept of Business Idea. Business Idea consists of three basic elements: product and service offering, customers and the organisation (operational model) of the RC.

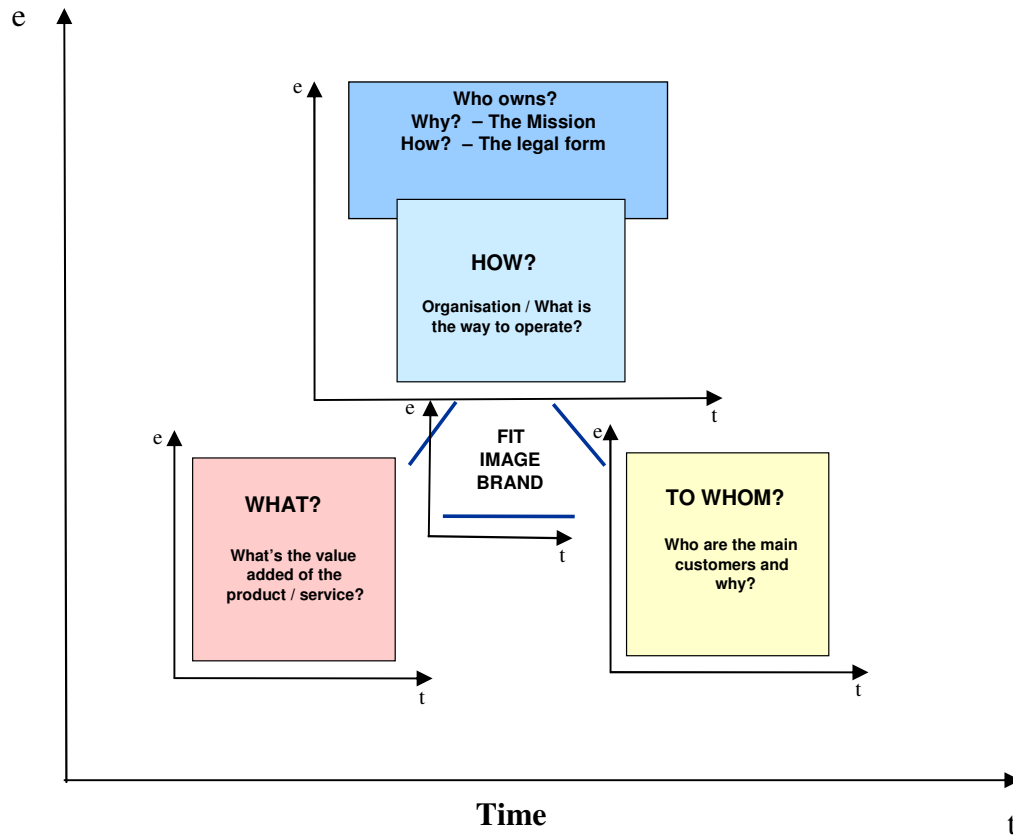


Figure 2. The DBE research framework for Regional Catalyst

Figure 2 puts the underlying theoretical framework in the context of evolutionary DBE by adding the time horizon related to the electronization of business in the figure. In this framework electronization is seen from three viewpoints: technological, business and social. Electronization is seen in this context not only as increased use of technology. Rather electronization refers to utilizing technology in business and changes in the way business is carried out. The object of electronization in this framework is a business ecosystem, and hence a larger entity than a single (SME) organisation. This raises the importance of the social viewpoint of electronization including the community or ecosystem formation. It is foreseen that rather significant changes will be needed in the catalysing activity and in the anatomy of the catalyst, over time. Such changes are envisioned in the product or service system and market segments, as well as the organisation and ownership level.

2.2. Conceptual foundations

The core concepts related to RC activities and presented in this sub-chapter are mostly presented in D31.1, but in order to give a thorough perspective for the reader, they are included in this deliverable as well. Some refinements to the concept descriptions are provided below.

2.2.1. Digital Business Ecosystems

The concept of digital business ecosystem is still to be conceptually defined, and is seminally used in the DBE project context. The concept has been mainly used in the DBE project related material or in the discussion paper preceding and forming a pillar of the DBE project.

The discussion paper by Nachira (2002) takes the perspective where the digital business ecosystem is presented as a stage of the ICT adoption (the use of the Internet) in an enterprise: “Digital business ecosystem is seen as the latter step in the adoption of Internet-based technologies for business, where the business services and software components are supported by a pervasive software environment, which shows an evolutionary and self-organising behaviour, will be named digital business ecosystems” (ibid.).

Following this definition, and adding some technological flavour, the DBE Project has then defined Digital Business Ecosystem as an “evolutionary self-organising system aimed at creating a digital software environment for small organisations that support regional and local development by empowering open, distributed and adaptive technologies and evolutionary business models for the growth of small organisations” (DBE Technical Annex).

The digital business ecosystem term has also been used to describe a situation in which there is one keystone actor and an “ecosystem” of other companies around it. SAP is an example of a digital business ecosystem of this kind. It can be argued that this kind of network can not be called an ecosystem as the keystone has the control over the network whereas in digital business ecosystem as described above and used in the DBE project context the interaction between business network actors is free, evolutionary.

2.2.2. Regional Catalysts in Economic/Business Context

Regional Catalysts are referred to in various contexts in books, articles, reports, etc. A large data search, conducted in this research process, demonstrated a very diverse and large-scaled usage of the term “regional catalyst”. To narrow and focus the concept analysis to better meet the needs of the DBE project, the term regional catalyst was studied in business contexts. At this point, the concept was directed more towards referring to Regional Economic Catalysts. However, even in a business context, the term Regional Catalyst has quite a many different meanings.

In DBE project context the term Regional Catalyst is used to refer to regional *organisations* that accelerate regional economic growth and business development (technology adoption being one tool to foster business development).

In most cases the regional catalyst has similar characteristics to the catalysts in natural sciences; facilitating or accelerating a reaction. In these cases the reaction is some economic development or transformation process. However, the other aspect of natural ecosystems, the unchanging nature of a catalyst, does not quite apply for these examples. For example, policy actions change, ICT develops rapidly, and

organisations change. In addition, the changing nature of these instances is emphasized, even while the “reaction” takes place. Considering the operator or organisation perspective of the catalyst, it is also argued later on in this study that the regional catalyst in DBE must change and develop during the process. In this respect it could be even argued that the term “catalyst” is not appropriate in this study. Close terms could be “accelerator” or “facilitator”. However, the term regional catalyst was used to describe the regional accelerator/facilitator organisations throughout the DBE project and beyond it.

2.3.Expectations for Regional Catalysts

Regional Catalysts are referred to in various contexts in the DBE project planning. There are several expectations for the characteristics of Regional Catalysts. Regional Catalysts should be regional head-cluster organisations. They should have profound knowledge and experiences of the local SMEs. Thirdly, Regional Catalysts should have knowledge both of business development and technologies. Hence they should be able to involve SMEs in integrating business and technical processes.

On a more precise level, the following requirements for Regional Catalysts were listed in the DBE project’s Technical Annex:

1. Able to recruit about 80-100 SMEs in their region. This is an agreed target which regional catalysts are able to capture considering their local role and the resources allocated for that purpose.
2. Have sound experience in SMEs’ perspective and behaviour.
3. Demonstrate a good knowledge of their local environment
4. Demonstrate solid past experience in recruiting SMEs and in regional connector of SMEs needs.

“In DBE approach a Regional Catalysts is a regional head-cluster organisation with deep knowledge of the SMEs and their local environment, able to involve SMEs in integration business and technical processes. Regional Catalyst is an aggregation of connected organisations concentrated within a particular region. Its aim is to enable them to competing or collaborating on world markets. We assume, considering the core concepts of the project, high knowledge of diverse combinations of ICTs within the Catalyst, in order to support the advanced technology solution expected by the project.” (ibid.).

2.4.Conceptual conclusions and distinctions

2.4.1. DBE Regional Catalyst

The term Regional Catalyst is used for different purposes in DBE context. On some occasions it refers to the regional partners of the DBE project and on other occasions to the Regional Catalysts in the DBE context. Three levels for purposes of use of Regional Catalysts can be defined. For the sake of clear communication, the terminology has been specified in the following way.

1) Regional Business/Economic Catalysts

- the overall term for regional organisations that accelerate regional economic growth, and business development (technology adoption being one tool to foster business development)

2) Regional Catalyst in the DBE

- DBE –specific; the concept of regional catalyst in the context of the DBE

3) DBE Regional Partners

- partners in the consortium representing the three target locations (TTC, ITA, UCE) and fulfilling the specified project tasks.

This study concerns the second level, 2) Regional Catalyst in the DBE. It should be noted that the DBE project regional partners might not be the ultimate Regional Catalysts in the Digital Business Ecosystem. As will be presented in this study later on, it is most probable that none of the DBE Regional Partners alone will fulfil the specifications of Regional Catalyst in the DBE. Also, this study is not to find ways to develop the DBE regional partners to fulfil the specifications of Regional Catalyst in the DBE, but to create an optimal concept for Regional Catalysts in the DBE.

2.4.2. DBE Project vs. Sustained DBE

As the research framework implies, the time scale should be taken into consideration when specifying Regional Catalysts in DBE. Some of the activities and catalyst organisation refer to the actual DBE project phase, and some to the state where the DBE is sustainable. The catalyst activities and the organisations carrying out the activities differ quite a lot with regard to the DBE phase (project vs. sustained situation). “Sustained” here refers to the time scale after the DBE project. Another way to define the time scale is to distinguish between the build-up phase and sustained phase of the DBE.

Three different time scales or conditions can be defined: 1) the DBE project, 2) build-up of a DBE (not connected to this DBE project), and 3) sustained DBE (either after this DBE project or after some other form of build-up of a DBE). All of these conditions have different impacts on the regional catalyst activity. With regard to the research framework (Figure 2), these conditions can be considered as representing the level of electronization.

2.4.3. Region vs. Domain Specific Catalyst

Regional Catalysts can be divided into two categories: **domain specific** catalysts and **region specific** catalysts. Domain specificity means that the activities are directed at a certain industry, domain, or as stated in the DBE project, opportunity space. In this case the span of these activities, and thus the target organisations are not limited to a certain geographic area. For example, a company (e.g. a system integrator or network head) could accelerate and facilitate (catalyse) business development and technology adoption, and in a more specific way, the digitalisation of business processes, of (a) certain network(s) in an industry. The need for industry or sector specific networks is

emphasised in the experiences from previous e-business initiatives (see e.g. European Commission, Information Society, 2004). The region specificity means that the catalyst activities are directed to, and hence the target organisations of a catalyst are located in, a region or specified geographical area. For example, a city's business development agency might provide services to companies located in the region, regardless of the domain or industry of the company.

2.4.4. Digital Ecosystem vs. Business Ecosystem

With regard to the digital business ecosystem concept, the outcome of the conceptual analysis is that a digital business ecosystem is a DBE project related concept. In the DBE project the acronym "DBE" usually refers to the technological infrastructure to be built on the project. In a wider context, it can be concluded that a digital business ecosystem is based on a co-evolution or co-existence of different ecosystems -- co-evolution of digital ecosystem and business ecosystem -- not a totally new ecosystem but, at least partly, a merger of other, co-existing ecosystems.

There are experiences and examples of region specific catalysing of (local) business ecosystems, and also domain specific catalysing of digital ecosystems. In addition, some of the region specific catalyst activities have influenced and been targeted in catalysing the digital ecosystems, for example, in the creation of new software as illustrated in level A) in Figure 3.

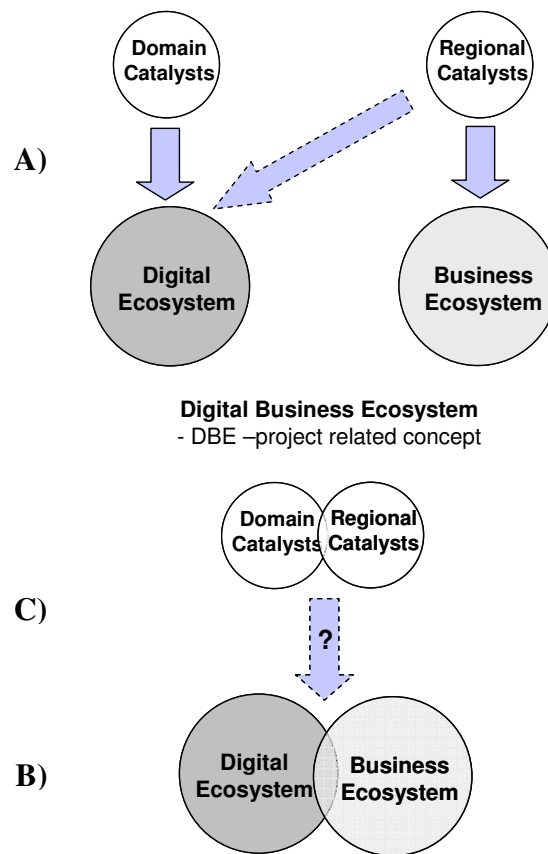


Figure 3. The conceptual structure of Regional Catalysts and Digital Business Ecosystems

With regard to level B) in Figure 3, the relationship of business ecosystem and digital ecosystem can also be seen as a digital ecosystem being one part of the business ecosystem. In fact, the digital ecosystem circle could be placed inside the business ecosystem circle. This visual solution would emphasise the facilitating role of the digital ecosystem. The purpose is that the digital ecosystem (technology, digital solutions) is a facilitator or means to influence the business ecosystem, not the other way around. With regard to this, Eve Mitleton-Kelly states that the relationship, or co-evolution, of the information systems (digital ecosystem) and the business domain (business ecosystem) including technology, strategy changes and relationships between individuals faces problems that are rather socio-technical than technical in nature (Keskinen et al., 2003). In addition, it could be argued that there are also other ecosystems, for example, social ecosystem, that should be taken into account in the figure.

What is being specified in this study is the concept of the Regional Catalyst in the context of the Digital Business Ecosystem. This involves a parallel study of domain catalysts and regional catalysts as illustrated by level C) in Figure 5. According to the previous analysis, the specification is: *co-catalysing (domain and regional) of the co-evolving and co-existing ecosystems (digital ecosystem and business ecosystem)*, see Figure 5. The catalysing should include domain specific and region specific catalysing

and it should be directed at 1) both ecosystems and 2) the co-evolvement or co-existence of the ecosystems.

2.4.5. Customers of a Regional Catalyst

The main target groups of the DBE project, and respectively of Regional Catalysts are 1) the software provider companies (including software service provider companies) and 2) the software user companies. However, in order for the regional catalysts to fulfil the objectives and DBE requirements regional catalysts have to interact, and in one sense provide services, also to regional catalyst associates and policy influencers/makers.

In the deliverable D28.1 (DBE preliminary training resource plans and needs) the target groups were categorized into four groups according to their willingness to engage and ability to execute. The same categorizing can be used in segmenting the customers of regional catalysts. Examples of the customer groups and segmentation are presented in the following figure.

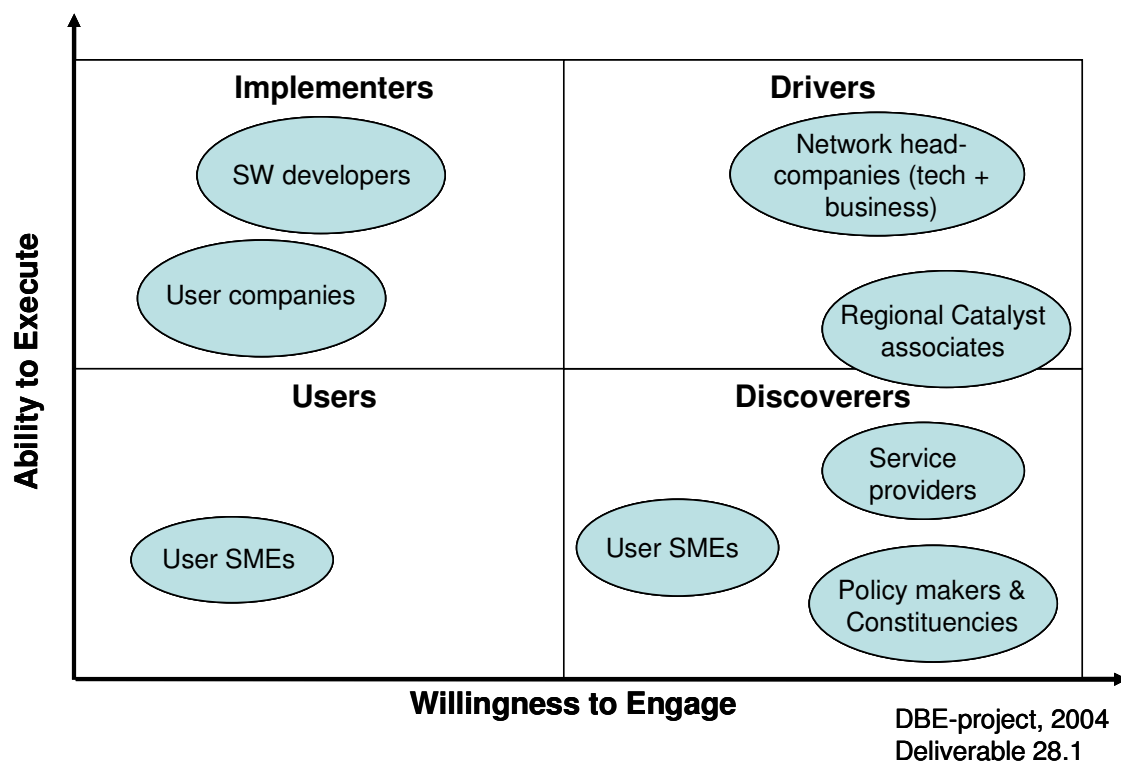


Figure 4. Examples of Regional Catalyst customers and customer segments.

Interactions of regional catalysts and the customer segments follow the sequence identified in the above mentioned deliverable. First, the main customer segments will

be the drivers and discoverers. Later in the DBE development phase the target groups are implementers and finally users. Thus, the target segments vary across the project phases and DBE maturity.

The target customers also depend on the scope (domain vs. region specificity) of the regional catalysts. The influence is not so much on the target segments (drivers, discoverers, implementers, users) but the actual target organisations. The region specific catalysts and catalyst activities are directed to the local organisations, whereas the domain specific catalysts and catalyst activities are directed to organisations in a certain domain, opportunity space or industry. Thus, the target customers vary with regard to the domain vs. region specificity of the catalysts.

The open source nature of DBE and the underlying infrastructure has brought communities and open source community organisations among the target groups of Regional Catalysts as well. Especially at the current state of DBE, where solutions and models for the sustainability of DBE are explored, the role of these RC customer segments has become crucial.

2.4.6. Four organisational models

As a conclusion from the interviews with current regional catalysts and discussions with some driver SMEs, in D 31.1 we have identified four organisational models for regional catalysts. The models describe different types of regional catalysts from a high-level governance perspective rather than from inside the organisation. The customer groups and service offering are somewhat similar between the organisations but the differentiating factors are in the governance issues: ownership, mission and legal form.

In the first organisational model the regional catalyst organisation works closely with governmental bodies. “Government” here refers to either local, national or European government or a public body. The regional catalyst gets funding from the government and reports on the results to the government. The services are provided to local companies, SMEs. The SMEs may or may not pay for the services. However, the actual (paying) client is the government.

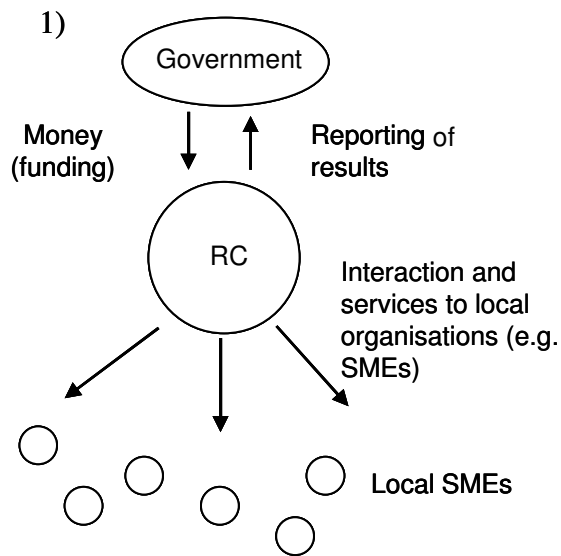


Figure 5. Regional Catalyst organisational model 1.

In the second organisation model the regional catalyst interacts with a community of local companies. The community could refer to a customer ownership model or association. The regional catalyst provides services and reports results to the customer community. The companies pay membership fees and possibly also for some services to the regional catalyst.

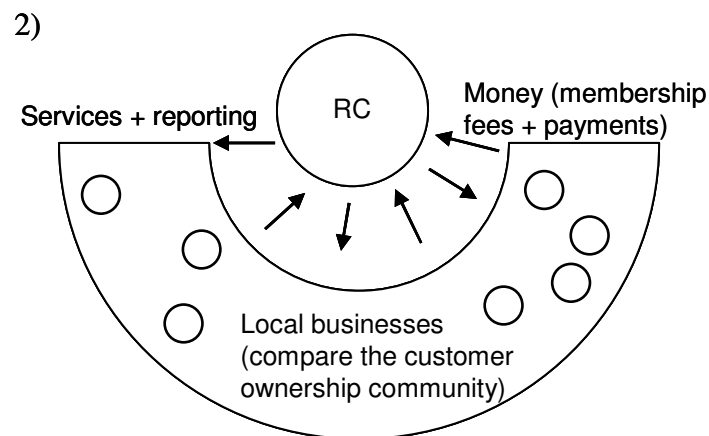


Figure 6. Regional Catalyst organisational model 2.

In the third model, the regional catalyst interacts with local businesses providing services to companies and companies pay for these services. The regional catalyst activity is purely market driven.

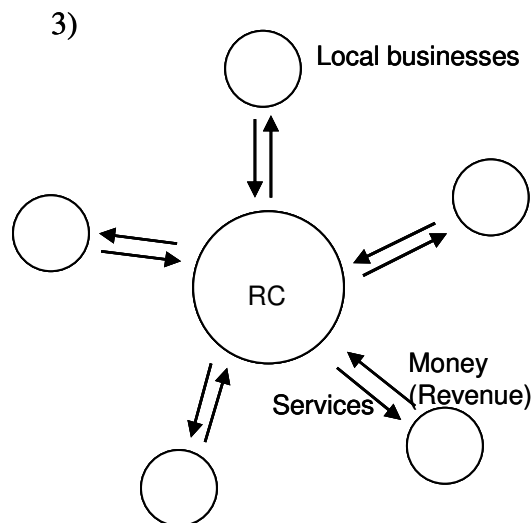


Figure 7. Regional Catalyst organisational model 3.

All the models above have included a third party carrying out the catalyst activities. In the fourth model, the regional catalyst is a local business itself. It may be a network head company influencing and catalysing the whole network (e.g. a systems integrator or a driver company in a network). In this model, business “catalyses itself”. This alternative for a model of regional catalysts was articulated by some driver SMEs.

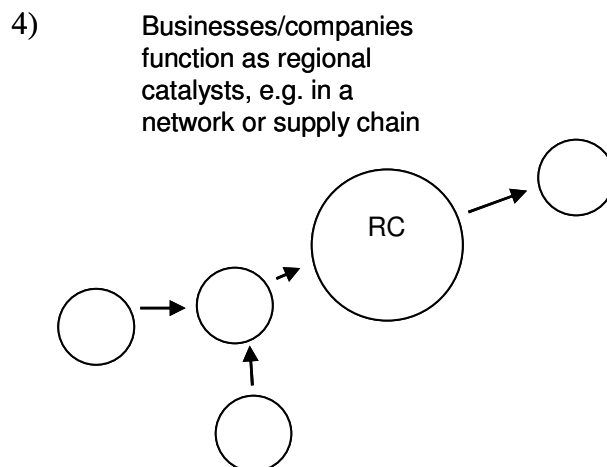


Figure 8. Regional Catalyst organisational model 4.

The roles of catalyst organisations may differ according to DBE maturity; one model (and thus an organisation) might be the most suitable for the DBE project phase, another for the build-up phase and a third for the sustained DBE. It may be that none of these organisational models (and thus an organisation) fulfils the expectations for

regional catalyst even in different phases. Catalyst activities might be carried out better by a dynamic or evolving network of organisations than a single organisation: a changing combination (the combination changes with regard to the DBE maturity and domain vs. region specificity) of regional catalyst organisations with different models.

2.4.7. The evolution of Regional Catalyst models and operations

The most important research finding in the conceptual research is the notion of Regional Catalyst action as evolving and changing activity. This fundamental understanding is summarised as a business idea model in the figure 1 above.

Based on the generic model described above we have identified three dimensions along which the regional catalyst concept can be further defined. The dimensions are the scope or specificity of regional catalyst, DBE phases and business model. These axes each include 2-3 basic categories. The figure below illustrates these axes and parameters.

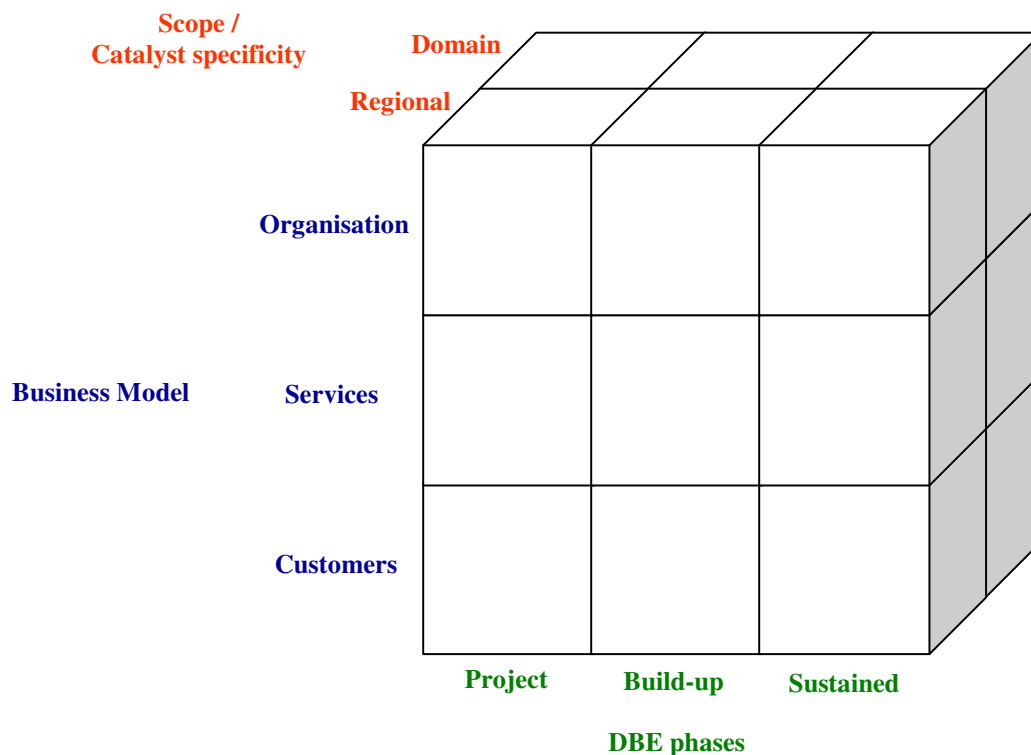


Figure 9. The Concept of Regional Catalyst in the DBE.

“Scope” and “DBE phases” set parameters in which the regional catalyst concept can be defined: the DBE phase is either in 1) project phase 2) build-up or 3) sustained and the regional catalyst scope is 1) domain specific 2) regional specific. In contrast to

this, the parameters of the third axis change with regard to the two other axes: e.g. target customers change with regard to the scope and DBE phase and the (optimal) service range changes with regard to the scope and DBE phase (see Figure 8). The optimal values of the parameters on the business model axis also change with regard to each other: e.g. services vary according to the target customers. Each of the parameters of the business model axis also needs to have values at the same time: a regional catalyst must have a set of services, target customers and a model for organisation. Thus regarding cause effect relations, the DBE phases axis is the primary dominating axis, the scope is secondary dominating (scope is dependent on the phases) and the business model is the most dynamic (all of the parameters of this axis depend on the two other axes).

Due to the complexity expected from the Regional Catalyst entity illustrated in Figure 9, catalyst activities might be carried out better by a dynamic or evolving network of organisations than a single organisation unit. The Regional Catalyst concept sets requirements of dynamic and evolving characteristics for the regional catalyst activity. A single organisation will most probably not meet these characteristics. However, a network or combination of regional catalyst organisations could form a Regional Catalyst entity meeting the features of complexity of the concept of the Regional Catalyst in the DBE presented in Figure 9. Hence a single organisation may not have extensive changes, e.g. changes in its organisational model or organisational form, while the catalyst activity takes place but the whole regional catalyst activity or regional catalyst entity evolves as illustrated above.

2.4.8. Social and institutional setting

The activities and strategies of Regional Catalyst organisations are strongly influenced by the regional social and institutional environment. As presented in the deliverable 31.3, this social and institutional setting can be conceptualised as territorial capital of a region. Territorial capital is a measure of the DBE readiness of a region and is a combination of three dimensions:

1. social capital
2. level SMEs ICT development and
3. regional innovation capability.

Each of these dimensions can then be divided into sub-dimensions as illustrated in the figure below.

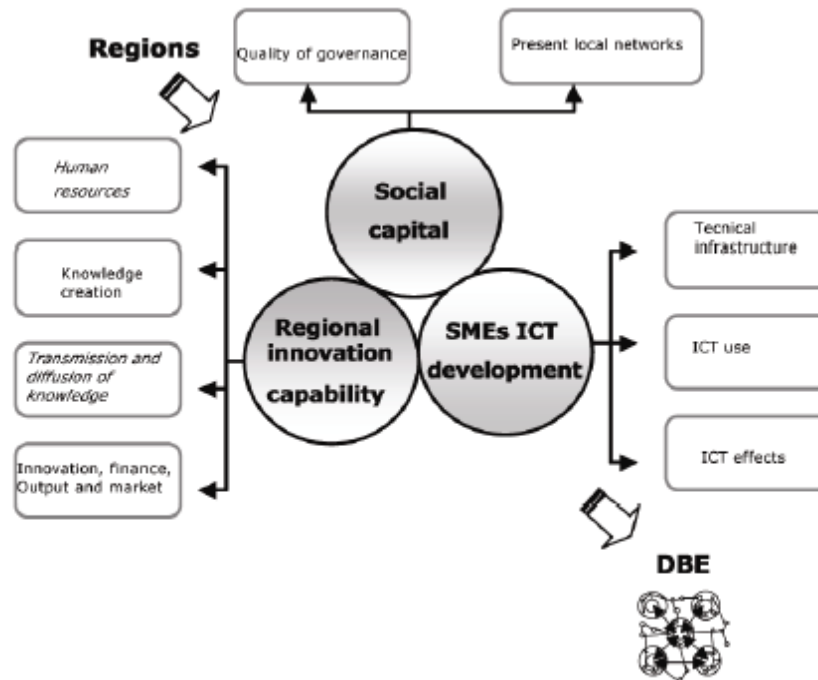


Figure 10. Elements of territorial capital in DBE.

In this social setting the mission of regional catalysts is clearly two-fold:

1. to match the generic potentials of DBE with the actual needs, opportunities and limitations represented in the territorial capital
2. to improve the territorial capital of the region in order to better utilise the potentials of DBE.

2.5. Conceptual models vs. real – life experiences

In this sub-chapter some experiences of the regional catalysts are reflected within the proposed research framework and conceptual models. The purpose is to

1. validate the proposed models and conceptual development in the light of real-life examples
2. describe some aspects of the evolutionary process of becoming and being a regional catalyst is DBE.

The analysis is based mainly on the experiences of TCH as one of the three regional catalysts and as coordinator of RC activities during the first 24 months of the project.

All the regional catalysts have experienced some dynamics in their role as a catalyst. Many of the changes have their roots in the **changing operational environments and business strategies of the catalyst organisation**. Especially in the case of TCH the changes of this kind have been fundamental and they have had a significant impact on the way the operations have been carried out.

The DBE project started when the company was called Tampere Technology Centre (TTC). As a “technology centre” the company was expected to have a holistic approach to the development of new business in the Tampere Region. The company provided advanced operational environments for high tech businesses with three business units: the Real estate business (renting), Business development and incubator services and Project operations.

In TTC the Project operations unit was responsible for the DBE project. As publicly funded projects have seldom been fully funded, the unit was continuously subsidized by the other two business units that have been able to be fully funded and even profitable. From the owners (city of Tampere) economical development strategy point of view this was considered necessary and useful. In this context the DBE project was considered in TTC as a future investment for innovation activities in the whole Tampere Region.

DBE project was also prepared in close collaboration with the eTampere initiative, a major information society development program of the region. Although DBE was located in TTC, the project was initiated as part of eBusiness Research Centre (eBRC) at Tampere University of Technology, where the focus was on research and business development initiatives in eBusiness. This connection, supported by all the key stakeholders of the company, gave TTC a sound basis to consider DBE project as a generic and real eBusiness initiative, leading to concrete new eBusiness practices and business opportunities.

In this setup the role of TTC as a regional catalyst was strongly embedded into the Tampere Region and generic promotion of eBusiness in the region. However, during the first 12 months of the DBE project, it became clear that DBE is not at a stage of immediate take-up in real eBusiness. It turned out that the fundamental software components and architectures were mainly in the phase of alpha development, while some of them were still in pure research phase. The eBusiness facilitation approach with an expectation of rapid take-ups turned out to be unrealistic. At the same time the eTampere initiative was reaching its end and the future of eBRC remained very unclear. This led to a need to re-evaluate the focus of the catalyst operations, the regional strategy to DBE as a whole and the competences and resources needed in the catalyst operations.

At the same time City of Tampere, the owner of TTC, decided to redefine its economical development strategy and organisation. The real estate businesses and incubator services were separated from Project operations. TTC was transformed into TCH with a mission to focus on self-sustaining project operations. Project operations were expected to be well focused to the needs of local ICT and Mechanical Engineering industries and provide direct value for these industries.

In this situation, to attract new and more permanent customers, to increase revenue from private sources and strengthen its future market position, TCH developed a new “mini-cluster”- concept for Project operations. Several mini-cluster initiatives were launched and the service models for them were developed. The key elements of mini-cluster initiatives are a narrow technology and business area focus, national geographical coverage, deep collaboration and networking with selected participating companies, involvement of selected business oriented research initiatives and self-funding and direct guidance of the participating companies by membership fees.

One of the most successful mini-cluster initiatives of TCH has been COSS – the Finnish Centre for Open Source Software. As an open source initiative DBE was considered to fit well with the interests and operations of COSS, although the potential lack of immediate business benefits of DBE was seen as a possible source of problems for TCH. By linking these two initiatives a clear focus and target group for DBE in Tampere was redefined. Inside TCH, DBE was strategically redefined as an open source project for the Finnish open source companies. Thus, DBE was transformed from a regional generic eBusiness initiative to a national open source technology initiative.

The shift in focus and approach of TCH as a regional catalyst demonstrates clearly how the business idea of a regional catalyst evolves as a result of changes in the operational environment, owner's expectations and internal learning and how these changes may impact the agenda catalyst are having in DBE. In real life, the catalyst organisation has to balance between the changing expectations of stakeholders, dynamic business landscape, lasting project commitments and partially unforeseen innovation process within DBE. As the business idea model quite correctly implies, this dynamism has multiple different sources and intentional strategic choices play here an important role.

On the other hand the evolution of RC business ideas seems to include considerable elements of stability as well. So far we have not yet seen any significant changes in the **organisational structures** of the involved RCs. All the three catalysts have remained close to the first organisational model where the regional catalyst organisation works closely with governmental bodies. The regional catalysts are continuously funded by public bodies and the results are reported to the government. The actual (paying) client is the still government, not the private sector. The expected shift from single organisation catalysing to networked catalyst operations has not taken place and no new catalyst organisations have emerged.

Only in the case of TCH the close connection to the partly privately funded COSS demonstrates a partial shift towards the second organisational model. COSS is partly funded by membership fees and a certain part of this income of COSS is used for the purposes of DBE. Companies do not, however, pay directly anything for any DBE related services. On the contrary, companies are still paid for their contribution and effort on DBE.

This lack of new organisational models within RCs is closely connected with the progress of innovation and the adoption rate of DBE technologies in business. Due to some remaining flaws in technology maturity and usability (instability, lack of security and identity services) real business adoption and DBE business model development is still under its way. In this situation, where the technology is not attractive enough from a business perspective, it is very difficult to build a catalysing organisation with value-adding services for any other customer group than the government.

The customer groups of RC organisation fit well with the segmentation provided in D28.1 and presented above. Here again, it is important to realise how the maturity and level of adoption plays a central role. So far the main customers of RCs have been driver and implemented SME, i.e. companies providing software services.

During the last project year the sustainability discussion and challenge has brought some new actors into the target zone. Especially regional policy makers have become important targets for RCs when they plan the future funding sources and models of DBE. In addition open source communities and individual developers, open source support organisation (e.g. FSF Europe) and open source companies (e.g. RedHat) have become important partners as they are valuable sources of information and possible support when working towards the sustainability of DBE technologies in the world of open source development.

The distinction between different scopes of activity, i.e. **region vs. domain specificity**, seems to be an important analytical dimension of RC activity. Different catalysts have adopted here slightly different approaches that seems to be connected to the results that have been able to achieve. A good example here is ITA in Aragon (Spain) that has had a very strong focus on one industrial sector, tourism. This focus was defined and agreed in Aragon already during the first months of the DBE project and it has been solid ever since. ITA has been working with sector for a long time has been able to utilise to existing social capital within this network. Also the technology development in DBE has had a good understanding of this specific domain. These factors have positively contributed to the fact that e.g. the SME engagement process has achieved best results just in Aragon.

On the other hand, both Tampere and West-Midland have not been that clear and stable in their focus domains. The RCs in Tampere and West-Midlands have not been that closely aligned with any specific domain and they have struggled with reaching the objectives of SME engagement. Thus, it can be argued that at least **at the current stage of development, a stable domain specific focus, associated to a high level of territorial capital and a strong position in regional innovation policy seems to produce the best results in RC action.** In fact there seems to be a trend toward this favourable approach even within the existing RCs. Here the case of TCH in Tampere is a good example. With a clearer focus on open source software domain and by utilising the leadership of COSS in this specific sector, TCH has been able to improve its engagement results during the final months of the project.

3. Regional Catalyst Operations

3.1. *Business process approach*

As described in the previous chapter, in deliverable 31.1 the foundations for RC activities and the elements of the related research framework were presented. The social and institutional environment was theoretically and empirically analysed and the key dimensions of RC action based on the classical business idea approach were articulated. In the business idea framework, the key questions of analysis of any business, including regional catalysing business, are WHAT, TO WHOM and HOW.

In the deliverable 31.2 a more integrated approach to regional catalyst **operations** was taken. Following the basic ideas of Business Process (Re)-Engineering (BPR) approach, a complementary and a bit more detailed view on the HOW-side of RC business was provided. Also, based on the Balanced Scorecard (BSC) approach, the first tool-set for the evaluation of RC operations was provided in the deliverable.

The adopted business process approach provides us with several advantages. It means firstly that instead of analysing what services are provided to whom, by whom and under what governance, the focus shifts naturally towards analysing how these services can be provided. Secondly, the BPR approach highlights the cross-organisational characteristics of business processes. This fits well with the fact that the RC services are typically not only provided by a single actor or organisation. As stated in the D31.1, in the context of DBE catalysing quite often requires collaboration of different organisational bodies. Thirdly the BPR approach allows us to describe RC activities as business operations, as larger entities and as measurable and sustainable business processes instead of single activities within the project. This is an important benefit when aiming at systematic evaluation and management of RC activities and looking for the means of sustainability of the DBE itself.

Here, in the following sub-chapters, a summary and update of that work is presented. In the next sub-chapter the core processes of a RC are defined. After that the key functions are described in relation to the core processes. Finally, in the concluding subchapter, some empirical reflections utilising the model of RC operations are presented.

3.2. *Core processes*

Core processes are an essential part of any business and are directly related to serving external customers. The external customers of Regional Catalysts in DBE, among which the core groups can be identified, include the following actors:

- driver SMEs
- explorer SMEs

- implementer SMEs
- user SMEs
- regional catalyst associates
- regional policy makers
- national policy makers
- European policy makers, including EC officials
- open source communities.

Core processes also reflect the objectives of the business organisation. The objectives and concrete tasks of regional catalyst, as identified in D 31.1 and the technical annex of the DBE project can be listed as follows:

- Recruit 80-100 local SMEs.
- Support SMEs and populate the ecosystem
- Coordinate SMEs training at regional level
- Networks building
- Access control
- Marketing & awareness raising
- Communication between the DBE project and the local SMEs
- Disseminate results, transfer and adoption
- Activate local policy makers
- Mobilise indirect funds at national level.

Summarising the above mentioned customers and objectives, based on D31.1 and the practical lessons during the initial phases of the DBE project, the core processes of RCs were crystallized in D 31.2 as:

- SME engagement
- Policy Integration
- Cross-regional networking.

The SME Engagement process (now renamed as SME- process) aims at integrating different types of SMEs into DBE as users and developers. There are several levels of engagement, starting from being aware of DBE enabled business opportunities and ending to executing all business transactions within DBE. From the SME point of view the aim of the process is to fulfil the SME business needs when engaging with DBE and match DBE with the business requirements of the SME.

The Policy Integration process (PI) aims at linking DBE with the different policies of regions. The linked policies may include technology and innovation policies, general economic policy, employment policy, structural policies etc. The local communities of policy making utilising DBE and contributing to it also evolve in time and there are several instruments that can be used in order to catalyse this two-way evolution. Policy integration takes place not only at regional level but also at national and EU levels.

Finally, the **Cross Regional Networking process** (CRN) aims at creating networks of local ecosystems, where the different actors and species in DBE can seamlessly interact and learn from each other. In the evolution of DBE, at first only local and closed ecosystems emerge. Cross regional networks must be created and encouraged

first in the European context but after achieving the critical mass they may rapidly expand to other areas of the globe as well. CRN supports and enhances the possibilities of E and PI processes.

During the last sixteen months of the DBE project the question of DBE sustainability came under heavy discussions and work within the consortium. In this work, carried out by the different stakeholder of DBE, the role of regions and regional catalyst in providing some of the core element of sustainability was emphasised. Thus, it can be argued that **DBE sustainability process (SUS)**, is an additional key process of a regional catalyst in DBE. Sustainability is about making sure that the investments of SMEs and other organisations in DBE are profitable, helping the key elements of the DBE systems to survive and evolve, and creating favourable conditions for DBE to evolve in the longer run and carrying out some key activities that are required.

3.3. Main functions

The key processes are executed by several functions of catalysing. In deliverable 31.2 the main functions of Regional Catalyst were named as

- Regional positioning
- Resource mobilisation
- Technology advocacy
- Business networking and business development
- Provision of learning support.

The contents, roles and competence requirements of these functions can be described in relation with the core processes as done in the following sub-chapters.

3.3.1. Regional positioning and awareness rising

Regional positioning and awareness rising is typically the starting point of all catalyst operations. This function produces the information, knowledge and interest needed in the following phases of each of the processes. For the SME-process this function is mainly about analysing the needs and requirements of local SMEs and business networks in relation with the value proposition of DBE. In the PI-process the value proposition of DBE is matched with needs at the level of innovation and technology policies. In the CRN process the units of positioning are regions. In regional positioning different regional benchmark tools (like that developed by Censis in D31.3) can be utilised as main tools.

In the SME-process the both elements of positioning are extremely dynamic, which makes the function very demanding, continuous and resource-intensive. Especially this is the case during the build-up phase of DBE itself. In PI-process, in contrast, the policy aspects remain usually quite stable and in CRN the regional characteristics are typically not subject to rapid changes.

In most of the cases the first results of matchmaking are naturally far from perfect as DBE represents an advanced conceptualization of business models and economical

development and a new collection of latest technologies- potentially leading to new business models and collaboration relationships. Thus, education in the form of awareness rising is among the essential operations already in the starting functions of catalysing.

3.3.2. Resource mobilisation

When catalysing an innovation like DBE a significant amount of resources needs to be mobilised. Here two basic categories of resources can be identified: internal and external resources.

Internal resources are those human and financial resources that are under the direct control of the regional catalyst organisation. Typically, the availability of these resources is a matter of internal decision making and reflects the priorities and strategies of the catalyst itself.

In most cases, however, the businesses RCs are not based on investment of own resources, but on the ability to mobilise external resources for desired purposes. Publicly funded projects from regional, national and European sources constitute here the main pool of potentially available financial resources. In the context of DBE, where the main seed investment has been made by the European Commission, the main task in this function is to find complementary resource for the next phases of DBE innovation and diffusion. Here the ability to create a synergic mix of national, regional and European resources is the key issue.

Resource mobilisation is not only about acquiring funds to support the diffusion and evolution of DBE. Another aspect of that is the capability to manage and distribute these funds properly and with best possible return-of-investment. From this perspective the ability to identify the most promising and sustainable application areas of DBE becomes critical. Also the possibilities to link DBE with other innovation and development programmes of the regions may increase the effectiveness and impact of resource usage.

Concerning the mobilisation of human resources, RCs may utilise two alternative strategies. Most traditionally, RC organisations may prefer to internalise the resources, i.e. hire the persons with competences needed if they are not in already in the possession of the RC. The other option is to utilise external resources and create partnerships with regional catalyst associates. In the dynamic build-up period, when the strategies and targets of DBE community development continuously evolve, the latter option may become the preferred one.

The managerial challenges of human resources are somewhat different in each of these strategies. In the case of internalised resources, the challenges are traditional HRM issues that most organisations are quite familiar to deal with. If the RC organisation relies heavily on the external resources, the situation is more complex. External resources must be found and become motivated for the DBE mission from different perspectives as individuals and domain or technology experts. In this case the RC must also be able to deal properly with the sourcing policies and procedures set by the public financing authorities.

For the DBE sustainability RC's ability for resource mobilisation is a key question. In regions where the RC organisation is closely involved in the decision making process concerning the allocation of regional and national resources DBE seems to have the most favourable conditions for sustainability.

3.3.3. Technology advocacy

DBE is based on a large and complex set of advanced information and communication technologies (ICTs). Some parts of the DBE technology family are well known mainstream components (like Eclipse), some have been under active development for years without yet reaching the mainstream (like FADA) and some are new innovation aiming to solve some of the most urgent challenges in software industry and computer science (like MDA and EvE). The whole DBE infrastructure will be licensed as Open Source Software.

One of the tasks of RCs in their core processes is to provide a solid picture of the various DBE technologies and the overall architecture of DBE. Also the Open Source - nature of DBE must be carefully explained. In all core processes DBE technologies, their potential benefits and limitations and their competitive advantages must be clearly and realistically communicated to various target groups. Especially this is the case in those early phases of the DBE take-up, when technologically oriented and competent target groups are centrally at stake. Typical example of these target groups are the Driver SMEs and some potential regional catalyst associates like technology universities. In addition to communication, technology advocacy may mean provision of direct technical support. In the PI process technology advocacy is about integrating DBE technologies into the innovation roadmaps and strategies of the region. In the SUS process technology advocacy can mean presenting DBE technologies to local developer communities and thus attracting developers to join the various DBE technology project as developers, testers and users.

3.3.4. Community building and business networking (business networking and development)

The business benefits of DBE become most visible in highly networked business environments. In the first real business scenarios, DBE technologies will provide a more cost-efficient and flexible way for existing business networks to get integrated at the level of information systems. In this way, DBE bootstrapping will utilise the existing social capital of business. In the latter phases, however, DBE has the potential to become the enabling technology for new business networks.

Given the dual central role of business networks in DBE evolution the role networking activities as an enabling activity within the core processes becomes self-evident. In the SME process in the early phases of DBE, for example, business networking activities take place at least at two levels

- The most interesting unit of SME recruitment for DBE an existing business network interested to implement and utilise DBE compliant services. DBE funds and other benefits may become a motivational factor for companies to strengthen their mutual cooperation. RCs are required to identify existing networks and their development need and to successfully engage them to DBE.
- In the selection of driver companies one important criterion is the potential synergy between their software services. In this way participation may lead to new collaboration mediated by the commonly used DBE technology platform. RCs should understand the integration potential of different services and the potential customer base for new more integrated services.

On the other hand, DBE open us completely new and more competitive business model, firstly for SW-developers and later also for their customers, i.e. user SMEs. RCs are also expected to communicate, develop and evaluate these new opportunities together with SMEs, local policy makers and the regional representatives from other regions.

During the last 18 months of the DBE project community building has become a major topic and challenge. Specifically, creating DBE communities has been seen as essential building block of DBE sustainability. Community building and business networking are closely related concepts, but they also have different connotations. Typically in the business context networking refers to potential business partnering and supplier-customer relationships. Community building refers to a shared interest towards and around a specific topic or artefact (e.g. technology, business solution etc). This interest may lead later on to business relationships and needs for business development activities. In the case of DBE this has not typically been the case yet. Community building has also a central role and specific meaning in the context of open source software, where technology development and adoption is typically organised as a community effort.

Thus, in this deliverable an addition and revision for the above mentioned key function is proposed. Instead of “business networking and development” we consider **Community building and business networking** as an appropriate concept to describe the function.

3.3.5. Learning support

One of the key elements in the anticipated DBE evolution is the creation of learning communities. At first this happens at the level of individual and networked SMEs that will work together to implement and utilise DBE technologies in their businesses (E process). Later on, learning communities are expected to expand and include also regional policy makers and influencers. Finally, also inter-regional learning communities are expected to emerge.

Learning communities can be supported by attractive training activities and events, user-friendly e-learning infrastructure and active marketing and communication. The main target groups of training activities are regional SMEs (developers, open source community members, users) regional catalyst associates and regional policy makers.

3.4. The operational model of Regional Catalysts in DBE

The operational model of Regional Catalyst can be seen as a matrix of core processes and main functions (see figure 11 below). The core processes focus to fulfil the needs of external customers, which in the case of regional catalysts are SMEs, policy makers, regions and developer communities. The main functions then, are the means to fulfil these processes and achieve the objectives. The main functions can also be interpreted as support processes.

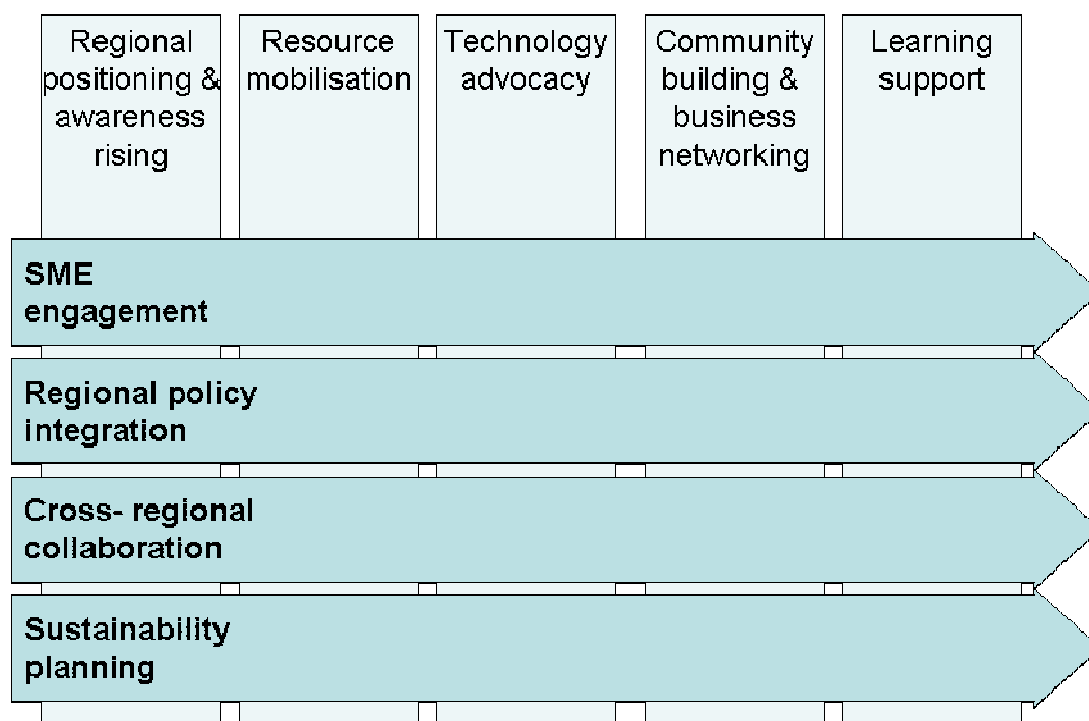


Figure 11. Core processes and main functions of regional catalysts in DBE.

By identifying the core processes and main functions Regional Catalyst organisations can focus their resources on the most crucial operations and identify the competencies that are needed. Core processes and main functions also provide a basis for internal and external evaluation of RC operations, that will be discussed in more detail in the following chapter.

3.5. Variations and dynamics in Regional Catalyst operations

As the research framework suggests, the model and operations of Regional Catalyst are embedded in the regional social and institutional setting and reflect the level of regional business electronization and the business idea of the catalyst organisation. In

this subchapter we summarise some empirical observations on the variations and dynamics of Regional Catalyst operations during the DBE project. The observations are discussed in the light of the results of the questionnaire for self-evaluation sent to all regional catalyst of the DBE project during the last weeks of the project. All three regions have provided their own evaluations independently. The data per region is presented in the tables 1-3 below.

Among the identified core processes of a Regional Catalyst SME Engagement is ranked as the most important. Cross- Regional Collaboration and Regional Positioning were ranked close to each other but clearly below SME engagement. During the DBE initiative in the participating regions the importance of SME engagement has been increasing, although in Tampere, where SME was ranked as the most important process already in the beginning, the regional positioning has now become the second most important process. This may reflect the specific concerns of sustainability in the Tampere region and also the fact that in 2007 Tampere will participate the PEARDROP project, where the question of regional positioning toward the DBE concept is in focus. The importance of sustainability planning was not ranked in the questionnaire.

Concerning the impact of RCs in these core processes the current RCs seem to be rather confident that their role is steadily growing. The aggregated average impact in 2005 was 1.78 while in 2007 it is expected to be 3.22 in the scale from 1(=very small impact) to 5 (very big impact). Especially in West-Midlands the positive trend is straight-forward and reflects clearly the reported growth in competences and resources within the catalyst organisation. Also in Aragon the trend is clear but not as significant. In Tampere the trend is less clear; the impact is expected to diminish in 2007 in SME engagement but clearly increase in the other two key processes. As an general observation we can conclude that the DBE project seems to have been an intensive learning process for the Regional Catalysts themselves, not only about DBE as technological environment but also as an opportunity to create competences for regional catalysing per se.

When ranking the main functions identified in the operational model during the course of the DBE project interesting dynamics and variations emerge between the functions and the RCs. When looking at the whole duration of active catalysing (2005-2007) the highest ranked function is clearly Provision of Learning Support with an average total rank of 3.44. Learning Support is very closely followed by Technology Advocacy with an average total rank of 3.33. Mobilisation of Regional Resources (rank 3.00), Business Networking (2.78) and Regional Positioning (2.44) are clearly behind the two most important functions.

During the course of the project the emphasis of catalyst operations seems to have been shifting. Between years 2005 and 2006 the major change has been the weakening role of Business Networking (from 3.33 to 2.67) and Regional Positioning (from 2.76 to 1.33) and the rise of Learning Support (from 3.00 to 4.67). In 2007, when DBE is moving beyond the project phase, the catalyst profile seems to be changing dramatically. Mobilisation of Resources (from 2.33 to 4.33) and Regional Positioning (from 1.33 to 3.00) are now the key focuses of RC activity. This shift clearly reflects the challenges and concerns the RCs are facing in DBE sustainability.

	<i>What has been / will be the rank (1=least-2-3=most important) of the objectives of your operations as a Regional Catalyst?</i>			<i>How big impact have you had / expect to have (1=very small-5=very big) your region?</i>		
Year	2005	2006	2007	2005	2006	2007
Engaging SMEs into DBE	1	3	3	1	2	3
Integrating regional policy with DBE	2	2	1	1	2	3
Cross-regional networking within DBE	3	1	2	1	2	3
	<i>What has been / will be the rank (1 =least-2-3-4-5 =most important) of your operations as a Regional Catalyst?</i>			<i>Level of skills and resources available for Regional Catalyst operations in your organisation (1=low-5=very high)?</i>		
Year	2005	2006	2007	2005	2006	2007
Regional positioning	4	1	1	1	2	4
Mobilisation of regional resources	5	3	3	1	2	3
Technology advocacy	3	2	2	1	2	3
Business networking and business development	2	4	4	1	2	3
Provision of learning support	1	5	5	1	2	3

Table 1. UCE (West-Midlands) self-assessment of DBE Regional Catalyst activities

	<i>What has been / will be the rank (1=least-2-3=most important) of the objectives of your operations as a Regional Catalyst</i>			<i>How big impact have you had / expect to have (1=very small-5=very big) your region?</i>		
Year	2005	2006	2007	2005	2006	2007
Engaging SMEs into DBE	3	3	2	2	4	2
Integrating regional policy with DBE	1	1	3	1	2	3
Cross-regional networking within DBE	2	2	1	1	2	3
	<i>What has been / will be the rank (1 =least-2-3-4-5 =most important) of your operations as a Regional Catalyst?</i>			<i>Level of skills and resources available for Regional Catalyst operations in your organisation (1-5)?</i>		
Year	2005	2006	2007	2005	2006	2007
Regional positioning	2	3	4	3	2	4
Mobilisation of regional resources	1	2	5	3	3	4
Technology advocacy	5	4	3	1	2	4
Business networking and business development	3	1	1	3	4	4
Provision of learning support	4	5	2	3	3	4

Table 2. TCH (Tampere) self-assessment of DBE Regional Catalyst activities

	<i>What has been / will be the rank (1=least-2-3=most important) of the objectives of your operations as a Regional Catalyst</i>			<i>How big impact have you had / expect to have (1=very small-5=very big) your region?</i>		
Year	2005	2006	2007	2005	2006	2007
Engaging SMEs into DBE	2	3	3	3	5	5
Integrating regional policy with DBE	3	2	2	4	4	4
Cross-regional networking within DBE	1	1	1	2	2	3
	<i>What has been / will be the rank (1 =least-2-3-4-5 =most important) of your operations as a Regional Catalyst?</i>			<i>Level of skills and resources available for Regional Catalyst operations in your organisation (1=low-5=very high)?</i>		
Year	2005	2006	2007	2005	2006	2007
Regional positioning	2	1	4	4	4	4
Mobilisation of regional resources	1	2	5	4	4	4
Technology advocacy	3	5	3	4	5	5
Business networking and business development	5	3	2	3	4	4
Provision of learning support	4	4	1	3	5	4

Table 3. ITA (Aragon) self-assessment of DBE Regional Catalyst activities

In the ranks of main functions there seems to be more differences between the regions than was the case when comparing core processes. In West-Midlands the most dynamic functions in terms of rank have been Regional Positioning and Provision of Learning Support. Regional Positioning was ranked 4 (the second most important function) in 2005 and 1 (least important) in 2006 and 2007. Learning Support, in turn, was ranked 1 (least important) in 2005 and 6 (most important function) in 2006 and 2007. UCE, as a regional catalyst for DBE in West-Midlands, seem to have evolved in three years from a policy-oriented catalyst towards learning-centric catalyst. It also interesting that at the same time also the business networking and development aspect of catalysing has become stronger while in Tampere it has become less important.

Tampere seems to have followed quite a different path of evolution. In 2005 Tampere adopted a business and technology- centric catalyst strategy, where DBE was offered especially as an attractive technology solution for business needs with a lot of business potential and a lot emphasis on learning support. By 2007 the focus of Tampere seems to have clearly shifted away from this technology-business approach. The regional policy related aspects of catalyzing have become stronger within the agenda of TCH while directly business and technology related aspects have lost their weight. It seems that based on the experiences during the three-year DBE project the future policy and financial foundations of the DBE initiative are under active reconsideration in the Tampere Region.

In Aragon the profile of catalyzing seems to be close to Tampere. The changes in 2005-2007 follow the same overall pattern but are not that strong. All in all, there seems to have been more stability in the Aragonese approach in catalyzing than in the other regions, at least before 2007. For the year 2007 also the ranks in Aragon are changing rapidly, probably reflecting the same concerns of sustainability as in the case of Tampere.

4. Evaluation of DBE Regional Catalyst Operations

4.1. Focus and purposes of evaluation

From the point of view of sustainable operations of Regional Catalysts a ‘balanced scorecard’ assessment of the Regional Catalysts themselves is proposed to be used as the main tool of evaluation. The purpose of this specific evaluation- toolset is to support the build-up and management of the regional catalyst activities, and to thus set standards for future participation and learning of additional regional catalysts.

Balanced scorecard is a strategic management technique invented by Robert Kaplan and David Norton of Harvard Business School. It seeks to make objective and quantitative measures using four headings or ‘perspectives’ in order to provide a comprehensive and balanced view of an organisation that is able to usefully inform management. The measures are determined by the organisation itself, and the names of the four perspectives are often adapted slightly to suit the type of organisation. In the case of the DBE we will use the four perspectives:

- Financial
- User
- Business process
- Development.

The evaluation template below sets out the metrics that can be used under each of the four perspectives. The metrics are linked with the core processes and main function of Regional Catalysts as presented above. As the DBE objectives are the same in each region, we propose that this single template will be used for all RCs in order to provide consistency and comparability.

It is important to understand that balanced scorecard is a strategic management technique that should help the RC itself, as well as the management of DBE related projects to improve the chances of achieving success. The idea is not to ‘test’ RCs, but to investigate, especially over the course of time, how the different characteristics of each RC influence the role and the success of performing the key processes and achieving DBE objectives. The results may also influence current and especially future RCs, in terms of how they set up and manage their DBE operations.

4.2. DBE Regional Catalyst objectives

Central to our task is to assess how the situation of each Regional Catalyst impacts on the achievement of the DBE objectives. For our purposes, these objectives can be summarised as:

- Sensitise the region to the opportunity of the DBE (= Regional Positioning and Awareness Rising- function)

- Involve the regional software industry in pilot actions (= SME Engagement Process)
- Support the pilot actions including a major training development (= Learning Support - function)
- Encourage the formation of a long-term sustainable DBE community linked to other such communities internationally (= Sustainability Planning and CRN Processes)
- Create favourable conditions for the regional sustainability of DBE (=Sustainability Planning).

4.3. Metrics

Strategic objectives and missions are normally defined in relatively ‘soft’ terms, while objective assessment demands ‘hard’ measurements. Expressing strategic performance in terms of hard measurements is perhaps the most difficult aspect of Balanced Scorecard. Numerical measurements must be used where possible, but where these are impossible or meaningless then other techniques can be used that give a quantitative measure. In this system we propose to use:

- Ratings - these are agreed assessments of a parameter on a scale from 0 - 5 (where 0=none and 5=max) unless a different scale is specifically stated
- List count - where we count the number of items that can be listed
- Traffic light - to identify elements that are green (good), red (bad), or yellow (marginal)
- Multipliers - where items of differing types are being counted and the type has a bearing, then the item count is weighted by using the stated multipliers,

The next four subchapters describe the metrics in detail for each of the four balanced scorecard perspectives. The data can be entered on a spreadsheet or database. Most of the sections can be completed by the Regional Catalyst themselves, or any organisation intending to become a DBE Regional Catalyst. Some of the sections on customer perspective require interviews (ideally independent) with other organisations.

3.5.1. Financial perspective

Business model

The sources of organisational income that enable the RC to operate

Total annual income - amount in Euro	
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Analysis of income by source:

<ul style="list-style-type: none">Public sector direct funding - amount in Euro	
<ul style="list-style-type: none">Public sector project funding - amount in Euro	
<ul style="list-style-type: none">Private sector sponsorship - amount in Euro	
<ul style="list-style-type: none">Earned income from private sector clients - amount in Euro	
<ul style="list-style-type: none">Other income (list) - amount in Euro	
Annual operating costs - amount in Euro	
Percentage of costs that are fixed overheads - percentage of operating costs	
Revenue growth - annual percentage	
Cost growth - annual percentage	

Financial security

The extent to which the organisation can have confidence in its future

<ul style="list-style-type: none">Capital reserves - amount in Euro	
<ul style="list-style-type: none">Funding horizon - years	
<ul style="list-style-type: none">Current or last year excess income over expenditure - amount as percent of turnover	

Financial independence

The economic ability of the organisation to follow its own agenda

<ul style="list-style-type: none">• Disposable reserves - as percentage of turnover	
<ul style="list-style-type: none">• Access to capital - Y/N	
<ul style="list-style-type: none">• Constitutional constraints - limits imposed on financial freedom	

3.5.2. User Perspective

Size

Number of full-time personnel	
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Identification

Perceived organisational role in region

<ul style="list-style-type: none"> User's own definition of the organisation and its objectives/mission - scale rating of verbatim response judged against organisation's own statements 	
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Customer's definition of service quality

<ul style="list-style-type: none"> List customer's requirements from support organisations - rating of how well these are met by the RC 	
--	--

Level of competition

<ul style="list-style-type: none"> How many other organisations can be named that cover the service provision listed in previous item - count of list 	
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Human capital

Local network connections - List count of links with other regional/national organisations factored by multiplier according to type of link:

<ul style="list-style-type: none"> Cross-ownership x5 	
<ul style="list-style-type: none"> Project partnership x4 	
<ul style="list-style-type: none"> Mass project partnerships x1 	
<ul style="list-style-type: none"> Joint meetings x2 	
TOTAL	

Connections with regional and national administration

- rating of quality of influence over regional administrative decisions	
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International connections

- list count of number of organisations with whom there is interaction	
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Open Source connections

<ul style="list-style-type: none"> Organisational - list count of links with OSS players 	
<ul style="list-style-type: none"> Functional - rating of influence over OSS groups and bodies 	

Face-to-Face SME contact - number of equivalent full time persons engaged in face-to-face activity with SMEs x multiplier for level of contact:

<ul style="list-style-type: none"> Chairman/Chief Executive/Owner x10 	
<ul style="list-style-type: none"> Directors/Senior managers x8 	
<ul style="list-style-type: none"> Managers x4 	
<ul style="list-style-type: none"> Workforce x1 	
TOTAL	

Role as a support organisation (i.e. relationship with SMEs) - add scores from list

<ul style="list-style-type: none"> Provide financial support 10 	
<ul style="list-style-type: none"> Provide advice 5 	
<ul style="list-style-type: none"> Provide facilities 7 	
<ul style="list-style-type: none"> Provide information 2 	
<ul style="list-style-type: none"> Other services (rate on scale 1 - 10) 	
TOTAL	

Closeness to target SMEs

Knowledge of and contact with the types of SMEs sought by the DBE:

<ul style="list-style-type: none">• Drivers - traffic light	
<ul style="list-style-type: none">• Software and online service providers - traffic light	
<ul style="list-style-type: none">• Discoverer SMEs - traffic light	
<ul style="list-style-type: none">• Opportunity Space (sectoral) SMEs - traffic light	

3.5.3. Business Process perspective

Mission critical processes

Organisational objectives/mission

Closeness of organisational objectives or mission to project objectives - rating	
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Organisational structure

Strengths of the structure of the RC in terms of DBE objectives?

<ul style="list-style-type: none"> Ownership – rating 	
<ul style="list-style-type: none"> Management – rating 	
<ul style="list-style-type: none"> Operations – rating 	
TOTAL	

Physical location

Extent to which RC is close to or distant from key players

<ul style="list-style-type: none"> Travel time to regional capital - time in hours 	
<ul style="list-style-type: none"> Travel time to furthest significant (pop >100,000) conurbation - time in hours 	
<ul style="list-style-type: none"> Location in relation to the regional demographics (especially software industry) - rating 	

Support processes

Strength of organisational infrastructure:

<ul style="list-style-type: none"> Access to legal and administrative facilities - rating 	
<ul style="list-style-type: none"> Internal administrative systems - rating 	
<ul style="list-style-type: none"> Secretarial, marketing, PR, accountancy, management - rating 	
<ul style="list-style-type: none"> ICT, SOA and B2B connectivity technical expertise - rating 	
<ul style="list-style-type: none"> OSS/DBE technical expertise - rating 	
TOTAL	

3.5.4. Development perspective

Culture

Backgrounds of personnel

Number of personnel with prior experience in:

• ICT projects – count	
• Open Source Software - count	
• SME management – count	
• SME support – count	
• Training – count	

Qualifications of personnel

Number of personnel with higher education/qualification:

• Degree level – count	
• Postgraduate qualification - count	
• Professional qualification - count	

Working environment

Degree to which the working environment encourages change and progression - traffic light	
Strength of formal communication - traffic light	
Strength of informal communication - traffic light	

Personal development

Appraisal

- traffic light based on: Green - e.g. Formal system for linking training to organisational objectives Yellow - e.g. Formal reviews at least annually Red - e.g. no formal system of appraisal	
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Formal training (paid for or professional courses)

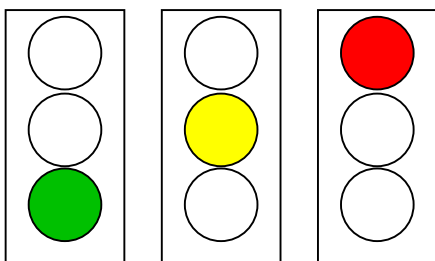
- traffic light based on: Green - Equivalent of more than 10 days/year training Yellow - >1 < 10 days/year Red – no formal training provided	
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Organisational development

Strength of change agents:

<ul style="list-style-type: none">• Objective setting and reviews - rating	
<ul style="list-style-type: none">• Market research/planning/forecasting - rating	
<ul style="list-style-type: none">• Client feedback mechanism - rating	
<ul style="list-style-type: none">• Transparent performance indicators - rating	
TOTAL	

Traffic light images



5. Conclusions

Regional Catalysts have been playing a central role in the evolution and take-up of DBE. In the context of the DBE project, this report is the final piece in the evolutionary work on the concept and model of regional catalyst in DBE. The report is meant to help future initiatives and projects in the DBE domain – including the various projects in the DE cluster of the European Commission- to anticipate, plan, execute and evaluate the required catalyst organisations and operations.

The purpose of this report was to provide a summary of the theoretical and conceptual work done in the previous two deliverables, to introduce some additions and modification to the proposed models based on the experiences during the project and finally – in the light of the proposed model – to discuss the experiences and success factors of Regional Catalysts in DBE.

In the deliverable several models on Regional Catalyst have been presented. These models-all contributing to a deep understanding of RCs and their many-sided operations - include the dynamic business idea model as a research framework, four different organisational models, the three-dimensional cubic-model of the concept of RCs in DBE, the model of territorial capital defining the social setting of RCs and the operational model of core processes and key functions of RCs.

The business idea model has proved to be powerful in describing and analysing DBE catalysing as a dynamic business. The model highlights the need and strategic intention of RCs to align different interest (owners, customers, suppliers, services) into a productive and sustainable business idea. Among the current regional catalysts, we have seen several strategic transitions in their RC business ideas, which demonstrate the importance of this notion. The evolving and multi-layered DBE concept may play various and even alternative roles in the strategies of RCs. The way how DBE is seen as a business opportunity, is reflected in the way how catalysing activities themselves are managed and focused. However, it is important to note that the dynamic nature of business idea of catalysing is not only a result of the changing strategies of RC. It also reflects the evolution of DBE itself.

The role of DBE evolution as the determining factor of RC business idea is very well demonstrated when we look at the potential and actual organisational models of Regional Catalysts. So far no real new organisational models have emerged although the need for them – in the mature phases of DBE adoption – is very well understood and accepted. At the moment regional catalysing is a business of public or semi-public organisations that are paid and financed by governmental institutions and programmes, either local, regional, national or European. The most likely interpretation of this fact is that DBE is still at its early stages, not widely adopted by businesses and thus without real business opportunities for privately funded catalyst organisations.

In the three-dimensional model of the concept of Regional Catalyst the RC business idea, the level of maturity of DBE and the focus of catalysing (region vs. domain specificity) are combined into one model. With the help of this matrix we can identify some of the key success factors in Regional catalysing. At the current state of

development, the model with the greatest probability to succeed seems to be the one where **stable domain specific catalysing is combined to a high level of territorial capital and where the catalysing is fully funded by the various public (regional and European) bodies**. Especially in the light of the experiences of ITA, this seems to be the model that can best tackle the various risks associated to DBE as a technology and business environment at the moment. In the cases of TCH and UCE, where either no long-term domain focus has been stabilized, regional innovation policy has not been widely integrated with DBE or public funding for the take-up projects has been partial, the DBE take-up has remarkable slower and more difficult.

The model of core processes and key functions of Regional Catalyst covers well the actual operations that have been performed by catalyst organisations. The initial descriptions of the activities to be performed by the RCs of the DBE project have clearly been meaningful and the tasks have been important for the project to achieve its results. The clear priority among the core processes has been in SME engagement. The other core processes, however, have become stronger as the initial project period is ending. Especially sustainability planning has become one of the top priorities of the RCs lately.

At the level catalyst functions the RCs seems to have adopted fairly similar models of operation. Technology advocacy and learning support have been common main areas of emphasis. This is well understandable as the RCs have followed mainly the same work plan with same kind of tasks and project obligations. Clearly, during the DBE project, the RCs have been externally managed. After the DBE project period, however, the RC functions seem to be more managed by the internal factors and strategies of the RC organisations. UCE as a university is emphasising the role learning support while ITA and TCH as regional development agencies are currently more concerned about future regional positioning and mobilisation of resources. Thus we can expect that if the DBE initiative comes to a situation where a strong and centralised guidance of RC operation by the European Commission will be missing, the agendas and profiles of RC organisations will be more dispersed and fragmented and reflect more the other regional agendas and priorities, such as the open source focus of TCH as an example.

During the past three years the Regional Catalysts in DBE have experienced a valuable learning process. Learning has not been only about DBE as a technology environment but also about a fresh approach and new tools for regional catalysing per se. The results of the self-evaluation presented in this report clearly demonstrate how the capabilities and resources of the participating RC organisations have improved during the project. These capabilities will increase the potential of the RCs to participate and create new initiatives in the fields of ICT adoption, business development and knowledge society development. In the future – in the context of DBE or not - this increased human capital can become an important piece of territorial capital of the region. The importance and role of the DBE sustainability planning comes here once again at the focus. RCs will be important players contributing to the sustainability of DBE, but the sustainability of RCs will not be limited to the context of DBE only.