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Analysing ERDF co-financed innovative projects

**Final report prepared in the framework of the European
Commission study on the ERDF co-financed innovative
projects and comparative analyses**

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The case studies prepared in the framework of this study are available on the Directorate-General for Regional Policy website at:

http://ec.europa.eu/regional_policy/cooperation/interregional/ecochange/studies_en.cfm

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The views expressed in this report are the sole responsibility of the authors and do not necessarily reflect the views of the European Commission.

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Introduction

This is the final report of a study ordered by the European Commission's Directorate-General for Regional Policy (DG REGIO) on European Regional Development Fund (ERDF) co-funded innovative projects implemented during the 2000-2006 programming period. The study had three overall objectives:

- to analyse and present different innovative projects financed by the ERDF in a particular regional context;
- to perform a comparative analysis of projects with a view to demonstrate different approaches, common success factors and characteristics related to the regional contexts and activity field;
- to design analysis tools and methods for ERDF co-financed innovation-oriented projects to be used by DG REGIO 'desk officers' (officials responsible for overseeing specific countries or interventions).

Operationally, the Commission wished to develop a more in-depth knowledge of the mechanisms supporting innovation on the basis of the evidence from selected ERDF co-financed projects from a diverse range of European regions. The case studies analysed the projects putting an emphasis, in particular, on their success factors and the common constraints and obstacles. Importantly, the analysis took into account the strategic regional context for innovation in which the project is situated.

Furthermore, 10 thematic comparative analyses of the case studies address, on the one hand, particular types of regional policy initiatives (clusters, innovative business incubation, information and communication technologies, and business-science collaboration); and, on the other hand, horizontal topics such as project partnership, process of design and

planning, and the strategic contribution of the projects to regional development.

These comparisons demonstrated a variety of approaches to innovation support in different regional contexts, but also draw common lessons, which regions preparing to implement similar operations can benefit from.

The analysis provides policy makers with evidence on issues such as the pre-conditions for certain types of innovative measures and the extent to which these measures operate well in certain regions or sectors.

Equally, effort was devoted to designing and testing practical methods and tools (e.g. templates and study visit guides), which could be used by DG REGIO desk officers to undertake project analyses.

The methodology permits an analysis of projects capturing innovative elements of both the project process and results. The hands-on experience gained by the fieldwork and direct contacts with project stakeholders helped to optimise and further clarify the case study structure. The tool can be readily used to analyse all types of ERDF projects.

The study is part of a broader shift towards more evidence-based policies on all levels of policy making. The accumulated evidence from the cases provides a complementary contribution to more traditional evaluation methods to a better understanding of the link between the strategic policy design and project implementation on the ground.

This report is organised into three main parts. The first chapter sets out the methodology of the case study tool developed. It is a practical introduction for those who wish to undertake case studies in the future. The second chapter includes the full text of the 10 comparative analyses. The report closes with conclusions structured in two parts: first, lessons from the methodological work; and, second, policy reflections based on the case study analysis.

The published case studies can be downloaded from:

http://ec.europa.eu/regional_policy/cooperation/interregional/ecochange/studies_en.cfm.

1. Undertaking a project analysis

The projects co-financed by the ERDF vary from large-scale national or regional 'flagship' projects, through co-financing of national or regional programmes providing grant to a large number of projects and finally to smaller scale local or inter-regional initiative. Hence, the scale of funding, the number of stakeholders, the duration of the intervention, etc. varies considerably. The method introduced here was tested on a range of projects from a small INTERREG IIIC sub-project to a major multi-million Euro regional programme. Henceforth, the word 'project' is used as a catch-all term and refers to many types of analysed ERDF-funded action.

1.1 Three phases of project analysis

Preparing a case study of a project co-financed in the framework of an ERDF programme requires a good understanding of the activities of the project, its context as well as a sound grasp of the method to be used to gather and analyse the information acquired from many diverse sources of information.

A case study is based on material obtainable from generally accessible sources, such as project reports and websites, as well as from direct contact with project stakeholders involved in the project implementation. This section elaborates on the possible sources of information highlighting some practices of desk research and fieldwork.

The project analysis method presented in this report consists of three main phases:

- Preparatory phase: desk research and planning;
- Fieldwork phase: study visit and stakeholder interviews;

- Analytical phase: organising and analysing collected information.

Preparing fieldwork and drafting a project case study takes around five working days. The time spent can vary depending on:

- professional experience and writing skills of the person undertaking the analysis;
- complexity of the project to be analysed; as well as
- the purpose of the case study (external publication or internal use).

The preparatory phase typically takes from one to two working days depending on the complexity of the project and availability of information. Fieldwork takes about a day on average, depending on availability of project stakeholders as well as the accessibility of the project location.

1.1.1 Getting started: preparatory desk research and planning the fieldwork

Understanding the method

The starting point of conducting a project analysis is to become familiar with the case study method, most notably with the annotated report template and examples of previously written case study reports.

It is recommended to read several existing case studies as well as comparative analyses, preferably dealing with the theme of the project. Practical examples make it easier to understand the logic of the case study structure and help in organising the research to be undertaken for the new case.

Introductory desk research

Once acquainted with the method and examples of existing case study reports, you can start collecting and reading through all the publicly accessible materials on the project to be studied. This includes, most notably, project descriptions, presentations, reports, websites and, when available, evaluations. You should prepare a tentative list of key persons and

organisations to be included in your interviews at this stage.

It is highly recommended to organise the project material according to the report template and to start drafting the descriptive parts of the report (most notably project description) early.

This approach helps to identify missing or incomplete information and helps to better scope the fieldwork. It avoids you asking simple descriptive questions during face-to-face interviews and to focus more on these aspects of project implementation which have not been described before in standard project descriptions or presentations. It also shows to your respondents that you come to the interview prepared and moves interviews to a higher level, necessary for project analysis.

In case you are missing some basic information after the preparatory phase, you should verify it with the project manager during the interview or by email prior to the fieldwork.

Establishing first contact

Following the initial phase you should establish a contact with the project manager or other key contact persons of the project. It is advisable to send an email with a clear explanation on the objective of the study along with a concise presentation of main themes to be addressed by interviews and a tentative plan of a study visit (including the list of people to be interviewed).

The email exchange should be followed by an introductory phone call. This first conversation is key as it facilitates a more in-depth introduction to the study, featuring some key interview topics. It should be also used to move forward with organisation of the fieldwork, notably in regard to compiling a list of projects stakeholders to be interviewed.

In addition, the first contact with the project manager may be seen as an early warning solution in situations when a risk appears linked to a possibility of:

- existence of formal irregularities as e.g. eligibility for ERDF support, financial irregularities;

- limited technical possibility of conducting the study visit due to e.g. availability of project manager and other stakeholders, lack of interest from the project manager etc.;
- focus of ERDF support not on innovative elements of the project;
- limited access or lack of evidence of the project results, especially as regards innovative elements.

It is recommended not to send the annotated report template to the project manager or other respondents. The template is an analytical tool. Some questions and instructions are meant to assist the analyst and may only confuse the respondents. Prior knowledge of the research tool may direct and distort the responses. In simple terms also the number of questions and comprehensiveness of the exercise may make the respondents become reluctant to be involved.

Explaining the rationale of the exercise

The desk officer should make sure that all the respondents know the objectives of undertaking the case study. It should be made very clear that the case study is meant to yield some lessons relevant for other project leaders, regions as well as the European Commission.

The case study approach is not a monitoring or evaluation type of exercise focussing on regularity of procedures. It is an analytical exercise allowing the project officers to learn from the project level in order to improve their practical understanding of how the Structural Funds co-funded projects operate. It is also a means of gathering and exchanging experience amongst regions.

In this context, the desk officers undertaking such a task should be crystal clear about their role in the exercise not leaving any ambiguity about the purpose of the visit to the project.

One of the key issues related to explanation of the nature of this exercise is explaining that the case study report is prepared for publication in order to serve as a potential reference

source for both other EU regions and DG Regional Policy officials.

Planning and arranging your fieldwork

As regards arranging interviews, you should note that the project managers, can generally facilitate access to other key persons and offer a practical support in arranging interviews with selected members of a partnership, beneficiaries etc.. However, you need to also consider that they may be selective in their choice of people with 'good' stories to tell; and you should not hesitate to ask to talk with other people identified during the course of the study, offering differing insights.

In general, the meetings should involve people with different roles and perspectives of the project who work in different organisations and at different levels of planning and implementation.

Therefore, envisage to arrange interviews with:

- the project manager;
- members of project team;
- project partners (e.g. members of consortium) and key subcontractors;
- final beneficiaries (e.g. researchers, NGOs, private companies);
- the programme manager in case of projects belonging to a larger scheme (this may be a person at the national ministry or agency);
- local politicians if the project clearly refers to the local or regional strategy;
- scientific or strategic advisers etc.

This is a comprehensive list and in most cases it will not be possible to interview all the relevant stakeholders. The number of interviews will depend on both the time available for the case study and the availability of the project stakeholders. It is important, however, that the evidence collected comes from diverse sources and does not rely solely on interviews with people directly responsible for project implementation.

The most challenging interviews to arrange are those with the final project beneficiaries, especially in case of projects delivering general public

services and addressing large groups of beneficiaries. A feasible solution is to arrange meetings with institutionalised beneficiaries e.g.: start-up companies in case of incubators or industrial parks, companies or research organisations involved in competence centres or science parks, schools representatives in case of educational programmes, etc.

In most cases working via a project manager to secure a satisfactory number of interviews will suffice. However, the preparatory desk research should prepare you for a situation in which you will have to organise all or some interviews on your own. This requires more effort and time investment during the preparatory phase; all necessary if fieldwork is to yield rich enough material for the critical analysis of the project.

Exhibit 1. Practical tips on arranging interviews

- put down key names and organisations to be interviewed in a preparatory desk research phase
- ask the project manager for their suggestions for relevant stakeholders to be interviewed
- work through the project manager to arrange interviews with various project stakeholders
- send an email to the project manager (and later to other respondents) with a clear description of the objectives of the case study, main themes covered and an indication on how much time is needed for an interview
- be flexible and always suggest alternative dates for an interview
- start your fieldwork from the meeting with the project manager to have a basic information on the project before meeting other stakeholders
- make sure the interviews with different stakeholders are arranged separately (this allows a freer expression than group interview)
- you may consider a group interview in case it is not feasible to meet some stakeholders separately

1.1.2 Conducting the fieldwork: meeting project stakeholders

Structuring your interviews

Your face-to-face interviews should be based primarily on the annotated project analysis template, which is the main methodological frame of your case study.

The focus should be firstly on assembling factual evidence on the project. Stakeholders' opinions and anecdotal evidence can be used to further enrich and illustrate the case studies.

If you are interviewing different project stakeholders you will need to adapt the lead questions to the level of involvement and the role of a stakeholder in the project. Thus, the technical questions on project management should not be discussed with a local politician or scientist. Similarly the questions on embedding the project in the regional development strategy and policy are not questions to pose to a project technician.

In any case, it is the role of the desk officer to judge the appropriateness of the topics to be discussed with different stakeholders and adapt the questions to the context of the discussion. For practical reasons, the number and character of questions need to be also adapted to the time available for the interview.

Interviewing style

The interviews should be based on open-questions and follow a semi-structured format. Select a few lead questions in advance.

You should avoid having to ask questions as they are formulated in the template. Let the conversation flow naturally based on answers given by the respondent. Do not insist on asking specific questions in a specific order. You need to just make sure that all the relevant issues are covered during the interview. You can return to your lead questions when you feel the conversation diverges too far from the issues relevant for the case study.

The interview should be conducted in an informal way to encourage more open expression. Be conversational and engaging. Keep in mind, however, that your role is above all to listen.

Expressing your personal opinions about the project during an interview is not advised, since the final analysis is built up from a subsequent reflection on the outcome of all interviews and desk research, and should be avoided even if respondents insist on hearing it.

Keeping record of the interviews

You should record responses in writing during the interviews (not wait until after to try and summarise the discussion). This will help you to be more precise in your description and will allow for quoting your respondents should you want to do so.

In order to simplify taking notes, you can use a structured interview notebook with the key interview questions and a space to take notes. If you feel comfortable with it, the notebook can follow the structure of an annotated template. Use of voice recording devices is generally discouraged as it often influences conversation negatively as respondents feel inhibited.

Additional on-site activities

It is recommended that the fieldwork encompasses on-site visits to the supported facilities or localities (e.g. training centres, science parks, incubators, renovated parts of the city, nature resorts etc.) to complement meetings with the final beneficiaries (e.g. companies, researchers, NGOs).

On-site visits add additional information (one may consider gathering visual material for the case study as well) and make the fieldwork more complete. It makes it easier to understand and contextualise the results of the project, in particular if the results are tangible.

Closing up fieldwork

During the visit you should consult the project manager on who should be a contact person for the project e.g. to be contacted by other regions interested in

learning about the project. Make sure to get approval for using this person's contact details in the project description. You should remember to compile contact details of all your respondents for future communication.

In case of limited time available on-site, it is a good practice to arrange for complementary phone interviews after the study visit. They should take place relatively quickly after the fieldwork so your respondents are still familiar with the approach and topics discussed during the interviews.

1.1.3 Making a case study: organising and analysing collected information

Preparing first draft

It is important to organise the material collected during study visit and write up the report as soon as possible upon the return. It is proposed to read the annotated template again and introduce collected information in the relevant sections of the report.

You should make notes of your observations and remarks regarding different aspects of the project. You should always provide evidence for your analysis referring to any relevant material such as the project documents, evaluations or your interviews.

It is advisable to be critical when using any collected project material, especially interviews. First, you need to compare different opinions on the same issue you may have heard from different stakeholders.

Exhibit 2. The writing style

The writing style should be adapted to your final audience. Therefore, a case study meant only for internal use can include internal jargon, acronyms or reference to commonly known procedures.

However, if the audience is larger it is recommendable to use a style accessible for a wider public. Thus, avoid using jargon, too many acronyms, technical language etc. When introducing acronyms use the full name first time.

Should the use of technical terms be necessary for a better understanding of the case study then it should be explained e.g. by inserting a definition or referring to a website etc.

Second, you should add your own assessment based on your view of the project (based on official documents, evaluations etc.) as well as your own analytical assessment. Keep in mind that after the case study you will have a wider overview and more contextual information about the project than some of your respondents. It is useful to integrate different sources of information in putting forward an argument or analytical remark.

At the end of this process, the complete document with both descriptive and analytical elements becomes a first working draft of the project analysis.

Feedback: peer review

This version of the analysis should be reviewed by a colleague or other 'peer'. The main purpose of the review is to check the clarity of content by a person without an in-depth knowledge about the particular case. It is, therefore, a way to 'test' the case study prior to making it accessible to a larger audience. The reviewer should be aware of the method and objectives of the case study approach. In many cases, a simple peer review could be organised, where desk officers review each other's draft reports.

The aim of this peer review is thus to discuss and comment on:

- gaps, incomplete information or missing references in the descriptive elements of the report;
- use of project information and evidence gathered for the project critical analysis;
- writing style and presentation.

Finalisation of the case study report

Following the peer review you should have identified important gaps, logical flaws or unclear passages in the report. Depending on the information missing, you may schedule additional phone interviews or email exchanges with relevant project contact persons to gather the missing material. This will allow you to complete a final draft.

The final draft should be sent for comments to your main project contact

person. This is a final feedback, which if need be may be followed by a final telephone call to clarify the outstanding issues or fill information gaps in the final text of the study.

Problems with expressing criticism

As a general rule, you should remember to always justify critical remarks with evidence. Note, however, that in some cases the project manager may question critical comments on the project. The attitude to criticism is influenced by many factors such as e.g. political importance of the project in the region, general openness to critical analysis in the regional and national culture, etc.

Practice shows that the case studies undertaken on the request of a public administration, including the European Commission, are always to some extent a product of compromise. In this context, the challenge is to find a balance between achieving the objective of the case study that is learning also from the mistakes, while not risking hostile reactions to the case study from the project stakeholders who were honest enough to share their negative experience.

One of the constructive ways of expressing criticism, as introduced in the case study approach, is to describe "problem solving practices" rather than just "problems encountered". This changes the perception of the problem towards successful management solutions, and at the same time preserves the description of actual problem encountered. Such an approach proved effective in encouraging project stakeholders to share the stories of difficulties and problems.

An additional solution to capture more sensitive or controversial problems is to introduce a personal assessment section as an annex to the report, where the desk officers can express their opinion in a more critical way than in the core report. This annex is not to be published, but is then used as internal material.

1.2 Project analysis template

1.2.1 Introduction

The annotated template was the main methodological tool used for the case study preparation. It has been tested during the fieldwork undertaken for the current study and adapted based on the feedback from the researchers.

The report template contains six main sections and a synthesis (executive summary). The sections include:

- Synthesis;
- Project description;
- Strategic and political context;
- Implementation;
- Results;
- Sustainability and transferability;
- Key success factors and lessons learned.

The more descriptive sections are, most notably, a project description as well as elements of the section on project implementation. These sections are designed principally to provide a good background for the subsequent project analysis.

The sections requiring a more analytical approach are especially the chapters on the key project success factors, strategic

and political context (linking the project to its wider context), implementation, project results (assessing relative innovativeness of the results) as well as project sustainability and transferability.

Exhibit 3 illustrates use of desk research (secondary data), fieldwork (primary data) and critical analysis in drafting various sections of the report.

The following chapters introduce the project analysis report sections one by one explaining their main objectives while offering some advice on potential methodological difficulties. A full version of the annotated case study template can be found in annex.

The description should present above all the objective, or objectives, of the project and description of its main activities indicating how they are to contribute to achieving the overall goals. The section should present a short overview of the results and, if sound evidence exists, impact. important descriptive part of the report. This section provides background information about the project, and as such it becomes a basis for an analysis introduced in the subsequent chapters.

Exhibit 3. Research methods and critical analysis in drafting a report

Section	Desk research	Fieldwork	Critical analysis
Synthesis	<i>based on all remaining sections</i>		
Project description (and background information)	●	○	
Strategic and political context	●	●	●
Implementation	○	●	●
Results	○	●	●
Sustainability and transferability		●	●
Key success factors and lessons learnt		●	●

- highly relevant
- complementary

1.2.2 Project description

The project description is the most The project description also contains an overview of project beneficiaries. Therefore, it should be presented in a clear and structured way.

In the case of some types of projects, identifying objectives may require additional effort. Notably, you need to differentiate objectives of the project from the objectives of other closely related initiatives or organisations.

In particular, you need to pay attention to differences and interdependencies between:

- objectives of the project and overall objectives of a larger programme encompassing the analysed project (e.g. small projects contributing to a cluster development programme);
- objectives of the project and overall objectives of the organisation in charge of implementing the project (e.g. research projects contributing to the objectives of a research institute);
- objectives of the projects and overall objectives of a wider strategy this project is directly linked with (e.g. social integration project linked with a urban regeneration programme or a competence centre as a part of the regional innovation strategy).

Thus, in the case of projects where the hierarchy of objectives is not clear at first sight, it is important that the case study explores this hierarchy and the links between different levels, and indicates which objective level has been directly addressed by the project.

This initial analysis may already lead to a critical assessment of the embedding of the project's objectives in a wider strategic framework e.g. the goals of many projects tend to be over-ambitious in relation to the activities planned and budget available.

Following a clear presentation of project objectives, the focus should shift

to describing the project's activities linking them to objectives and indicating the direct and indirect beneficiaries of these activities. The section is closed by a short overview of (planned) results and impacts.

1.2.3 Strategic and political context

This section should be seen as "setting the scene for the story of the project". It places the project in a wider context providing a description of these elements of the regional economy and governance system, which are especially relevant for the project's development. It is equally useful to explain the role and importance of the project in the context of regional (or national) strategies and policies.

You should note that this section is not intended to provide a general description of the regional economy or a summary of a broader regional development strategy. Rather, it is a background for better understanding the motivations behind and the strategic relevance of the project for a region or locality. As an example, if a project aims at improving science-industry cooperation, then the section should present shortly the regional science base and the relevant industrial sectors, highlight the extent and longevity of problems related to the science-industry cooperation in the region (historical perspective), as well as mentioning relevant strategies and policy measures which address –or did so in the past- this problem.

Importantly, after reading this section a reader should be able to understand if and why the results of the project may (or may not) be considered innovative in their particular context.

1.2.4 Implementation

The section devoted to implementation provides information on project design and planning, management, monitoring and evaluation and issues related to governance (notably partnership and leadership). In addition, it presents innovative approaches to project implementation and introduces

concrete examples of problem solving practices.

In general, the implementation section gives an account of the operational aspects of the project and, as such, should be especially interesting for project and programme managers.

Note that the information in this part is gathered mainly during fieldwork and interviews with project stakeholders.

Project design and planning

This subsection focuses primarily on the preparatory project activities. Part of these take place prior to the formal project kick-off. The objective of the section is to present the processes between the time when the project idea appeared and when the project design and planning was complete.

The text should give information on practical approaches in project design and planning for the managers who find themselves in these early phases of project development.

The issues to be touched upon include information on where the inspiration for the project came from and whether some form of dedicated needs or problem assessment was undertaken to further define the project. Additional issues to be touched upon include elaborating on the role of ex-ante evaluation and risk assessment in the design and planning phase.

In the case of projects which are part of a larger scheme and had to go through a formal selection procedure it is advisable to give a description of the main aspects of this procedure (e.g. selection criteria, formal requirements) as well as, if possible, the motivation behind the selection of the project.

As the focus is on ERDF co-financed projects, the questions on the role of EU support are of high relevance, in particular when it comes to the added value of ERDF contribution.

The answers to the question on ERDF value added risk being limited to very simple statements related to funding: "the project would not have gone ahead if it weren't for ERDF funding" (convergence regions) or that "it would

have gone ahead anyway but more slowly or with less activities" (competitiveness regions). However, value added effects are broader than those generated by additional financial means and include also changes in organisational capacity, strategic planning or collaboration patterns. A key element to consider is whether a project could have been supported through another existing non-EU funded policy measure; or whether the ERDF Operational Programme provided a novel or unique framework in which the project was able to proceed.

Management, monitoring and evaluation system

This section describes the project management including organisation of the project team, role of the project manager, tasks distribution, reporting procedures, monitoring and evaluation etc.

The section should include an analysis of the management capacity to adapt to and overcome expected (identified risks) and unexpected obstacles. Practical examples of problem solving approaches are encouraged.

Governance: partnership and leadership

Partnership composition and dynamics are often one of the most important performance factors of regional projects. Understanding the governance context of the project adds a very important dimension to the project analysis.

One of the most interesting aspects in this respect is to explore the role of a partnership in project design and implementation, notably for the innovativeness of the project results, as well as for the project's sustainability.

The key issues dealt with in this section include composition of partnership, roles and motivation of core partners, leadership and partnership dynamics throughout project implementation.

This section is based on both official written project documents (e.g. project

proposal, budget distribution, formal responsibilities of partners etc.) as well as on the material from interviews with stakeholders. The most valuable information on internal partnership dynamics, however, is gathered based on direct interviews with the project stakeholders.

The questions on internal dynamics between partners are delicate and so require good interviewing skills as well as access to key project stakeholders. Thus, to increase the chances of getting an insider's view of the partnership functioning processes, you should make sure to identify the right people from across the partnership representing different organisations and interests.

Innovative elements and novel approaches to implementation

This subsection introduces descriptions and analysis of innovations in the process of implementation of the project. This can include innovative approaches used in: the process of project design and planning, securing public and private funding, partnership organisation and composition (e.g. public-private partnerships), project management, approach to monitoring and evaluation, communication and dissemination of project activities and results etc.

The section should mention which organisation was the initiator of new approaches. The prime task is to assess the relevance of these new solutions and present those that proved to be able to streamline or simplify the project implementation.

Key implementation obstacles and problem-solving practices

The objective of this section is to describe the main obstacles experienced during project design, planning and implementation. Constraints can be both internal (e.g. related to management or partnership functioning, etc.) and external (e.g. wider political, economic or social changes, expectations of beneficiaries, etc.).

The analysis of the obstacles should indicate their (potential) impact on the project deliverables. Equally, the objective of the section is to explain the way these obstacles were tackled by the project manager and the project partners (problem-solving practice); e.g. by adapting management structure, change in timing project deliverables, enlarging or narrowing the focus of the project etc.

The desk officer may invite project stakeholders to describe the changes they would introduce to the project design and organisation with the hindsight about the unexpected obstacles the project encountered. This question encourages stakeholders to share their knowledge and lessons they learned during the project implementation. It is interesting to compare similar or strikingly different perspectives on the projects held by different stakeholders.

1.2.5 Results

This section focuses on identifying and explaining results of the analysed project. The emphasis should be placed on the most innovative results.

This case study approach has a broad understanding of innovation including new solutions in both the private and public sector implemented on the level of an individual organisation or a group of organisations (e.g. cluster). The focus is, therefore, not only on R&D driven high-tech innovations but also on organisational innovations, new services delivery methods, innovative business support in traditional sectors in rural areas, social innovations, new ways of policy and strategy making etc.

It is important to explain why the project results are innovative in a particular local or regional context.

1.2.6 Sustainability and transferability Sustainability

Project sustainability refers to continuation or follow-up of the activities developed in the project including valorisation of the results and outcomes. This section should explain

which elements of the projects were sustained and how. It should include issues such as activities, funding, partnership, organisational structure and legal status etc. The comparative analysis on sustainability gives guidance on this question. A key issue is whether an exit strategy (the way in which the stakeholders will ensure results are maintained and built upon after the end of the project) was defined early in the project implementation cycle.

Transferability

Project transferability is the potential for the application of the project results or elements such as methods and tools developed in other regions or in other areas of activity. Transferability of both organisational practices and project results should be taken into account.

The analysis should highlight possible obstacles to transferability explaining to what extent and how the current practice should be adapted to different economic, social and cultural contexts.

1.2.7 Key success factors and lessons learned

This section presents key success factors of the project based on the material presented in the previous chapters. Such factors are elements of design and planning, governance, management and implementation, which proved decisive for the project to achieve its results.

You should highlight between three and maximum five factors including a short justification in relation to the observed project achievements. These should be phrased from a practical viewpoint. A simple bullet point e.g. "strong political backing throughout the project" is not sufficient. Explain what was done to sustain the political backing and what lessons were drawn to ensure such backing in the future.

Furthermore, you should discuss lessons learned during project implementation, including dealing with encountered problems, which can be considered valuable for future projects. Similarly, you should provide a short

justification of each point in relation to the real project developments.

1.2.8 Synthesis

The synthesis is an executive summary of the project analysis. As for any executive summary, despite being the first part of the report, it should be prepared at the very end of the writing process.

Exhibit 4 summarises the main points to be covered by the synthesis. The first two points form a short introduction paragraph. The following paragraphs should concisely illustrate the most important findings of the case study.

The synthesis has to be understandable as a stand-alone text readily usable for publicity and communication purposes. It should be written in a clear 'journalistic' style avoiding a simple copy-paste from other sections of the report.

Exhibit 4. Elements of the synthesis

- introduce a short description of the project objectives;
- give information on where and who (core partnership) implemented the project;
- describe key project activities and their beneficiaries;
- link the objectives to the regional context explaining the specific challenges and needs addressed by the project;
- give account of the results, notably the innovative achievements, and –if evidence exists- impacts;
- explain what were the key success factors and lessons learned;
- give short information on current developments (sustainability).

2. Learning from projects comparisons

2.1 Introduction

The 10 comparative analyses presented in this chapter highlight advantages and constraints, as well as common elements and contextual differences, of the 60 projects either with respect to a selected field of activity; or with respect to a cross cutting issue.

Given that the 60 projects studied are only a tiny share of the funding stream and reflect only a small part of the diverse types of project supported during the 2000-2006 programming period, there is a need to avoid over-generalising conclusions reached. However, they offer an advantage with respect to more typical 'macro-level' studies (such as programme evaluations), which tend to analyse delivery mechanisms, partnerships, outcomes, etc. on a 'macro' level. This 'micro-level' analysis offers significant advantages in helping to understand why projects succeed or fail, how projects contribute to regional development (usually as one element in a wider 'policy-mix'), and so on.

Hence, this method of analysis turns the usual evaluation approach somewhat on its head: instead of starting from an analysis of the pertinence, efficiency effectiveness, etc. of a whole programme and adding in a couple of examples to illustrate specific outcomes, the case study approach looks in depth at a number of projects and then tries to extrapolate lessons from how well the projects contributed to the implementation of a regional development strategy.

The comparative analyses can serve as background reference material for desk officers analysing innovative projects, in particular those using tools and methods developed by the study. The reader should note that each analysis was drafted as a stand-alone document.

The different texts cover similar issues approached from different perspectives and sometimes contain similar findings.

Comparing the project case studies is a complex task since they are diverse in terms of size, project types, regional context, etc. In financial terms, the range of projects examined is enormous. The smallest project budget was only €54,000 (Aviation Valley, a sub-project of an INTERREG IIIC Regional Framework Operation) and the largest €200m (Regional Competence Centres programme in Campania, Italy). The average total budget was €19.6m and the average ERDF contribution was €6.9m; however these figures are pulled up by a few very large projects and hence the median figures of, respectively: €3.4m (total budget) and €1.4m (ERDF contribution) are a more accurate reflection of the size of projects.

In terms of the 2000-2006 ERDF objectives: 26 projects were in Objective 1 (now Convergence) zones; 27 Objective (now Competitiveness) zones, one project covered both Objective 1 and 2 zones; and the remaining six were INTERREG IIIC projects (now territorial co-operation objective). Appendix B gives the distribution of these projects by Member States.

Finally, in order to give an overview of the types of objectives and activities addressed by the projects, the table below applies the Structural Fund intervention categories to structure the projects (the key words were used in each case study to categorise the projects and the table summarises the count per category of a maximum of three key words per case study).

As can be seen, while the case studies addressed a large number of the intervention categories, they were mainly focused on projects involving research, innovation and technology development, support for enterprises and information society issues. In overall terms, the case studies selected for analysis from the 2000-2006 period reflect rather well the 'Lisbon' orientation of the 2007-13 period.

Exhibit 5. Objectives of the interventions of the 60 case study projects

Category	Key words	Total count	Percentage
Innovation, research and technological development	Research activities and infrastructures	13	8%
	Technological and market innovation	22	13%
	Innovation awareness-raising, education and training	3	2%
	Clusters and business networks	12	7%
	Transfer of technology	13	8%
Support for enterprises	Start up, spin off, incubators	14	9%
	New business process	1	1%
	Business advisory services	11	7%
	Innovation financial engineering	6	4%
Information Society	ICT access, e-inclusion	9	5%
	Services and applications for citizens	7	4%
	Services and applications for companies	11	7%
Energy	Renewable energies	6	4%
	Energy efficiency	1	1%
Environment	Environmental technologies	1	1%
	Waste disposal and recycling	1	1%
Tourism and culture	Tourism,	2	1%
	Culture	2	1%
Social issues	Education and training, life long learning	7	4%
	Employment and labour market	2	1%
	Social inclusion, equal opportunities	1	1%
	Health	1	1%
Structural funds management and governance	Management and capacity building	1	1%
	Governance	4	2%
Territorial dimension of regional development	Remote, rural, coastal areas and islands	5	3%
	Urban areas	4	2%
	Regional Cooperation	4	2%

Nb: the table does not include intervention categories for which no case study was relevant (e.g. transport). Some projects cover several categories.

This remainder of this section presents the 10 comparative analyses on:

- Fostering clusters;
- Growing new businesses;
- Science-industry relations;
- ICT for regional development;
- Innovation finance;
- Planning and design;
- Project governance: partnership and leadership;
- Sustainability of projects (in terms of life after ERDF funding);
- Value added of ERDF co-funded projects;
- What lessons can be drawn for strategic programming?

2.2 Fostering clusters

2.2.1 Introduction: policy framework

Regional policy aims to foster competitiveness and adapt economies to the changes brought about by globalisation. Many regions with a strong industrial specialisation built up over decades are facing a challenge from lower cost production locations and having to re-orientate their production into knowledge intensive niches or high value added non-manufacturing sectors. One policy response to support this restructuring has been an increased focus on linking firms, knowledge producers, technology transfer organisations and government policy as a way of making regions more innovative and competitive.

One of the most widely used tools is to foster clusters. Clusters are defined as geographically close groups of interconnected companies and associated institutions such as research institutes, business associations as well as local authorities, linked by shared strategies and vision of development, common technologies and skills.

This comparative analysis considers the findings of six case study reports of cluster-related projects, namely:

- Aviation Valley, Poland
- Barcelona Science Park (Parc Científic de Barcelona), Spain
- Bioindustry Park Canavese, Italy
- Fibre Optic Valley, Sweden
- OMNIPACK Cluster Establishment and Development, Czech Republic
- PUCK – Polymerindustrins Utvecklingscentrum, Sweden.

Many factors contribute to regional prosperity and there is evidence that clusters have a positive part to play in any economic strategy. For example, a

recent report¹ of the European Cluster Observatory² states that:

“Regions with a higher share of employment in industries that belong to strong clusters are generally more prosperous. If employment reflects activities in many industries that belong to such clusters, then prosperity rises further. Positions in groups of clusters linked through common industries or in clusters that are also present in neighbouring regions provide additional benefits.”

Regarding innovation the report points to a correlation between the most innovative regions and those with the greatest density of cluster activity.³

Regional cluster projects have three main types of objectives and in this review there are examples of each type:

- Engaging actors

Building networks and partnerships (i.e. interaction among firms, between firms and other actors) is a key objective in all cluster projects and in some cases an end in itself (e.g. Aviation Valley, Poland). The goal is not only to bring actors together, but also to get them organised around key issues for their industry.

- Regional business linkages and collective services

These projects go beyond engaging actors to set up collective services needed to reach cluster objectives (e.g. Fibre Optic Valley, Sweden; OMNIPACK Cluster, Czech Republic; PUCK, Sweden). Common activities include promoting business linkages, human resource development, the provision of common cluster services or the development of new cluster specific technology and business development centres.

¹ DG Enterprise and Industry Report ‘Innovation Clusters in Europe: a statistical analysis and overview of current policy support’, 2007, p. 6.

² <http://www.clusterobservatory.eu/>

³ DG Enterprise and Industry Report ‘Innovation Clusters in Europe: a statistical analysis and overview of current policy support’, 2007, p.7

- Regional collaborative research and development partnerships

These projects build linkages between research and business and range from small, one-off projects to infrastructure based long-term collaborative ventures (e.g. Science Park Barcelona and Bioindustry Park Canavese). These projects involve collaborative platforms and networks in the form of research parks of industrial complexes, support for commercialisation of R&D and promoting entrepreneurship and firm creation.

2.2.2 Practical lessons - from design to implementation

2.2.2.1 Relevance of political and strategic context

Cluster projects can be developed to respond to a very wide range of regional problems and opportunities; they are an adaptable type of intervention. In each of the six cases looked at here the political and strategic context in the region has influenced the objectives and also the way the project was planned and developed. For example, in Objective 1 regions with limited policy-making experience in science, technology and innovation, smaller experimental projects with limited aims mostly to do with engaging actors have been launched (Aviation Valley in Poland and Omnipack in Czech Republic).

Other projects are highly customised to address specific and very pressing regional issues. In Vastervik, Sweden, (PUCK) the region suffered the collapse of local manufacturing and has successfully built a thriving new network of SMEs based around polymers, which had been a regional sector since the 1930s. Fibre Optic Valley (FOV) in Sweden also responds to the disappearance of 'old economy' industries and again builds a cluster on other regional resources, in this case the remnants of the Ericsson cable business. These projects are in regions with more experience in research, development and innovation policy making and with more advanced

innovation systems which explains why they are able to go further in the delivery of collective services such as training courses and the construction of cluster specific technology centres for applied research.

The longer-term collaborative research and development projects are both ambitious attempts to create new clusters in the intensely competitive emerging global biotechnology industry. These very ambitious projects can only seriously be considered in fairly advanced 'competitiveness' regions as they depend on the presence of sophisticated research and the political will and mandate to carry a complex and uncertain project over a long term. However, one weakness that is emerging from international experience in clusters of this type is that across the world, ambitious cluster projects are crowding into one or two fashionable technology areas (nano- and biotechnology are the most common) in which there can only be very few successes.

It is still too early in the life of these projects to say whether sustainable clusters will be created in these regions or whether the decision to pursue biotechnology is really justified strategically by the regional context.

2.2.2.2 Project design and planning

The most notable characteristic of project design and planning in these six projects is that they are all 'bottom up' actions. They are conceived and planned initially by business sector stakeholders (with the exception of Barcelona Science Park which was devised by a leading university director). Clearly, in these cases, the ERDF has proved to be a good vehicle for regional stakeholders to develop projects that address 'grass roots' problems and opportunities.

In general, the projects have chosen design and planning processes that are 'fit for purpose'. In fact, there is no great difference between the planning and design phase of cluster projects and those of a wide range of comparable activities in the field of regional

development or innovation. Robust, systematic planning and design scaled according to project objectives works well in cluster projects. To derive good practice for clusters it would be necessary to evaluate the impact of design methods on project outputs and results, which is outside the scope of this overview. However, as a general rule, the more ambitious the objectives, the more rigorous and consultative are the design and planning phases.

For example, Aviation Valley was a small, low risk project aimed primarily at engaging actors and consolidating networks. The project was driven by a local sector 'champion' who is at the centre of all local networks with no formal, structured project planning and design. In practice, this was not a problem as in this established local sector what was crucial was an informal and flexible partnership-building process to attain a limited set of operational objectives. While it might not become 'official' good practice guidance, in reality, in some situations projects may fall below the threshold where formalised design and planning processes add value.

As objectives become more complex and projects aim to deliver common services and develop technology centres design and planning is scaled up accordingly. For example, in PUCK in Sweden after an initial false start where it was thought that a knowledge sharing platform would suffice, a thorough sector analysis was carried out and proper plans put in hand for services to address critical problems. The project plan is refined and revisited on a regular basis to make sure that it remains relevant.

The projects with ambitious objectives to establish collaborative R&D clusters in high technology areas have detailed consultative design and a cycle of iterative planning phases that means that plans are updated as the project phases unfold. The Bioindustry Park Canavese, for example, was a high-risk project: it was an attempt to develop a new business based a biomedical cluster 'from scratch'. To reach this ambitious objective the project was

designed in three distinct phases (the creation of research capacity, the attraction of companies, the supply of linkage and business services) each carefully planned, implemented and assessed.

Management and monitoring and evaluation systems become more developed and professional as the complexity and the level of ambition of the projects increases. Some projects, have had to learn new skills while working with businesses, for example, working with quicker response times, using different types of contracts involving new intellectual property rights (IPR) arrangements and managing new collaborative research projects in universities. These new management skills took some time to learn and apply.

While management is generally good among the projects, evaluation is (with the notable exception of Fibre Optic Valley where systematic monitoring and evaluation has taken place and represents good practice in this group) not very well developed. Good practice would suggest that appropriately scaled evaluation including external evaluations for the bigger projects, should be built in as a key management tool to all public sector projects and is an effective tool for demonstrating project impact and negotiating for longer term funding support. Therefore, the poorly developed evaluation systems in these projects is a weakness that new projects in this field should avoid.

Aviation Valley has limited objectives and short duration. In this case formal management structures beyond the programme reporting obligations (in this case INTERREG IIIC procedures) would probably not make the project more effective. The project manager, who originally co-initiated the project, has one person part time as support and reports according to the standard schedule for ERDF projects.

Projects, which go beyond engaging actors towards supplying collective services and commissioning technology or applied research on behalf of their participants, require much stronger

management structures. Both PUCK and Omnipack have dedicated project managers with 'team managers' reporting to them on any subprojects and a project board to which they report and which is ultimately responsible for the success of the project.

An important change in the management structure takes place in the more complex projects caused by the fact that these projects need to work more flexibly over longer periods of time with companies in collaborative, reciprocal relationships and must have management structures that are able to interface with businesses effectively. The Swedish Fibre Optic Valley has a general manager with a team of three full time theme area managers. The project board is large and inclusive. However, in order to work effectively with business, respond to their requests for support, employ the right managers on flexible contracts and handle new types of loans, the project decided that it needed to be managed as a separate legal entity and is currently on the way to becoming one.

The science park based clusters are both private legal entities and structured medium-sized businesses with executive directors, boards representing the interests of all stakeholders, multi-level management structures with devolved management and clear lines of accountability. The lesson here is that business oriented clusters need to be managed as a separate legal entity benefiting from the flexibility of private company status if they are to collaborate effectively with business and get beyond the early stages of engaging stakeholders and providing common support services.

In keeping with the 'bottom-up' character of all projects (excepting PUCK) the governance structures of these six projects are mostly public/private hybrid types with good representation of private sector players, which in some cases are the dominant drivers.

Another interesting characteristic is that in many instances the original governance and partnership structure

has had to evolve during the project. In some cases it was found that the partnership needed to be enlarged to become more representative of the interests of all cluster players. In other cases, business became more influential in governance and plays an ever increasing role in the future development of the work. From this it seems fair to conclude that most cluster projects need to start with as wide a consortium as is feasible with as many private sector players as possible. For more complex, collaborative R&D projects, stronger private sector involvement can be phased in after the foundations of the project are laid and new research facilities and staff are in place.

The evolution of the governance structure is well illustrated by PUCK and Fibre Optic Valley. PUCK started with a core leadership team of nine members but this was found to be ineffective and the partnership was developed to include all relevant regional stakeholders in the polymer sector. Fibre Optic Valley started with a small local public sector consortium. The project has grown and it will now be governed as a profit based company to deal with staffing and handling investments.

Bioindustry Park Canavese illustrates the structured phasing in of private sector players into governance roles, which reflects the very strong business orientation of the cluster project. Currently public authorities have 65% ownership of the Park, down from 90% just a few years ago. The park is managed by a private company and while the public sector is the major shareholder companies are playing a very significant and rapidly growing role in governance and leadership. In contrast, of the five organisations which comprise the foundation that governs the Barcelona Science Park, four are central and regional government bodies while the fifth is a Catalan savings bank: Barcelona Science Park is part of a government driven vision for the region. The public actors have no 'exit strategy' in place currently and it appears to be evolving into what is known in the theoretical literature as a

'state-anchored industry cluster' where supplier and service sectors develop around public facilities but where firms are relatively unimportant to the development of the cluster.

2.2.2.3 Effectiveness: overview of innovation results

In some cases the existence of the project is an innovation in itself. In the Objective 1 regions where policy making is less advanced both projects were innovations. Aviation Valley in Podkarpackie region in Poland was the first time cluster work had been tried in Poland, while the Czech Omnipack was the first cluster experiment in the region. Aviation Valley has made an impact 'upwards' to policy thinking at national level and is being used as a model to develop a cluster programme for other sectors.

However, not only the small projects are creating policy impacts; the Barcelona Science Park is also being promoted as a model to other regional universities to improve research/industry networking and collaborations. Successful cluster projects, therefore, can deliver benefits to clients but also help policy learning and contribute to creating a policy framework, which is more 'cluster friendly'.

Another general point about innovation results is that the research focused projects (Fibre Optic Valley in Sweden and Barcelona Science Park in Spain) both acknowledge they concentrate too much on generating research outputs and that they need to aim to create more business innovation results if they are to become sustainable clusters in the coming years.

While it is impossible to get a detailed picture of effectiveness in the absence of benchmarks and detailed evaluation, it does appear that the projects are delivering worthwhile practical results. The 'engaging actors' type project (Aviation Valley) has managed to bring together 61 members into an active on line community where companies and research institutions post requests and opportunities and sub-contract among

themselves. The companies now negotiate jointly with local education and training institutions for more customised training courses; they present a common face at trade events and are contributing to planning the regional science park with the regional development agency.

'Business linkages and collective services' have delivered a range of useful services customised to their target audiences. As well as facilitating networking between partners Omnipack has set up a joint testing and research centre for the partners to collaborate on new product development. PUCK has resulted in new training courses designed in collaboration with the competence centre and the local university department. It is claimed that the inter-firm contact in the project has led to some new product innovations and that the presence of the cluster has attracted new companies in the polymer sector to the region. Fibre Optic Valley has focused on promoting knowledge flows between the partners, support services in knowledge management and intellectual property rights, and promoting education in the sector. The project claims to have contributed to the creation of 230 jobs in the region and 500 nationally.

The 'collaborative R&D' projects are producing results in line with their very different objectives. The key results from Barcelona Science Park are: new integrated public/private research groups and mixed public/private laboratories, which perform research projects with a combination of public and private funding. The key results of the Bioindustry Park Canavese relate to business: there are 25 companies on the park of which 15 are start ups out of which eight are now profitable with seven still in product development phases. The other ten companies were attracted to the park.

2.2.2.4 Key implementation obstacles and problem-solving practices

Implementation obstacles in this group of projects are mostly symptoms of the problems which public bodies (researchers or project and programme managers) experience while learning how to collaborate effectively with business partners. Developing clusters demands new levels of trust and reciprocity between partners as well as new organisational forms, managerial skills and legal expertise. The overall approach to problem solving was a patient, inclusive approach to organisational development coupled with imaginative solutions to particular practical problems.

- Overcoming scepticism of university researchers

At the Barcelona Science Park there was scepticism about the value of collaborating with industry, or even of the value of multidisciplinary science. At the Bioindustry Park Canavese there was some concern that the incubator 'Discovery' would work in competition with existing university departments. In both instances the obstacle was overcome by careful negotiation using successful examples from elsewhere to convince them that the park offered benefits for all concerned.

- Misfit between public sector organisation and business

Fibre Optic Valley found that a public sector governance structure was an obstacle in a business environment where it needed to be flexible with employing staff and develop advanced entrepreneurial support services. It was decided to set up a for-profit company to take the project forward while not losing sight of their public sector role in regional development.

The need for new skills in cluster management: The Bioindustry Park Canavese found that its new contracts are technically complex, require a long-term vision and have to be targeted towards the international biotechnology market. It took some time for managers to adjust to this new way of doing

business. The Swedish PUCK needed teachers for its competence centre. The solution was to send these industry experts to teacher training college and to draft in some teachers from other centres – a time consuming but necessary solution.

- Unforeseeable obstacles

The Bioindustry Park suffered a severe setback when a couple of major firms located in the park decided to close their operations and lost €400,000 a year income. They responded by cutting running costs and expenses and reorganising the administration to increase efficiency. Crucially, they went on the offensive and launched a new business area (business development and strategic marketing) and restructured the activities in the field of research valorisation. This new strategy has attracted new firms to the park, replacing those that were lost.

2.2.3 Sustainability - making projects last

Clusters by definition are more than "a fixed-term project" since they should be longer-term features of regional economies. Hence, projects aiming to catalyse clusters or to develop already existing clusters need to plan for sustainability perhaps more than any other type of project as it is unlikely that they will reach their higher-level objectives during the life of a single project life-cycle.

In general, it seems that all but the larger R&D services based projects were started without a clear vision for how they would be sustained beyond ERDF funding. The assumption appears to be in most cases that the users of the cluster services would sooner or later pay for them. However, the future prospects of the three 'business linkages and collective service' projects are uncertain with some elements likely to continue while others might not. This is most likely a result of two factors: firstly, the projects are too short-term to have the necessary impact in the business community; secondly, they are not well enough integrated with other policies and sources of complementary

funding whether at regional, national or EU level to continue the work beyond the initial set up phase.

Both Fibre Optic Valley and Omnipack are still running and are trying to plan their survival post-ERDF funding. Fibre Optic Valley is broadening the competencies on the board of managers and dedicating all their effort to developing an innovative business oriented culture to ensure continuity once funding has ended. Omnipack members have jointly funded a full time staff member dedicated to identifying possible sources of public funding and making bids.

PUCK is complete and of its three lines of work the education and training initiative is now being run by a local secondary school with the municipality and its future looks quite secure. The R&D work in the local university lab is now being funded by a local bank and supported by the university of Linköping and also looks set to continue. However, the competence centre offering services related to polymer technologies has an uncertain future as no backer has yet been found and significantly this is the strand of work, which was intended to be most attractive to business.

The 'collaborative research and development' projects (Barcelona Science Park and Bioindustry Park in Canavese) both planned for sustainability from the earliest phases, and both are on the verge of achieving it although in very different ways. The main lesson here is that these were long term projects with high levels of funding from a number of sources and political backing which allowed the long and uncertain work of cluster development to take place gradually and in planned phases.

Barcelona Science Park celebrates its tenth anniversary in 2007 and sustainability appears to have been achieved, at least in terms of no longer depending on ERDF funding. In the latest phase only 10% of funding is from the ERDF as the managers of the park have managed to diversify the (still heavily public) financial base. Bioindustry Park Canavese is forecast

to break even in 2009-2010 when it is predicted that enough companies from the park incubator will have developed products and started to earn royalties from commercialised products a percentage of which will go to fund the running of the park.

2.2.4 Key success factors – learning for future projects

2.2.4.1 Success factors

Publicly funded projects to improve innovation systems share many common success factors whatever their particular objective. For example, they should be customised to the regional context, they need to be well supported by relevant public authorities and professionally managed. These factors should be taken for granted. However, some success factors are more cluster-specific and below are three that emerge from the set of six projects looked at in this paper.

- The proximity of a strong, complementary public sector research capacity

Bioindustry Park Canavese in Italy developed new expertise but depended on the presence of outstanding and related research capacity to make the project credible in that location. Barcelona Science Park is research oriented and as such clearly depended on there being a strong tradition of research in the region. PUCK in Sweden depended on the proximity of university research expertise as well as schools to build the local research and training capacity necessary to catalyse the regional firms into a cluster.

- Based on business needs and driven by private sector players

Aviation Valley in Poland is a small project and had to make an impact with the companies in the aviation sector very quickly. The key to achieving this that the project 'champion' made sure the project retained a business focus throughout its short lifetime. Omnipack in the Czech Republic characterises itself as a 'bottom-up' project driven by business needs and

designed according to competitive conditions in the sector and its 'open participation' methodology reflects this. Bioindustry Park Canavese was designed to reach a business oriented project purpose. The Barcelona Science Park case reports one manager acknowledging that if the ratio of private to public partners had been 60:40 the park would have been more dynamic.

- 'Win-win' relations of trust and reciprocity at all levels of the project

Cluster projects by definition depend on holding together a diverse group of stakeholders in what might in the early stages be a fairly fragile constellation. The project must be strategic for all parties involved. Aviation Valley is an important project for the cluster companies but it is also key regional development project for the region. In Bioindustry Park Canavese the promoters were careful to develop only research capacity that did not already exist locally to avoid overlaps and therefore create barriers to collaboration. In Fibre Optic Valley the management realised that it has to play a facilitating role and that the managers are there to 'oil the wheels', they make the contacts, build the bridges between the knowledge creators and the market place.

2.2.4.2 Transferability

Regions should not consider importing project approaches and methods from other places without careful customisation to particular regional strengths and weaknesses: clearly it is not a case of 'one size fits all'. However, there are aspects of projects reviewed here that would be helpful to regions considering clusters. Some aspects could probably be transferred to all regions in similar forms, while others have much more limited application.

'Engaging actors' projects such as Aviation Valley are very widely transferable to regions of all types in every sector where there are problems arising from weak networking. However, they might be especially

useful in regions where clustering is a new idea as they are low risk, can be small in size and are appropriate in all sectors. However, projects aimed simply at engaging actors are likely to be difficult to sustain for very long and should ideally be thought of as the first step in cluster promotion rather than an end in itself.

'Business linkages and collective services' projects are the most transferable of the projects in this review. All EU regions are likely to have many sectors like the ones in these projects, that is sectors under threat from rapid technology change and new competitors in globalising markets. Although it needs to be carefully designed in each case, the basic model is a sound one. Creating better linkages between business, government, technology transfer agencies and knowledge providers tied together with professional and dynamic management and facilitation is a highly transferable good practice. However, it is likely that the time needed for creating sustainable networks is longer than the three to four year duration of most regional projects. Therefore, successful transfer of this type of cluster model probably depends on an environment where projects will be supported in the longer term.

The 'collaborative R&D' projects in this review are the least transferable of cluster types. They depend on high levels of government support over long periods, a regional government with a mandate to act in research, high levels of funding running to many millions of Euro from a range of different sources, the presence of advanced research centres and knowledge based businesses and entrepreneurial culture to create and exploit new knowledge. It is likely that only the more advanced 'competitiveness' regions will have capacity to launch and, more importantly, sustain initiatives of this kind. All regions should be very cautious when considering whether or not they can be credible actors in global markets in high technology sectors such as biotechnology.

2.2.5 Implications for regional policy

The projects reviewed help build denser and more active business networks, provide access to research and development facilities, help reinforce relations of trust and reciprocity between the partners and may be setting regions 'on the way to clusters' in the longer term. The overall implication for regional policy coming out of this overview is that all types of clusters are important, not only in high tech sector, as the productivity across all sectors determines regional standard of living. Also, clusters are an excellent way of engaging with firms without having to resort to costly firm level interventions.

Therefore, cluster policy measures inside ERDF might be used for the following purposes:

- Catalyse new nuclei of high technology firms – aspiring clusters

Bioindustry Park Canavese in Italy took a bold decision to create a new nucleus of knowledge intensive companies. This type of project would mostly be considered an option by quite advanced 'competitiveness' regions as it depends very heavily on existing regional capacities in research and high tech business development and investment.

- Reinforce existing strengths

Barcelona Science Park has a fairly cautious, less business-oriented approach with a good basis of research but with a poor record of effective science-business collaboration. Hence, the concentration of research intensive firms in a science park may be considered as one way to support clustering. There are, however, some constraints to this approach: stability is traded against some of the dynamism of more market-oriented projects.

- Reverse sector decline

The Swedish initiatives, PUCK and Fibre Optic Valley, both work with technology sectors with immediate relevance to contemporary markets. It is more likely that such declining but still relevant sectors will be found in 'competitiveness' regions but this

should not discourage 'convergence' regions from carrying out a close analysis for the presence of sectors that can be 'resurrected', along the lines of the polymer sector in PUCK that traces its origins back to the 1930s.

- Driving better performance out of a mature but sluggish sector

Omnipack in Czech Republic builds a cluster in a mature sector and all regions can improve the performance of established sectors in this way. Omnipack offers a good, robust working model for improving local sectors across the widest range of 'convergence' regions and could be a good model for 'unspectacular' but effective clustering type projects.

- Catalysis of latent clusters

The policy implication of Aviation Valley is that small projects have a role to play in creating clusters. It can be argued that small short-term actions might be tried even in less promising contexts to see if latent clusters can be activated.

Three recommendations for regional authorities implementing cluster projects:

1. Design with sustainability in mind, put business led governance in place where possible, plan a way of turning the project into a more permanent organisation, evaluate against business criteria as government action will not sustain artificial cluster development in the longer term. Expect that this will take closer to ten rather than the 3-4 years.

2. Choose a field where there is a good chance of success as very few regions can compete in high tech sectors such as biotechnology. However, all regions can improve local sector productivity by mobilising collaborative action.

3. The promoters need to be open to learning from clusters, they need to be ready to pick up on lessons emerging and quickly develop better broader policies. Policy needs to become more cluster 'influenced' if the projects are not going to remain isolated instances.

2.3 Growing new businesses

2.3.1 Introduction: policy framework

This theme focuses on the provision of support for the creation of new firms, most notably firms based on innovation or high-tech: spin-offs from universities and R&D organisations as well as spin-outs from existing firms.

The most common activities include:

- Creation of an incubator equipped with offices and laboratories as well as supporting staff providing advice and support services for business creation.
- Development of general business advisory services: training on business management, advice on business plans elaboration, IPR support, partners search, commercialisation, legal advice etc.
- Development of specialised supporting services: R&D services, sector specific product developments services, scientific partner search etc.
- Financial tools and advice for business creation: creation of funds directly linked to incubation process, creation of business angels network.

The analysis concentrates on the first and the third point and to a lesser extent on the remaining aspects. Most of the projects include business incubation purpose.

The analysis is based on 11 case studies:

- Snowpolis - Centre of Excellence, Finland
- Science to Business Centre – Nanotronic, Germany
- MST Factory, Germany
- Biogenomica, Greece
- Thermi incubator, Greece
- Bioindustry Park Canavese, Italy
- Scientific Park of Barcelona, Spain
- NetPort.Karlsham, Sweden
- Tjarno Centre of Excellence, Sweden;
- Knowledge Dock, UK
- KEF, Wales (UK).

The business incubators and support services in this series of case studies

generally involve the establishment of a symbiotic relationship between higher education institutes and/or science community and the business world, in order to facilitate the transfer of intellectual capital into the economic domain. The services of the incubators and their related support services are themselves directed towards technology-based start-ups in the knowledge economy.

The common thread weaving through the case studies is the dedication to science/industry collaboration and the focus on the knowledge-based industries, in line with ERDF priorities.

Amongst the EU priority actions agreed in 2006, reflecting the priorities of the previous programme period, are measures dedicated to promoting entrepreneurship and skills and improving SMEs' growth potential. It is within this context that the European Regional Development Fund (ERDF) has been supporting the establishment and operation of incubation units and support services for fledgling businesses throughout the Union.

DG Enterprise reports⁴ the success of the incubator approach in the EU in the following terms:

- 90% of all start-ups set up inside a business incubator are still active three years later;
- The public cost of creating jobs in incubators is €4,000, which is very low compared with other public means and programmes;
- The 850 European business incubators assist in creating 29,000 new sustainable jobs every year in enterprises, that are much more viable than enterprises set up outside incubators.

One example of the criteria used for admission of potential enterprises to incubation services, which is indicative of the approach throughout the case

⁴ http://europa.eu.int/comm/enterprise/entrepreneurship/support_measures/index.htm

studies, is that from the Bioindustry Park Canavese in Piemonte, where an applicant company must:

- be active in fields of high level of knowledge or technological content in the life science area (or synergetic areas such as ICT, new material or nanotechnology);
- conduct activities or applied research in strategic branches of science, and have a strong technological platform or know-how;
- have innovative R&D projects and programmes with strong market orientation
- be backed by adequate financial support and with a clear marketing and business plan;
- contribute to growth of the economy and level of employment, both locally and regionally;
- make a substantial contribution to scientific and technological knowledge;
- have a committed management team.

Just a few examples of the types of SMEs emerging, or planned to emerge, from the business incubators in this series of case studies are companies in the fields of:

- digital arts and media
- bioengineering
- nuclear medicine
- biopaint (maritime applications)
- digital games
- intelligent logistics
- sports technology
- nutritional technology.

The case studies illustrate how the business incubator approach, with its essential science community/industry relationship, has proved its relevance and applicability in a variety of regional settings and circumstances. In the face of the collapse of key traditional industries, for example with the closure of the riverside docks in the east end of London, where over a period of two decades more than 150,000 jobs were lost and the area suffered a 20% decline in population, the Higher Education

Institute-run Knowledge Dock project has served as a focus for a variety of continuing regeneration activities. Meanwhile, in the south-east of the EU, the BioGenomica incubator is one element helping the Attica region (Greece) move from a diffuse low-tech industrial base to a modern high-tech economy, including the generation of health-technology companies.

2.3.2 Practical lessons - from design to implementation

2.3.2.1 Relevance of political and strategic context

It goes without saying that regional development projects reflect the political and strategic circumstances from which they derive. The variety of case studies under consideration illustrates, through their nature, an equal variety of political and strategic contexts. These show, in some cases, a quasi-commercial approach to new business growth, normally within a narrowly-defined sector. In these cases the element of public subvention may be limited, and the outcomes relatively short-term. In other cases, where there is less commercial momentum, there is substantially more municipal effort with longer time scales and a more diffuse range of socio-economic benefits.

Two case studies of different projects within the same region show how the incubator approach has demonstrated its flexibility as a response to both economic decline and sectoral opportunity. In the Objective 2 region of North Rhine-Westphalia the city of Dortmund, suffering economic decline but having no positive legacy of an industrial past on which to build, undertook a rigorous study leading to a range of initiatives all looking to the future. Amongst the projects identified was a microsystems technology factory (MST) a dedicated incubator, publicly funded, supporting start-ups within the technological sector.

In the same region, the municipality of Marl identified industrial roots to support new growth. While there had

been decline in the primary sector, there were growth opportunities in the chemical sector in which the region had a national and international profile. In this specialist incubator project, led by the private sector, the intention has been to enhance this regional specialisation: the implementation of nanotechnologies and the related production and marketing in Marl is intended to serve as a pathfinder for the future development of the whole region.

Overall, the 11 case study projects in this overview show a variety of socio-economic circumstances and indicators to which business start-up through incubation can be a response. The political and strategic context appears to be of lesser importance to the design and implementation of the project than the existence, or planned existence, of a mechanism to support the science community/industrial exploitation formula upon which the successful operation of an incubator depends.

2.3.2.2 Project design and planning

The provenance of the case study projects is quite widely varied. Some flow, top-down, from regional planning processes and are driven by public sector impetus and funding. Other projects are more clearly commercial in parentage, affecting both their conception, implementation, and, as mentioned later, their approach to maturation and sustainability. In the light of the effectiveness of business incubation as described earlier by DG Enterprise, the lesson appears to be that it is the incubation device itself that appears to work, whatever the balance of the ownership and investment. Two things are clear, however: a) that the expectations which attend the different approaches to planning and implementation of the different forms of investment are not interchangeable; and b) that the engagement of the knowledge community in commercial exploitation remains a key challenge.

Amongst the case studies, an example of the public sector approach is the Welsh Knowledge Exploitation Fund, which was a governmental response to

a national economic development strategy recommendation that there needed to be an interface between institutes of higher and further education and the business world. Snowpolis resulted from a series of studies initiated by the regional authorities, looking for ways to capitalise upon local distinctiveness, while the Tjarno Centre of Excellence was a regional council initiative to build upon existing facilities. The UK Knowledge Dock was conceived, within the framework of a sub-regional strategy, to house a variety of actions funded by a variety of public sector partners. Another, even more local, initiative, MST-Factory, was described earlier.

In Greece, the Thermi incubator was set up by private investors, and Nanotronics was driven by a private sector research unit. A few projects are a mix of the public and private: Bioindustry Park and BioGenomica resulted from private sector collaboration with regional and national authorities, while the Scientific Park of Barcelona describes itself as a bottom-up initiative of the city's university, outside of the ambit of regional planning. Netport.Karlshamn resulted, uniquely here, from an initiative by the local trade and business organisation, putting pressure on the public authorities to take action to stimulate new enterprises.

The risks perceived at the planning stage of the projects were equally varied, reflecting the provenance. For example, the more commercial projects were concerned with straightforward returns on capital deployed, the potential rate of deal flow, and the need to promote co-operative use of commercial intelligence. Some of the public sector projects tended to be concerned about the risks associated with managing multiple stakeholder interests; others noted concern about whether there would be enough would-be entrepreneurs with viable ideas. A shared concern across the projects related to the need to convert the scientific community to an applied, business-oriented, approach.

Unsurprisingly, management systems in the case study projects tend to reflect the culture of the establishing partners and the organisational infrastructure of the service delivery. In the case of one university-led initiative, the executive director (a research scientist) is elected by the board of the foundation set up to govern the venture. Those projects more closely associated with government are governmental in style, whereas those driven by the private sector are more recognisable as market-oriented in management style.

Three of the 11 projects are managed by individuals representing the private investors in the initiative: their perception of the task includes the delivery of value, profit and return on investment in normal commercial terms. The lesson here appears to be that the management disciplines adopted in the projects closely adhere to the different types of governance and investment. What seems to be crucial, particularly in the hybrid arrangements such as Netport, Karlshamn and the Barcelona Science Park, is the conscious establishment of mutual trust and understanding between the stakeholders.

In respect of the publicly-backed ventures, initial project managers have normally also been involved in the genesis of the project, though much care appears to have been taken in ensuring that that person had the requisite mix of skills for a complex range of tasks and responsibilities. Later, in the outline of obstacles to implementation, will be seen a reference to the importance attached by several projects to securing a project manager with the combination of skills and competences required. In one case the project management job is shared between a technical director and a more administrative project manager. Another project introduces the rather apt concept of the 'scientist-entrepreneur'.

Monitoring and evaluation, while differing in style and application across the projects, is considered by all to be central to the management task. In most cases it has been embedded in the

business/project planning process from the outset. The private sector management tends to employ monitoring to commercial accounting standards, on the basis on continuous assessment of key performance indicators, together with external evaluation for benchmarking. In one case the public sector partner acts also as evaluator in a type of scrutiny function. As high risk is characteristic of business start-ups and venture capital, all projects attach importance to the careful initial assessment and ongoing monitoring of new enterprises.

Consistent with the pattern in the themes above, governance of the 11 projects is recognisable in the three forms of public, private and hybrid. The predominant public model tends to involve more active stakeholders as partners, though perhaps more often in an advisory rather than policy-making role. In some cases there is a challenge to management to deliver on the various objectives of different government bodies and strategic agencies, which provide the public funds. In contrast, one private sector model amongst the case studies has a board of four private shareholders including a business angel who holds 45% of the equity. This illustrates starkly the strength of the business incubator model in its attractiveness to a wide range of sponsors, bringing risk capital into partnership with public support to benefit a regional economy.

As for the hybrids, one describes itself as a 'triple helix' of government, industry and higher education institutions. In this model the municipality provides the bulk of funding (and political support), industry provides the business growth experience and know how, and the university supplies the scientific knowledge. Other hybrids are joint initiatives between a regional or national authority and a particular established enterprise. One of these, Nanotronics, which has an advisory board of five people with business skills and scientific competence, engages some 40 partners (research institutes, universities and businesses) annually at

a summer school to review achievements and to plan forward.

Leadership, in the sense of determining and pursuing policy, can be seen to be operating effectively at both ends of the spectrum of governance. At the public end, the city of Dortmund has the express condition that its business start-up operation itself will not report profits, but return on investment will appear as value and jobs in the broader local economy. At the private end, the reporting of profits by the incubator is the fundamental reason for the individual investor's involvement in the project. In other cases, public funding partners appear to have been flexible enough to allow leadership to be exercised by the private sector partner. However those projects closest to government appear to have the most challenges in the leadership field, experiencing changes in internal ownership and managerial personnel.

2.3.2.3 Effectiveness: overview of innovation results

While the ultimate effectiveness of the projects is likely to be determined by the number of sustainable enterprises resulting from the business start-up activities and services provided, the case studies show achievements in a range of fields of innovation.

A selection of examples is provided in the following list:

- Innovation demonstrated in the coordination of an ensemble of interrelated activities: Snowpolis - Centre of Excellence, Finland;
- Innovative cooperative industrial R&D, and cooperation with Research Training Groups: Science to Business Centre – Nanotronic, Germany;
- The innovative role of a public entity - the City of Dortmund in the regional innovation system: MST Factory, Germany;
- One of the first ever spin-offs in Greece: Biogenomica, Greece
- Innovation in the private ownership of a business incubator: Thermi incubator, Greece;

- Innovation in the channelling of unusually large amount of private capital into the incubator: Bioindustry Park Canavese, Italy;
- Innovation in private and public sector researchers interacting and working together, sharing equipment and facilities resulting in synergies and joint projects: Scientific Park of Barcelona, Spain;
- The innovative involvement of the triple helix in the planning and decision stage: NetPort.Karlsham, Sweden;
- Innovation in being the first project of its kind in the country: Tjarno Centre of Excellence, Sweden;
- Innovation in bringing together, under one roof, ideas and projects funded by variety of regeneration funds: Knowledge Dock, UK;
- Innovation in providing for the first time a clear testing-ground for 'proof of concept' proposals: KEF (UK).

2.3.2.4 Key implementation obstacles and problem-solving practices

The project case studies identified a variety of implementation obstacles, including delays in getting funding for infrastructure, too-short project lifespans, and the lack of availability of local venture capital. A small number of projects reported no significant obstacles, or their having taken setbacks and difficulties in their stride in the course of implementation, even though these difficulties may have been significant.

The Bioindustry Park Canavese, for example, suffered a substantial loss of income when a major company undertook a reorganisation resulting in the relocation of its R&D facilities out of the science park, taking with it a revenue stream of €400,000 per annum. The response to this crisis by the management team was radical and effective: the reduction of the cost-base, reorganisation of internal functions, and the introduction of a new business area of business development and strategic marketing, which proved

successful in attracting new customers to replace those lost.

Two major obstacles recurred in several of the projects. First, is a phenomenon proving a challenge throughout the EU: this is the difficulty of engaging academics in research institutions in activities directly linking their research to commercial exploitation. The Barcelona Science Park points out the 'scepticism from the scientific community about the worth of joint projects with private companies.' BioGenomica noted that the differences between people with backgrounds in science or business were differences of culture and of priorities, which had an impact in organisational issues and strategic planning. For the business partners profitability was crucial, while for the researchers, the scientific content and research challenges were more important.

The second, and related, obstacle was the reluctance of some partners to share information about their activities: this was noted in, amongst others, the Bioindustry Park Canavese and in the Nanotronics Centre.

The response, in all cases, to these obstacles has been almost identical: the time-consuming establishment of close co-operation and mutual respect between the partners, crucial to finding a common approach. In Barcelona, the showcasing of good examples of collaboration has begun to bear fruit in the change of attitudes amongst researchers, while in Piemonte the private sector learned a great deal from working with the regional authorities and the universities, adapting their management practices to the longer time-frames of the biotech sector.

2.3.3 Sustainability - making projects last

Each of the projects had the objective of sustainability, in the sense of the continuation of the operations, or of the majority of the operations, following the ending of the ERDF funding. The influence of the regional context is discernible in the differing strategies for the achievement of sustainability.

These strategies vary in important respects, according to two main factors:

- whether the major driver of the project is a public or private entity;
- the extent to which the project focus is on a specific activity or is spread across other objectives, as seen in the following examples.

The Nanotronics centre, in North Rhine-Westphalia, is privately owned by Germany's third largest chemical company. The centre has been developed and managed by a research unit of the company and more than half of the operational budget comes from private sources. The focus of the centre's business is deliberately narrow: the application of nanotech on electronic components. In this way the centre embraces both of the sustainability factors mentioned above. The company has committed itself to the continuation of the centre beyond the first five years without any changes to the concept. What has not been determined is the specific nature of future R&D themes, nor the nature of the funding structure, though earnings are expected to have economic impact within five to 10 years.

Another example of the combination of the sustainability factors is BioGenomica, in the Attica region of Greece, an incubation unit concentrating on gene research. Itself a spin-off company of the Greek National Centre of Scientific Research, BioGenomica is managed by its principal private investor, who anticipated to break even on his investment over the initial project period. In fact, break even point arrived in 2006, while in the following year employment has grown by 25% and turnover expected to grow by 200%.

The Greek Thermi incubator has already established a continuous and steady flow of income in the form of payments from tenants for the services offered and rents. Secondly, the incubator benefits from the capital returns resulting from exits from equity investments made by the principals. In all three of these examples sustainability appears as part of the

commercial returns of a venture capital business model.

Sustainability of MST-Factory hinges on a concept of public support as investment in an area of severe industrial decline. The strategy of the city of Dortmund, which is the ultimate 100% owner, through an arms-length company, of this business incubator, rests on the guiding principle 'We do not subsidise, we invest!' In this case there is a strong commitment to the longer-term use of public funding, where the express intention is *not* to develop the incubator as a profit-reporting centre as this would contradict the basic idea. Dortmund is, however, looking for a deferred return on investment through the overall contribution made by successfully incubated companies to the regional economy and to employment.

The Knowledge Dock project, managed by the University of East London, has a low level of private contribution at 0.7%, and has strong socio-economic objectives additional to the business model comprising a relatively wide range of activity, albeit in high-growth sectors. The original business plan had projected a self-sustaining operation from year three. This was not achieved, and the current development strategy envisages an overall 10-year process. While the goal is still self-sustainability, there is recognition that the diversity and complexity of the public funders and stakeholders has an influence on the pace of achievement of this goal.

2.3.4 Key success factors – learning for future projects

2.3.4.1 Success factors

The case studies report a variety of success factors and lessons for future application, falling broadly under the following headings:

Financing

The generation of new small businesses is, by its nature, a high-risk activity. While those businesses nurtured in incubators appear to have comparatively high survival rates, the

investment funds have nonetheless to be seen as venture capital. A number of case study projects successfully employed ERDF (or the prospect of them) as leverage for private investment, showing a willingness to take high risk with public funds. In this way public funds are perceived, and treated, as long-term investment capital, rather than subvention.

Strategy

Several of the projects emphasise that they were part of a wider strategic framework, which can include either a broad scope of planned activity, as in some municipal-led projects, or a narrower scope, more frequently in the private-led projects. An important aspect of the inclusion in a broader strategy is the avoidance of the replication or duplication of existing local services. Successful strategies also included capitalising on regional strengths and distinctiveness and on science community strengths and specialisms, maintaining a focus on technological innovation.

Partnership and communication

An effective partnership between public and private stakeholders is cardinal to the success of business incubators. The public partners need to deliver political commitment and swift decision-making, while the private partners need to overcome their cautions regarding commercial intelligence. There needs to be a dedicated effort to build mutual trust between stakeholders, and to engage the research community in the commercial venture. Regular communication between partners, face-to-face where possible, is essential.

Management and operations

A primary success factor is the quality of operational planning, which must adopt an inclusive and consultative approach. Then follows the emphasis on suitably qualified and skilled personnel to run the project, and the need for development of reciprocal relationships with major companies in the field, and the maintenance of a customer/market focus. Added to this is the need to ensure compatibility and

synergy between the 'mother company' and spin-off companies

2.3.4.2 Transferability

There is a consensus that the principle of the science/industry incubator model, expressed simply by one project as 'how knowledge can leave the university', is readily transferable, whatever the economic context. An exception is where there still exist old models of university governance. The same may be true of the structural model of a particular initiative. Specific activities and systems are less easily transferable, depending upon such variables as climate, skills available, funding systems etc.; though there may be opportunities to tailor initiatives to other regional circumstances. Communicating success stories, locally, nationally and EU-wide through, for example, study visits and networking is seen as an effective method of transfer, by, amongst others, the Swedish Tjarno Centre of Excellence project.

2.3.5 Implications for regional policy

The use of business incubators and related support services to start-ups appear to be of equal relevance to advanced and catching up regions. Some of the key policy implications are:

- View all public funding as investment

Seek a return on investment in some measurable way, be it by the normal formula applied to the enterprise in hand, or by a later evaluation of local economic development, which might seek to isolate the effects of the start-up intervention upon, for example, growth in employment.

- Build upon local strengths and distinctiveness

The two examples from North Rhine-Westphalia showed the creativity, vision and ambition of one public sector body, the Municipality of Marl (Nanotronic), investing in the growth of a particular industrial sector with local roots, while the other, the city of Dortmund (MST Factory), built a high-tech 'incubator factory' on a redundant

steelworks site as a powerful symbol of regeneration.

- Allow the private sector to lead

Several of the case studies indicate the effectiveness of this approach. Of course there has to be accountability for public funds, but the high level of assessment and monitoring which attends high-risk funding is sufficient to allow for the requisite scrutiny.

- Encourage and enable a high level of private sector participation and leadership in business start-up projects

The few private sector-led projects in the sample show positive results early in the project cycle, associated with a dynamic market-oriented approach and the motivation of investors to realise returns on their capital.

- Support the scientific community in developing positive views of commercial exploitation of research

A recurrent theme was the reluctance of some in the university sector to involve themselves in the commercialisation of research results. They have a crucial role to play in helping develop the knowledge economy.

- Simplify complex funding streams and reporting channels

The key performance indicators, monitoring, formative and summative evaluations which are needed for accountability and to improve project effectiveness should not be complicated by the burden of reporting to too many masters, as appears to have happened in a small number of case study projects.

2.4 Science-industry relations

2.4.1 Introduction: policy framework

To close the 'gap' between academic research and the business sector is a key priority for policy makers across the European Union. It has been on the agenda since the lack of collaboration between science and business was identified as a major obstacle to innovation more than 20 years ago – but why is the stimulation of science-business collaboration important?

For companies it is important to access academic know-how and problem-solving capacities in order to start or to increase their own efforts in research and development (R&D); for scientists the collaboration opens paths to the application of their research findings as well as access to business experience and product development or process engineering needs which in turn can inspire new research questions. Collaboration not only leads to mutual understanding but can also facilitate the transformation of research results into new products, processes, and services; it contributes to the education of young researchers involved in industrial R&D projects, and ultimately it can lead to the creation or safeguarding of employment.

This analysis covers various approaches to stimulating the collaboration between science and business. '*Science*' stands for any field of scientific research, natural and technical sciences as well as social sciences, the humanities and the arts; science is typically performed at publicly funded institutions, mainly at universities, but also at other institutions of tertiary education and research institutes⁵. '*Business*' is used in a similarly comprehensive way, open to any type and size of company, encompassing producers of products as well as

providers of services. '*Collaboration*' in this context comprises various forms of joint activities, ranging from the first development project a small company contracts to a local research institute, all the way to long-term strategic research collaboration between several companies and universities in a 'centre of excellence'. Which kind of collaboration is appropriate and how it can be supported most effectively depends on the types of companies and research institutes involved, their technological know-how, the previous co-operation experience of the individual participants, the regional policy framework and other factors mentioned in this comparative analysis.

This report is based on 14 case studies, three from the 'new' Member States (Estonia, Poland and Slovenia), which joined the EU in 2004, four from Italy, one each from Germany, Belgium, Finland and Sweden; and three from the United Kingdom. The cases analysed were:

- Belgium: Multitel (Wallonia)
- Estonia: Competence Centre for Food (North Estonia)
- Finland: Snowpolis Centre of Excellence (East Finland)
- Germany: Science to Business Centre Nanotronics (NorthRhine-Westphalia)
- Italy: Nanofabrication Facility NanoFab (Veneto)
- Laboratory for Acoustics and Vibration - LAV (Emilia Romagna)
- Bioindustry Park Canavese (Piemonte)
- Regional Competence Centres – CRC (Campania)
- Poland: STIM - Networking Technology Transfer Centres in Poland (Poland)
- Slovenia: Centre of Excellence in Nanotechnology (Slovenia)
- Sweden: Interactive Institute Sonic Studio (North Sweden)
- UK: The Knowledge Exploitation Fund – KEF (Wales)
- Proof of Concept Programme (East and west central Scotland)
- DIALOGUES (Western Scotland)

⁵ The term 'research institutes' is used in this study as an 'umbrella' term for these different types of scientific institutions.

This number of cases even from such a diverse group of European regions is instructive but also too few at the same time. The individual cases give insight into specific stories and allow to draw conclusions on how to plan and implement successful projects in science-business-collaboration. Many of these conclusions will be relevant and helpful also for other types of regional development project.

Science-business collaboration is by no means uncharted territory on the policy map. After its 'discovery' in the 1980s it has been 'conquered, charted, and cultivated' by numerous players, first and foremost by those active in science and innovation policies, and ultimately it has gravitated to become an issue on the Lisbon agenda⁶. A large variety of measures has been designed at EU level as well as by Member States and – more recently – by regional authorities. The European Research Framework Programmes⁷ were the first large-scale initiatives promoting R&D collaboration across national and institutional borders. Due to their visibility they have been of great influence on the design and implementation of policy measures addressing the collaboration gap, not only on the international, but also on the national and the regional level. This is even explicitly stated in the case study on the Slovenian Centre of Excellence in Nanotechnology.

It is apparent from the cases that the support of science-business collaboration is not exclusively a matter of regional development and funding from the ERDF. Many of the projects have been co-funded by national or regional research and technology collaboration initiatives. Moreover, in most cases a number of local, regional and national bodies were involved, at various stages and to various extents, in

the design, planning and implementation of the measures. Obviously the stimulation of science-business collaboration requires a well-established culture of cooperation on the side of policy makers and implementers as well.

Measures for the stimulation of science-business collaboration typically address the problem from several angles:

by developing a more **market-oriented approach at research institutes** towards the transfer and use of research results. Some typical activities include training on market opportunities for students and researchers, supporting the provision of skilled personnel to firms, organising science-business events, providing dedicated infrastructure for joint R&D activities, establishing contract research units as a link between universities and business etc.;

by stimulating **business demand for R&D** (often addressing SMEs) comprising specific studies on demand for R&D, raising SMEs' capacity to do R&D, awareness raising on R&D services on offer, creating an innovation culture, encouraging SMEs to do R&D projects in co-operation with research institutes etc.;

by developing a new **culture of collaboration**: this happens mainly through medium to long-term strategic R&D collaboration between science and business, typically in 'centres of competence' or 'centres of excellence'⁸;

by supporting the science-business intermediation system including the creation and training of specialised intermediaries and the enhancement of their services.

⁶ See e.g. European Commission, Improving knowledge transfer between research institutions and industry across Europe: embracing open innovation, COM(2007) 182 final

⁷ <http://www.cordis.lu>

⁸ The two terms are basically used as synonyms in this analysis, although, usually, a 'centre of excellence' tends to be a supply driven, physical centre and a 'competence centre' is often a more business driven bundle of collaborative R&D projects. However, following the terminology used by the projects themselves, such a distinction cannot be made.

Exhibit 6. Main approaches to science-business collaboration

Approach:	Market-orientation at research institutes	Stimulation of business demand for R&D	New culture of strategic R&D collaboration	Science-business intermediation
Project:				
Multitel	X		X	
Competence Centre for Food			X	
Snowpolis Centre of Excellence	X	X		
Science to Business Centre Nanotronics			X	
Nanofabrication Facility - NanoFab	X			
Laboratory for Acoustics and Vibration - LAV	X			
Bioindustry Park Canavese	X			
Regional Competence Centres – CRC	X			
STIM - Networking Technology Transfer Centres in Poland		X		X
Centre of Excellence in Nanotechnology			X	
Interactive Institute Sonic Studio	X		X	
The Knowledge Exploitation Fund – KEF		X	X	X
Proof of Concept Programme	X			X
DIALOGUES	X	X		X

Many of the projects analysed actually mix several of these approaches⁹. Exhibit 6 provides an overview of the projects according to their main focus.

The analysis suggests that the approaches responding to the challenge of science-business collaboration can be implemented as stand-alone solutions as well as in combination.

- Approach 1: developing a more market-oriented approach at research institutes towards the transfer and use of research result

This approach tackles the obstacles to science-business collaboration from the

science side, often by establishing new or additional R&D capacities (personnel, infrastructure, equipment, services) that perform applied research and development on behalf of users.

Although this, in part, is a more traditional supply-side approach to science-business collaboration, stimulating a market- and application-oriented attitude of researchers; most of these initiatives reflect an enhanced orientation to become user driven and more market based. In some cases, the activities are performed by teams within the universities, in other cases new, additional, application-oriented units are set up - the idea is that they can transfer the knowledge generated at universities to business application. Most of these projects also offer complementary services that also try to stimulate business demand for R&D (approach 2) e.g. access to facilities and equipment for companies' researchers, support for start-up companies,

⁹ Some of the projects not only deal with science-business collaboration but also foster the creation of start-up companies, e.g. Snowpolis, Nanotronics, and Bioindustry Park; these activities will not be dealt with in this case study as there is a separate analysis on growing new business.

trainings (for researchers as well as for companies), consulting etc.

The basic requirement for this type of project is a strong knowledge base as a source expertise to be exploited through contract research and services – not only 'hard science' e.g. the cases of Sonic Studio integrating music and arts or of Snowpolis with a strong emphasis on cold climate lifestyle and winter sports – and the availability of potential customers. The scope and character of such a project have to match the available resources on both sides. A look at two contrasting cases makes this clear: Campania (Italy) is a large region with a relatively large and diversified science base; hence a large-scale programme with a budget of more than €200m supports no less than ten Regional Competence Centres', each with an average budget of €20m.

Snowpolis in Finland is the counter-example: it is much focused thematically on a local 'niche' and far smaller, with a budget of €870,000, and it had to attract missing research competences from neighbouring regions. Hence, while the first example could exploit a rich knowledge base, the initiators of Snowpolis decided to grow something new from a small 'nucleus' that would add to the region's specialisation in winter tourism.

- Approach 2: Stimulating business demand for R&D

The focus of this approach is to assess and understand as well as to stimulate business demand for R&D, very often addressing SMEs specifically, and it is frequently combined with approaches to increase market orientation in research institutes and with intermediation (as in the cases of STIM and DIALOGUES).

Other projects investigated stimulate business demand for R&D by supporting small collaborative R&D projects and 'proof of concept' projects (e.g. the Knowledge Exploitation Funds KEF and the Proof of Concept Programme).

- Approach 3: Developing a new culture of strategic R&D collaboration

The aim of this approach is to establishing a new culture of collaboration between science and business, generally implemented in so-called 'competence centres'¹⁰. Within these centres, partners from science and industry are committed to the strategic, medium to long-term research collaboration on R&D priorities jointly defined. Generally, these centres have to compete for funding in national funding programmes. The main difference compared to other approaches involving collaborative research projects is the scope of the commitment required from all partners: the typical duration of a competence centre project is seven to ten years, and unlike in 'normal' contract research, the partners form mixed teams that perform R&D together.

Many European countries (e.g. Austria, Estonia, Hungary, Sweden, the Netherlands, Slovenia) have launched programmes of this kind in recent years; they are often co-funded by ERDF, particularly in the new Member States, and regional bodies typically support 'their' centre; yet these programmes are clearly guided by R&D-specific criteria, expecting quality at an international level. Actually, competence centre programmes have become a well established instrument of modern R&D policy. They can be equally beneficial in all European countries, no matter if they are considered 'strong' or 'weak' in their overall research performance, provided that the scope of the programme matches the available potential of the science base and the business sector. The quality standards must not be cut back if the centres are supposed to prove themselves internationally.

The 'Science to Business Centre Nanotronics' is a different example of this approach, unique among the cases investigated, as it is clearly industry-led. Its main activity is cooperative

¹⁰ Also called 'centres of excellence' in some of the case studies. See also footnote 8.

research linking basic research with technology and product development under one thematic umbrella and partly under the same roof, always in pursuit of new business. Many design elements of this institutional set-up are closely related to the open innovation concept¹¹, and the extent of openness in the communication between the partners is unusual for business driven R&D. A project of this type requires a company with R&D experience and a strategic approach to R&D, strong management capabilities, and the willingness to participate in open collaboration.

- Approach 4: Science-business intermediation

The main activity of these projects is the facilitation of science-business collaboration through information and awareness building, as well as by support for technology transfer and the finding of partners; these activities are normally performed by specialised intermediaries, e.g. by technology transfer offices located at universities; some of the included the training of these intermediaries and the development of new services. Support for 'proof of concept' projects aims at bridging the gap of funding for research with commercial potential is an increasingly popular tool to encourage commercialisation of research¹².

The case studies differed significantly in their scope: while most cases investigated were individual projects, some case studies dealt with entire regional funding schemes:

- The Knowledge Exploitation Fund - KEF, Wales;

- Regional Competence Centres – CRC, Italy (Campania);
- Proof of Concept Programme - POC+, Scotland.

The programmes aim mainly at developing a more market-oriented approach among researchers and at increasing the business demand for R&D by supporting 'proof of concept' projects (POC+ and KEF), small collaborative R&D projects, technology transfer centres and networks (in the case of KEF), or the establishment of contract research centres (in the case of CRC).

2.4.2 Practical lessons - from design to implementation

2.4.2.1 Relevance of political and strategic context

As a general rule, a regional development project will run a high risk of failure if the regional situation is not taken into account in design and implementation. 'Taking into account' means to know, to understand and to appreciate the interests of the regional players, the socio-economic context and the track-record of policy intervention in the region (e.g. results of evaluations of previous projects). This may appear self-evident, even trivial, yet the most common mistake made is to copy-and-paste some supposed 'best practice examples' without considering both, the context of the role model and the specific institutional situation.

In all cases investigated the lack of communication and collaboration between science and business was widely accepted as a priority field of action. In many countries, the issue is dealt with in national or regional policy papers, which are implemented through programmes of specific support measures, co-financed by national and regional funds, including the ERDF, e.g. the Estonian R&D and Innovation Strategy 'Knowledge-based Estonia', the Slovenian National Research and Development Programme, Wallonia's 'Marshall Plan', the Knowledge Economy Taskforce report in Scotland,

¹¹ For more information see: <http://openinnovation.haas.berkeley.edu/>

¹² Proof of concept is the second stage of the process for commercialising research. After an idea for commercialisation has been identified, an assessment of its feasibility is required to decide whether to continue with the project by licensing the intellectual property or generating a spin-out company; or whether to abort the attempt of commercialisation due to insufficient market or technological viability.

or the National Economic Development Plan in Wales.

In many cases, analyses were performed in order to identify thematic priorities relevant to the region, mainly regarding the scientific strengths and the structure and research needs of the regional companies. Apart from the intermediary-focused activities and the funding programmes, most projects have a thematic focus, but there are clearly different approaches to the definition and identification of these topics, ranging from 'bottom-up' selection through open calls to 'careful choice of topic' in a more top-down strategic manner. In the competitive funding programmes analysed, broad thematic fields, e.g. biotechnology or nanotechnology, had been identified in advance, very often in line with the mainstream European R&D policy priorities, whereas the definition of the project focus was up to the participating researchers and companies. The actual projects were generally selected through competitive calls for proposals and subsequent evaluation procedures assessing the quality of the proposed research and of the partnership, e.g. in the Slovenian and Estonian 'Centre of Excellence Programmes'. In other cases, analyses of the regional specialisation were performed and the results were used as a basis for designing the projects.

Various methods were used to gain the necessary information and knowledge:

- The Snowpolis project is particularly interesting as it is located in a rural and remote part of Finland without a strong science base and was particularly designed to fit the regional circumstance. The local economy, tradition, lifestyle and the cold-climate were assessed in order to define the priorities of the project, and the missing scientific competences were sourced from universities in neighbouring regions.
- In the case of NanoFab, an external consulting company was contracted to identify the regional business sectors relevant as potential users of R&D results in the

nanotechnologies. However, the consultants failed to recognise the local textile and leather industry as target groups for NanoFab and only upon these companies' own initiative they finally entered the NanoFab stage – where they play a chief part today. This example hints at a pitfall for regional policy makers: at (inter)national level the thematic R&D policy priorities are often dominated by large and topical research themes, e.g. nanotechnology, life sciences, information technologies etc. If these are used as a 'search grid' for regional economic specialisations, traditional industries can easily be overlooked, erroneously being labelled 'low-tech'.

The issue of how to set thematic research priorities at regional level is anything but trivial and cannot be resolved on the basis of this limited comparative analysis. However, at regional level the easiest way to avoid setting the wrong priorities is probably not to set 'abstract' thematic priorities at all. Instead regional policy makers should strive to know, to analyse and to understand the capacities and potential of regional players in science and business, their activities and inter-relations, and then act on this very concrete basis.

An interesting approach has been developed by the Scottish POC+ programme. Initially, the programme sought to focus on the defined Scottish clusters (and subsequently, the priority economic sectors for Scotland), however, in operational terms proposals were accepted from any relevant scientific or technological field. As part of the ERDF funded stage of the programme, a "portfolio review" was carried out on projects funded in order to encourage bundling of project results into one or more start-up companies with a critical mass of technology results in the field. Such a portfolio review approach is an interesting approach to inducing strategic alignment of an otherwise 'open selection' process.

2.4.2.2 Project design and planning

The cases analysed have quite diverse histories: in many cases, the actual idea for the project was inspired by examples in other regions or by the experience that a key person had gained abroad, e.g. in the cases of the Bioindustry Park Canavese, Snowpolis, or NanoFab. However, in all these projects, the initiators of the projects assessed the regional situation before starting the project and the design was adapted accordingly.

Those projects responding to distinct regional or national funding programmes of course had to meet the structural requirements defined by the programme authorities. However, even funding programmes supporting apparently similar projects and activities evidently use very different approaches to these questions: while some programmes were very strict in defining the structure, the partnership and the legal status of projects from the outset, leaving little or no room for changes in the course of the projects, other programmes chose an 'evolutionary' approach, adapting and developing the requirements for the projects during implementation.

Among the projects meeting a pre-defined structure are the Slovenian and Estonian centres of competence, while the policy frameworks and programmes funding the Italian Laboratory for Acoustics and Vibration and Multitel (Belgium) have evolved in the course of the projects. The Scottish Proof of Concept programme is certainly a best-practice case in terms of programme design and an 'evolutionary' approach to procedures and management structures, adapted to on-going learning-by-doing.

Finally, there are 'the individuals', those projects that were free to choose their model and organisational structure as they did not have to meet a predefined project type: Snowpolis in Finland, STIM in Poland, the UK projects Knowledge Exploitation Funds KEF and DIALOGUES, and the Swedish Sonic Studio. The Italian Regional Competence Centres programme is an interesting case, as the authorities responsible for the programme closely

consulted the local universities and research centres during the design phase of the programme, before the same scientific institutions submitted their proposals for evaluation by international experts.

In projects of all types, regional authorities played a decisive role during the design and planning phase, bringing together partners and supporting the project development with their advice, which was even acknowledged as a main success factor, e.g. in the case of the Italian Regional Competence Centres.

2.4.2.3 Management, monitoring and evaluation system

In the case studies, the management processes have been clearly dominated by collaboration requirements, not only on the side of the project consortia but also on the side of the funding authorities. This means for instance that extra space and time for communication between the partners had to be scheduled and that appropriate ways of involving partners in decision making had to be found, e.g. by involving them in the project's board. The aim to ultimately apply research results in business is reflected in the preference given to managers with a background in the private sector, e.g. in CRC, Sonic Studio and Multitel.

In terms of monitoring and evaluation the projects differ substantially, especially as the requirements are normally defined by the funding authorities. Meeting these demands can be troublesome, if the reporting is too frequent or if the monitoring system is too different from the established practice at the participating institutions; such is the case mainly in new funding programmes e.g. the Slovenian Nanotechnology Centre of Excellence. On the other hand, some projects had an easier start as they could rely on the established monitoring and evaluation systems of their 'hosting' institution, e.g. in the case of Sonic Studio, which was founded as a new part of a national research institute. A full scale evaluation was carried out of the

Scottish Proof of Concept Programme in 2006 which led to a number of adjustments being supported by the ERDF, including the funding of 'outcome managers', a key operational innovation where the academics creating spin-outs are coached by an experienced business person.

2.4.2.4 Human resources

Human resources are a neglected issue in many projects. Only a few projects tackle the issue through specific measures, although the importance of qualified staff and of the special skills required for collaboration projects is pointed out frequently, as is the importance of some projects as an opportunity to educate young researchers. Among the exceptions, Multitel explicitly promotes long-term contracts and attractive salary packages; Snowpolis aims at creating bespoke employment opportunities for the students that would otherwise leave the region after graduation. The situation, qualification and lifestyle of students in the East Finland region were analysed beforehand and the results influenced the design of activities and thematic focus, e.g. an expanded offer of tertiary education and the support for start-up companies in the technology fields prioritised. The additional ERDF funding for the Scottish Proof of Concept programme was in part used to address the issue of women scientists as entrepreneurs by establishing an 'associate women entrepreneurs group' to encourage female academics to set up start up companies.

2.4.2.5 Project governance: partnership and leadership

Governance is a critical issue. In all the projects analysed a number of players at various levels are involved; they are formally independent, but still reliant on each other for the success of the project. Most case studies reported that at least some of the partners had known each other already before, but that a partnership of a new quality and scope was established during the project.

The partnerships of the projects can be grouped roughly according to their main activities:

- Projects aiming at the development of a more market-oriented approach at research institutes focus mainly on offering R&D capacities and services; their partnerships typically comprise universities and public research institutes, often complemented by local or sectoral intermediaries, public authorities (e.g. the municipality), or the operator of a technology park as a physical infrastructure. Businesses are normally involved as customers, contracting R&D to and receiving services from the 'centre'. In some cases representatives from companies are involved in the project's board (e.g. in Multitel), which is generally appreciated as it helps to direct activities towards the customers.
- The collaborative 'competence centres link partners from science and industry in long-term strategic R&D co-operation; normally they are partners on an equal footing, jointly defining and performing the R&D activities, which are intended to be exploited by the business partners. Rights and duties of all partners are stipulated in consortium agreements. The Nanotronics case is unique among the cases analysed as it is clearly owned and led by a large company and all partners are involved through bilateral contracts instead of a consortium agreement.
- The 'funding programme' type of projects, i.e. the Welsh Knowledge Exploitation Fund, the Italian Regional Competence Centres, the Scottish Proof of Concept Programme, above all aim at enabling collaboration between the research institutes and the businesses in the region and at stimulating business demand for R&D. The programmes themselves are also collaborative activities, both developed and implemented in partnership, mainly of national or regional authorities and

intermediaries – a kind of collaboration no less challenging and important than science-business-collaboration.

- Similarly, the projects focusing on science-business intermediation normally co-operate primarily with other intermediaries, agencies and authorities, while scientific institutions and companies are their 'customers' or 'clients'. In regions with a wide range of such intermediaries, the efforts for communication and coordination of services can be substantial, threatening the efficiency of the support system. Therefore new intermediary services should only be launched after scrutinizing whether such a service is the right solution of the problem to be solved. Furthermore, redistributing and redefining of tasks among existing intermediaries should be preferred to adding new players to the system.

2.4.2.6 Effectiveness: overview of innovation results

In many of the regions, the existence of the project as such is considered an innovation result on its own, especially in those types of projects that involve the establishment of new research infrastructure and equipment and the starting up of operations on a larger scale, especially in the cases of 'centres of competence' and in those supplying capacities for applied R&D at research institutes. This is understandable as the planning and organisation of such a complex structure is an accomplishment of its own.

Moreover the partnerships and the ways of working together are often unprecedented for the participants. However, a regional development project must not be seen as an end in itself and the project's results are the main key to assessing the achievement of objectives. It is therefore crucial, that the objectives and the way to assess their achievement are defined at the beginning of a project; this will provide both, guidance and benchmarks for all parties involved.

Most of the 'centre'-type projects reported results related to R&D and results exploitation: publications, patents, spin-off companies, research contracts placed by companies, examples of new products and processes, participation of companies in the services and trainings provided; along with the number of jobs created directly in R&D or in business, mainly at start-up companies. Some projects also list the number of young researchers involved in the projects and the levels of qualification they achieved. Moreover, successes in other competitive funding programmes are listed as results, mainly in the European Research Framework Programmes. However, quantitative or otherwise verifiable objectives as 'yardsticks' to judge the results are rare as are assessments of the results relative to the resources invested.

The results reported by the intermediary-focused projects tend to be 'input'-biased, e.g. projects funded, training measures completed, or databases established, whereas the direct effects on science-business collaboration are typically provided as anecdotal evidence in the case studies. In the case of the Polish project STIM this comes as no surprise as the project only involved the pilot implementation of the newly developed services.

For intermediation projects, it is especially important to define very clear and realistic targets as otherwise the project managers are likely to be worn down between the overambitious goal of 'boosting regional development in general' and the daily reality of (e.g.) tracking down SME willing to engage in R&D collaboration. While the wellbeing of the region should serve as a guiding principle, the actual contribution of the project has to be defined in such a way that it can be achieved with the project's resources and by management decisions of the project managers (supported by a certain quantum of good luck).

The evaluation of the Scottish Proof of Concept Programme was able to measure significant economic effects of the support provided to spin-offs and also pointed to the positive effects on the universities and other institutes, in terms of the creation of a more entrepreneurial culture. Other projects, e.g. the Scottish DIALOGUES or Snowpolis in Finland, claim to have had a positive influence on the working relations between the actors of the regional innovation system and on other policy measures: some consortia have reported a generally improved coordination and mutual understanding beneficial for their daily work beyond the project as such, and some partnerships newly established during the cases studied have meanwhile ventured for other joint activities.

2.4.2.7 Key implementation obstacles and problem-solving practices

The case studies frequently mention external obstacles related to the funding and the procedures of the respective funding authorities: delays in funding decisions, changes in the funding system, exorbitant reporting duties, and inflexible funding structures. These obstacles, though troublesome, have either been overcome without any lasting effect on the projects or they were simply put up with, as changes are anticipated, especially in the cases of new funding programmes (e.g. the centres of competence).

Delays in funding decisions seem to have been among the most serious threats for projects as it is not easy to keep a newly assembled consortium together in the 'no man's land' between the planning and the project's kick-off (see for instance the Estonian case or the Snowpolis project). The latter is quite typical for a project that does not respond to a competitive funding scheme with a (more or less) reliable schedule, but that has to work to put together different funding sources: the project came to a standstill when everyone waited for each others' funding decision, until the municipality made the first move.

The legal status of a project can be both, too strict or too loose: too strict in the case of the Slovenian Nanotechnology Centre of Excellence which is not entitled to admit additional partners although a number of companies have expressed an interest in participating, and too loose e.g. in the cases of NanoFab or the CRC projects; here the funding authorities had left open the legal status at the beginning of the projects in order not to discourage potential participants; now the future of the projects depends on the solution of these issues of ownership and responsibility; an obstacle merely postponed and not yet solved at the time of the case studies.

In the case of NanoFab, as mentioned above, there was a planning error in that the project was originally based on an incomplete analysis of the regional industry sectors. However, the project was designed flexibly enough to reorient its activities according to the needs expressed by the 'forgotten' companies and they were successfully integrated later.

Several projects reported problems due to unforeseen events or decisions outside of their sphere of influence. The Bioindustry Park Canavese lost some of its resident companies and with them also parts of its financing due to bankruptcy or management decisions in a company's international headquarters; this issue was overcome by cost-efficiency steps and by attracting new businesses. The Knowledge Exploitation Funds in Wales was affected by changes in governance as it was moved from one supervisory authority to another; it had to cope with changing understanding of its activities in the funding bodies, which led to re-orientation of some activities.

The Scottish DIALOGUES project found it difficult to recruit and retain qualified staff as they were offered only three-years contracts, and in fact a new team had to be found one year into the project. The reason for this obstacle could be incomplete planning of the activities beyond the duration of the ERDF funded project. A project with a clear perspective regarding its sustainability should be capable of

offering its staff an employment perspective exceeding the first three years.

2.4.3 Sustainability - making projects last

A project that begins on the first and ends on the last day of the ERDF funding period is very unlikely to have a lasting effect on the wellbeing of the region. Therefore, considering the issue of a project's sustainability is of key importance for regional development. All parties involved need to have a joint and clear understanding of the project's 'neighbourhood' – in terms of time, space, activities etc. Each project should be seen as the part of a larger picture and, such is the ambition of regional development, it adds a new quality to this picture. It can only do so if it fits. Generally speaking, no project should be started without a clear idea of how to proceed after the end of ERDF funding, even if these ideas might change in the course of the project. This may sound trivial, yet a 'wait and see' strategy towards sustainability is common, on the side of policy makers and authorities as well as on the side of the project teams.

Almost all the projects analysed claim to be sustainable in one way or the other, meaning they intend to continue their activities after the end of ERDF funding. However, surprisingly few present a clear and realistic strategy towards either self-financing or a continuation of some sort of public private partnership. The most explicit strategy towards financial autonomy has been chosen by the Italian authorities responsible for the Regional Competence Centres: after 18 months all centres had to present a business plan and their capacity to produce the defined outcomes was assessed by an international evaluation committee. In the case of Multitel, the governing authorities have step-by-step reduced the level of public funding granted to the centre, and in the long run Multitel will have to raise more than 50% of its funds from contracts and competitive R&D funding. Evidently, some continuing level of public co-financing

is taken for granted by all parties involved.

Most projects seem to be based on the assumption that they will be co-financed publicly after the end of the ongoing ERDF funding, at least implicitly. This is not necessarily a problem, but it can turn into a problem if it is not explicitly negotiated and agreed by all parties in the beginning. In fact, some activities may need more time to achieve financial independence than the average 2-4 years duration of the typical project, depending on the type of activity or the circumstances. For instance, in the case of the Bioindustry Park Canavese: it was initiated in 1994, co-funded by the ERDF between 2000–2006 and is expected to be self-financing in 2009. It is worth using an analogy with the business world to stress the importance of a vision beyond ERDF funding. If the projects were considered as start-up companies, the period of public funding would correspond to the start-up or seed phase, and obviously no seed-financing would be granted to a young entrepreneur without a realistic and clear business model and a business plan.

As already outlined above, human resources are a critical issue also with respect to sustainability. It is important that (large) publicly funded projects in science-business collaboration produce not only new products or technologies, but also train and educate young researchers from science and industry in collaborative research. Through learning-by-doing, these researchers will be experienced in collaboration and they are likely to consider co-operation and simply do it as a matter of course in their future career; thus contributing to a sustainable solution of the co-operation gap. An active human resources policy is a must also for other types of projects in order to attract, to retain and to further qualify key personnel. There is no standard recipe because the career paths in research are different from those in industry; whichever design is chosen: it has to offer a perspective for the key people involved.

2.4.4 Key success factors – learning for future projects

Most of the case studies dealt with projects, hence it comes as no surprise that the key success factors reported are true for almost any publicly funded project and not only for projects in support of science-business-collaboration. These are the most frequently mentioned success factors:

- Relevance to the regional context

The 'regional context' immediately relevant to projects is not adequately described by socioeconomic statistics or macroeconomic data only. 'Regional context' rather comprises the organisations and people involved (public authorities, scientific institutions, businesses etc.), their plans, activities and responsibilities, the type and quality of their relations, both within the region and beyond, the resources available, and other related activities, ongoing or planned, but also larger issues, e.g. infrastructure, the local lifestyle, natural resources, etc. A project can only be successful, that is, have a lasting effect beyond its duration and scope, if it fits well into this context. It is part of a larger endeavour to which it adds a special 'kick' which most likely would not happen without public funding.

- Political support and the key role of public authorities

The decisive role of public authorities was pointed out in many cases, in experienced regions as well as in catching-up regions, for instance, Snowpolis, CRC, LAV, and Nanotronics. In some cases, their forward looking attitude and perseverance, their management capacities and knowledge of the regional specialisation were reportedly crucial during the planning, whereas in other projects their vital contribution was seen in the framework they provided, and in swift decision making. This is especially important for the support of new science-business partnerships, which often can bear little external stress on top of their efforts to achieve a viable working relationship with each other.

Policy ownership and commitment are crucial but not easily ensured and sustained if they are scattered among several policy actors (e.g. authorities and funding agencies at several levels). However, this seems to be a common feature of nearly all the projects analysed, making the quality of collaboration on the side of public funding an important success factor.

- Professional management and well-balanced partnership

Management and partnership were listed among the success factors of almost all projects. It is helpful if at least some of the partners have worked together previously, and a well considered composition of the consortium is indispensable for the project's success.

In many cases project management reportedly benefited from a 'private' managerial approach, e.g. by involving representatives from companies in the board or by recruiting managers from the private sector, however, the ideal project manager of a science-business collaboration understands and speaks both the language of science and the language of business, and it crucial for the partners involved to develop a shared understanding and a 'common language'.

The question of transferability of projects is delicate and difficult, and the default answer should always be no as copy-paste of projects is rarely a good idea. The answer is different on the level of approaches and a lot can be learned from other regions on how projects or programmes have been designed and successfully implemented specifically for and in a certain regional context. Snowpolis is a good example of tailoring the scope and priorities of a project to the regional situation. The Scottish Proof of Concept programme is a good example of an approach to stimulating research commercialisation which has been successfully transferred and adapted to a number of other European countries and indeed further afield.

2.4.5 Implications for regional policy

The stimulation of science-business collaboration has become an almost ubiquitous policy issue on the international, national and the regional level. Although science-business collaboration can be beneficial for regional development, it is first and above all a question of improved management of research and innovation activities. Therefore, regional policy makers have to be aware that a profound knowledge and understanding of how R&D and innovation actually work is essential. Moreover, support mechanisms of all sizes and colours have already been designed and implemented especially by national and international players and it is often more effective and efficient for regional policy makers to join forces with these than to reinvent the wheel. After more than two decades on the political agenda, a consolidated knowledge is available about the characteristics of science-business collaboration and about the most adequate mechanisms to stimulate and support it¹³. A number of examples for the cooperation between policy makers on different levels can be found among the cases investigated as many of the projects have been co-funded by national programmes, e.g. the Slovenian and Estonian centres, CRC or LAV.

The main challenge (and also the main opportunity) for regional policy makers is to plan their activities tailored to the situation, the capabilities and the needs of the players in their region. Not every region is a high-tech location in the narrow sense of the word and yet experience shows that science-business-collaboration can be successfully established and fostered in

carefully selected fields matching the regional situation, as in the example of:

- Snowpolis, focusing on sports, nutrition and wellness with a link to a lifestyle determined by a cold climate and snow; or
- Sonic Studio complementing the specialisation of some regional players in music and performing arts with research capabilities of a large national research institute.

To be firmly rooted in the regional context is only one prerequisite for a successful project. Not to be confined within the regional borders can be similarly important, especially if a region is small, remote, or lacks scientific expertise needed for a project, as in the examples of the Italian Laboratory for Acoustics and Vibration and the Finnish Snowpolis project: they both involved scientific partners from other regions to complete the knowledge needed. The Scottish Proof of Concept programme is increasingly making use of a network of expatriates ('Global Scots') to provide advice and business connections for the spin-offs created by the programme.

Science-business collaboration should not be restricted by administrative definition of regions and thus by 'political' borders, and projects should be open to cooperation with partners in other regions, especially if the 'official' borders do not reflect the real economic structure or working relations. This may be the case if a rural area surrounding a large capital city is eligible for ERDF funding but not the capital itself, or if the best scientists to work with a certain group of regional businesses is located on the other side of a provincial or regional border. In such cases chances would be passed up by a too narrow understanding of 'region'. The more 'high-tech' and the more ambitious the scientific objectives of the projects are, the more international the people involved have to think and work and the less a project

¹³ See for instance the respective European Commission's initiative in the context of 'Investing in European Research' (http://ec.europa.eu/invest-in-research/policy/cooperation_en.htm) or the Responsible Partnering Initiative (<http://www.responsible-partnering.org>)

should be limited to regional effects only.

Based on the comparative analysis, these are the main recommendations to policy actors¹⁴:

- Know and understand and appreciate the relevant stakeholders in your region and their situation. Then start planning (together). As a policy maker, focus on the structural issues and use bottom-up approaches to identify thematic priorities - preferably leave the selection of the actual topics to the 'project makers', especially to your target groups, science and business. Bear in mind that some vital partners might be across the borders of your region;
- Consider the clarity of project's objectives as the key for the project management at all levels, for both the project managers and the funding managers. Objectives have to be few, clear, verifiable, and achievable through the project manager's decisions. If they are strong and well defined they will guide all project activities and simplify the governance. Make such objectives an issue of eligibility for funding by designing the funding guidelines and selection criteria for projects accordingly. Do not confuse the funding programme's objectives with the objectives of the projects funded. Simplify and don't succumb to the intoxication of over-the-top expectations as to the contributions of each (small) project to the wellbeing of your region.
- Plan and fund projects always with sustainability in your mind – embedding your project in a larger 'frame' both in terms of time and

activities. Consider funding a project as an investment in the future of your region. Such a perspective is also needed as science-business collaboration projects normally take longer time than projects performed by individual players, especially if the partnerships are new. Respect the 'inherently longer time' of science-business collaboration and consider this in the design of funding instruments and procedures.

- Make sure the issues of legal status are addressed appropriately, especially in those projects involving several partners from science and industry; this comprises the project's form of organisation and legal form as well as ownership, articles of partnership, management of intellectual property etc. The case studies show that various solutions can be successful – as long as these issues are actively managed from the beginning.
- Make sure human resources are considered adequately: in long-term research projects (e.g. the 'centres' types), the training of students and (young) researchers is very likely a key issue; in intermediation projects, the recruiting and retaining of highly qualified personnel can be difficult if no career perspectives beyond the limited duration of the project are offered. In any case an active human resources policy is one of the keys to sustainability, as the openness and the capability for science-business co-operation are a matter of attitude and training.
- Carefully design the decision-making procedures and documents to be as realistic, clear and simple as possible, keeping in mind your target groups 'world'. Establishing a consortium for long-term collaboration between science and business is not easy – swift funding decisions are required in order not to lose momentum.

¹⁴ This means policy makers, funding agencies, regional authorities etc. – we did not further differentiate as on the regional level these responsibilities are often found within one institution. Most of these recommendations are helpful not only for improving science-business links but also for other projects in regional development.

2.5 ICT as a driver of regional development

2.5.1 Introduction: policy framework

Information and communication technologies (ICT) contribute to regional development in numerous ways. On one hand, applying ICT applications simplify and enhance operations of small and medium sized enterprises (SMEs), local and regional administrations as well as contributing to the quality of life of society, including elderly and disadvantaged groups.

On the other hand, ICT as an object of research or business development can become a key factor promoting local and regional innovation potential and new business creation.

The most common areas of activity include:

- actions aimed at SMEs including improving access to the Internet and increasing capacity to use ICT technologies in their daily work;
- projects aimed at improving operations of public administration contributing to better delivery of public service;
- specific projects improving access to specialised services for people e.g. e-health;
- applying ICT applications to education (e-learning);
- use of ICT to stimulate business collaboration such as clusters;
- dedicated measures to improve regional ICT oriented research or business creation.

The cases analysed were:

- Competence Platform for Artists, Germany
- WellTeknia Innovation Management, Finland
- PASI, France
- White Book of Information Society, France
- Cybermassif, France
- E-Business Forum, Greece
- Aviation Valley, Poland
- Porto Digital, Portugal

- Fibre Optics Valley, Sweden
- Opportunity Wales, UK
- Actnow, UK

The information society embodies two key preconditions for the building of innovation capacity: the innovation infrastructure and the network of relationships. It is about providing technology, in particular in lowly populated or isolated peripheral areas. Moreover, it is also about content, creativity, learning processes, cultural exchanges and networking. It revolves first and foremost around information sharing and use and its transformation into economically relevant knowledge and technologies.

Investment in ICT, and the information networks it can create, is considered one of the most efficient ways of accelerating, catching up and overcoming the persistent barriers to innovation, such as those encountered by remote or rural areas. ICT offer a chance for regions lagging behind to leapfrog into a new stage of economic development.

For this reason, the information society has been a priority for the EU's cohesion policy for more than a decade. During the nineties, an increasing awareness developed about the opportunities and challenges brought by ICT. An opportunity for regions to catch up and improve their competitiveness but also a risk of exacerbating social and territorial exclusion, the so-called digital divide. European cohesion policy helped the regions to upgrade and complete their telecommunication networks but also recognised the contribution of ICT to innovation and concentrated the effort on the demand side and on providing an access to ICT for all.

In the 2000-2006 programming period around seven billion euros were directly invested in ICT infrastructures and services, aimed at significantly reducing the disparities within the levels of infrastructure provision.

During the 2007-2013 period, almost 5% of the EU cohesion policy resources, €14bn, will be invested in priorities directly linked to the information

society with a novel shift from infrastructure to services.

Some Member States like Slovakia, Denmark or Finland use nearly 10% of their financial allocation for investing in ICT. Importantly, Member States in their programmes for ICT, broadband and e-learning are moving more and more from infrastructure to services. This is likely to result in more projects in services and applications for citizens (e-health, e-government, e-learning and e-inclusion) than in pure broadband networks and information and communication technologies¹⁵.

The ICT project case studies in this series illustrate a variety of activity in respect of both infrastructure and networking. The Porto Digital (Portugal) project, for example, covers both: it is a municipal initiative combining the installation of 93 km of optical fibre and equipment for wireless transmission together with the development of a host of public networks in education, employment, culture, tourism and so forth, supported and enhanced by e-government service delivery. Other projects range from a structured exercise in Corsica (France) to identify ideas, actors and possibilities for the information society to a Swedish fibre optic cluster associated with the creation of hundreds of new jobs.

2.5.2 Practical lessons - from design to implementation

2.5.2.1 Relevance of political and strategic context

The regional strategies of which the projects are part are necessarily tailored to local conditions, needs and opportunities. Thus, in each case, the local political and strategic context is the main determinant of the nature and scope of the activity undertaken.

One lesson arising from the case studies is that ICT projects themselves do not need to be narrowly technological in design. In this group of case studies most of the projects are general, in the sense that they address needs and opportunities, which are broadly distributed in the regional economy. The remainder of the projects are specific either in the sense of limited geographical location, or of sector or product, where the opportunity has arisen to build upon, or further exploit, a distinctive location or strength. On this latter point, a clear benefit is commonly gained through the emphasis upon, and enhancement of, an activity with deep local roots.

One example of these more specific projects, and an illustration of this type of opportunity, is Aviation Valley in the Polish Podkarpackie region. Here the project sets out to use ICT in support of its objective to gain the region a world-class reputation as an aviation cluster, building upon 70 years of aviation industry history.

Amongst the general projects, there is a clear message that public regional funding can lead the private sector, both target SMEs and major providers, into areas where a type of market failure exists in both demand and supply of ICTs.

Cornwall in the UK, for example, is characterised by rural remoteness, a narrow economic base with a preponderance of low valued added sectors. SMEs in the region had demonstrated little interest in ICTs as business tools, and the population as a whole lagged behind in computer and internet use. In addition, government figures, in 2002, predicted that 45% of the population would be left without internet broadband infrastructure, whereas London, by comparison, already had 100% coverage. The strategic challenge here was to establish a public/private partnership, in which the private sector telecoms provider would upgrade the infrastructure, while a publicly-supported development body would raise awareness and stimulate demand amongst SMEs.

¹⁵ Data from a speech by Commissioner Hübner "Regions of the future: Innovation, Regional Development and Cohesion Policy", Bilbao, 15 June 2007.

Corsica shows similar characteristics, with an added fragmentation and overdependence on tourism and the service sector, and a relatively high proportion of employment stock in the public sector. While there had been earlier investment in ICT infrastructure, Corsica still lagged behind the French average in terms of business usage of the Internet. The challenge, therefore, was to focus on the diffusion of ICT in relation to existing IT infrastructure, and to identify the main barriers to, and opportunities for, progress. Similar conditions were driving other general initiatives such as PASI and Cybermassif (France), the e-business Forum (Attika, Greece), and Opportunity Wales (UK). Although project structures and activities vary considerably, they each share a concern to raise awareness and stimulate demand in the engagement of SMEs in e-business and e-commerce in order to benefit the regional economy.

2.5.2.2 Project design and planning

Amongst the key concerns of the design process in most of the case studies were a) a clear identification of the target beneficiaries/participants; and b) the engagement and the commitment of those to whom the project was directed. Several of the projects mentioned the risks of non-engagement and of low visibility, leading to potential lack of subsequent influence upon future policy and practice.

It appears that an effective way of addressing these concerns is the early engagement of the stakeholders in the project planning process itself; this principle underlies the initial actions of several of the case study projects. As an example, the Berlin Competence Platform for Artists (Germany), rather than carrying out a feasibility study or in-depth assessment, used a 'procedure of small steps' involving all funding bodies, development partners and users in an extended consultation process designed to minimise the risk of non-engagement.

In another case, the regional Mission for Information Technologies in Corsica made a detailed assessment of the main

barriers that might hinder the functioning of the Information Society White Book project. The main potential risk identified was the lack of involvement of the target actors. To address this a focused communications campaign was designed specifically to engage potential participants. In the Attika region of Greece, the whole purpose of the e-Business Forum project was to address this particular need to identify and engage stakeholders, SMEs especially, in an interactive process which would give them influence in policy-making.

For many such projects this engagement is itself a developmental and educational process of raising awareness and interest, demonstrating the relevance of ICT and stimulating motivation amongst SMEs and other economic actors to adopt practices of e-commerce, e-business and e-administration.

2.5.2.3 Management, monitoring and evaluation system

The management systems in the case study projects vary widely, reflecting their differences in provenance. It is not unusual to find the appointment to project management positions of professionals who have been involved in the development of the project proposals, who then build up a core management team. This is, perhaps, the speediest method of getting projects off the ground, in the hands of personnel who have already developed working relationships with partners, and who are familiar with, and to, other stakeholders. Examples of this approach include the Aviation Valley in Poland and the French Cybermassif project.

In other cases, in particular where there is a multiplicity of partners, a new company, usually a not-for-profit organisation, has been established to implement the project. The Porto Digital Association is a not-for-profit legal entity, which, while established by the four main project promoters, includes a total of 38 partners as stakeholders in its implementation

tasks, organised across 10 operational sub-projects.

An interesting variation, unique amongst this group of case studies, is the small business model of project implementation employed by the UK Actnow project. This model is described as a 'demand-led' approach, in which the project is built up incrementally as it gradually expands its market, in much the same way as a small business might operate. Part of the attraction of this model to the two key partners, Cornwall Enterprise and the telecoms giant British Telecom, was the credibility which, they believed, the approach would engender amongst the target SMEs in the region.

In terms of monitoring and evaluation, systems employed by project managers obviously need to be suited to the style and culture of operational and financial control of individual projects. There is no one-size-fits-all, though there are, of course, the basic standards of monitoring conventions required by public sector funders, including the EU. However, projects which are essentially pioneering and innovatory depend for their integrity and effectiveness upon regular and reliable feedback data, well beyond the relatively simple financial accounting needs.

For example, in the case of the Actnow project it was appropriate to have a monitoring system reflecting the small-business and market-led approach it espouses. In addition to its quarterly reports to the relevant government office, Actnow has also used focus groups and customer and market feedback mechanisms to help shape its service offers to SMEs. Added to this was an impact survey, covering 700 SMEs, carried out by independent consultants. Elsewhere, projects have developed systems similarly suited to their own circumstances.

2.5.2.4 Project governance: partnership and leadership

Patterns of governance across the case study projects reflect the more general picture in regional development of the public/private sector hybrid, sometimes involving civil society organisations.

A classic example of the hybrid company is Better Business Wales (BBW), a company comprising over 13 public/private/education/civil society organisations, which runs the Opportunity Wales project. Yet even here, with a multiplicity of partners, the actual core of the project is in the hands of a much smaller key partnership of one public body and one private sector body.

An extreme example of the public responsibility approach is the PASI project in Aquitaine, where, of 29 member organisations, only one, the Bordeaux Chamber of Commerce and Industry, represents the private sector. The exclusion from the strategic partnership of telecom operators and users, hardware and software suppliers and others is quite deliberate, as the design of the over-arching policy framework is perceived as the preserve of government. In a similar vein, the sense of public responsibility in the Corsican White Paper project grew over the course of the project, while the role of the private sector partners diminished. The suggestion here was that the commitment of the public partners was such that their profound belief in the societal benefit of the project would not allow them to let it fail. In a different way, a strengthened role for the public sector emerged in the course of the Finnish WellTeknia project in that public sector organisations became users of the piloted services.

Overall, the emerging picture is one of a private sector reluctant to provide the ICT investments required to equip regional economies with the innovation support infrastructure, leaving the public authorities to fill the leadership gap in the information society agenda. This is not to say that some public sector organisations do not see their role, in any case, to take a proactive lead in the technological and economic transition of the region as *pro bono publico*, and to attract and lever private sector investment as and when appropriate. Hence governance of projects, with a few exceptions, tends to be determined by public sector structures.

2.5.2.5 Effectiveness: overview of innovation results

The case studies report a variety of results, mostly intangible: there is only one example of a survey of change in productivity, turnover and profitability amongst the target SMEs.

There follows a selection of the innovation results project by project:

- Development of the first e-portfolio for artists: Competence Platform for Artists, Germany;
- Creation of new services and concepts to strengthen the innovation capacity of local enterprises: WellTeknia Innovation Management, Finland;
- Provision of a platform and learning tools for participants in policy debates: PASI, France;
- Provision of a common vision for coherent regional economic development in Corsica: White Book of Information Society, France;
- Continual implementation of new tools for ICT diffusion within SME population: Cybermassif, France;
- The establishment of an open, broad and continuous consultation mechanism involving a multiplicity of potential stakeholders: E-Business Forum, Greece;
- Creation of opportunities to influence regional policy from a company level: Aviation Valley, Poland;
- Provision of IT access and training to promote social inclusion: Porto Digital, Portugal;
- Creation of linkage and knowledge flows between different actors in the innovation system: Fibre Optics Valley, Sweden;
- Provision of a previously unavailable learning and networking tool for SMEs: Opportunity Wales, UK;
- Implementing the UK's first demand-led shared-risk public/private project model: Actnow, UK.

The major aspects of effectiveness which most of the case studies appear to have achieved are: first, the raising of awareness and engagement of the target populations, to the extent of generating demand to sustain a future market. Where there had been earlier misgivings about the identification and response of target users, this generally seems to have been overcome. Secondly comes the success of the regional authorities and other public sector bodies, working on the notion of the public good of the information society, in attracting and enabling private sector participation in previously uncharted markets.

2.5.2.6 Key implementation obstacles and problem-solving practices

The project case studies identified a variety of implementation obstacles, of which the following is a distilled indicative list:

- ERDF aid intensity is lower for revenue generating projects ;
- Doubts about narrow sectoral focus;
- Lack of attention by, and engagement of, SMEs;
- Funding delays/late payments;
- Resistance by multiple partners to central co-ordination;
- Mutual suspicion by partners;
- Lack of suitable off-the-shelf software.

Apart from technical difficulties and apparent inflexibilities with accounting requirements, the recurrent major obstacles which projects overcame were twofold: first, the generation of interest amongst, and engagement of, the SME target sector. Projects saw the need to educate SME principals in the opportunities and benefits to be gained from converting to e-commerce and e-business practices.

Second, projects addressed the need to engender trust amongst partners, to enable collaborative working. In the event, for most projects, the public sector bore the major burden of cost and effort, though some important gains were made in pioneering

relationships between regional development authorities and major private telecoms suppliers.

2.5.3 Sustainability - making projects last

Such a wide range of project types inevitably involves an equally wide range of approaches to sustainability, in the sense of continuation of operations following the end of ERDF and/or other public funding. Nonetheless, with a few exceptions, the case study projects maintain a prospect of continued public funding, given that the market appears not to have the appetite either for the high-risk/long-term returns of investment in infrastructure, or for funding the *pro bono publico* aspects of ICT networking activities.

The main lesson here appears to be that, in the realm of such relatively pioneering activities, project promoters and funders recognise that the continuation of projects in their initial form may be neither feasible nor desirable. In the UK, the Opportunity Wales SME e-commerce support project sees little chance of self-sufficiency for its current operations. This appears to be due partially to the perceived resistance of SMEs to pay for such services, which itself may be attributable to a culture of grant-dependency in the small firms sector. The Cornish Actnow project, has already qualified for convergence funding 2007-2013 to install a significant digital infrastructure upgrade in the county and to work on the exploitation of the associated economic benefits. This project has a substantial private sector input, but the bulk of the funding remains public.

The French Cybermassif project, involving six regions and 22 counties (*départements*), relies almost totally upon central, regional and local public funds, and sees its sustainability deriving from the same sources. No charges are made to beneficiary SMEs, and there are no plans to introduce any. In the case of PASI, in Aquitaine, the intention is to maintain public funding and to develop the project into a governance tool, facilitating long-term strategic planning for the knowledge

economy of the region. However, current plans involve a stronger private sector involvement as the platform moves to co-ordinate investments through the 2007-13 ERDF operational programme in the region.

Of the exceptions to the continued employment of structural funds for the continuation of operations, the Finnish WellLabs project is advanced in the setting up of a permanent organisation to take on the provision of services pioneered during the life of the project. This will take the form of an independent development company with several equity-holding local and national stakeholders, with daily activities financed through earnings from chargeable services. In Sweden, Fibre Optic Valley is mutating from a small not-for-profit organisation 'driven by willpower', to a larger profit-based corporation, in order to put its operations on a commercial basis. Notwithstanding this, the project still maintains a place in the regional strategy, and makes a case for continued public sector support.

Another exception is the Competence Platform for Artists project in Berlin, where the ERDF-funded activity was completed at the end of 2006. Since then the Competence Platform has been incorporated into the operations of the University of the Arts itself, with the establishment of a permanent post and the financing of the operational costs. This integration and funding by the university has taken place at a time of economic and staffing constraints, indicating the exceptional value accorded to the original project.

2.5.4 Key success factors – learning for future projects

The case studies report a variety of success factors, which fall broadly under the following headings (with some inevitable overlap).

Financing

- Availability of funding mix (mixed public, public/private)
- Critical mass to achieve adequate funding

- Flexible, well operating funding mechanisms
- Longer-term availability of public investment
- Businesslike approach to funding and marketing

Where there is a public policy commitment to move to a knowledge-based economy, yet there is market failure in providing investment for infrastructure and diffusion, the main initial financial burden will inevitably fall on the public purse. However, the development of the new economy must engage the social partners and, crucially the ICT providers in sharing some risk.

Planning

- Part of wider strategy
- Step by step approach and adaptive learning
- Capacity to plan clear goals
- Inclusive approach, recognising local talent/potential
- User involvement

Obviously, the information society embraces all economic and social domains: ICT projects in regional development are not sectoral, but have to be seen in the context of the whole range of regional and sub-regional strategies. Additionally, several of the case study projects demonstrated benefits occurring beyond the original targets.

Partnerships

- Multi-level public authority support
- Commonality of vision
- Collective effort
- Interdisciplinary cooperation
- Political champions
- Partnerships based on trust

Where, as in these cases, the public sector leadership is essential, there is likely to be a number of differently-tasked public bodies involved. There is a need for them to adopt flexible methods of joint decision-making to facilitate implementation and management of projects. In respect of the private sector there is an added need to overcome the mutual suspicion which is often the initial reaction.

Management and operations

- Strong host organisation
- Dynamic and motivated project management
- Staff with sector expertise
- Operational flexibility

In this type of project management can be successfully supplied by one of the partners, often engaging personnel who have been instrumental in the development of the project proposal. What appears to be crucial is the commitment and energy of the staff and their credibility with both management boards and the target users.

Delivery

- Proximity to beneficiaries (SMEs)
- Local approach/local delivery
- Innovative services
- User involvement
- Demand-led method of delivery

The majority of the case studies indicated that a top-down method of delivery is not appropriate in this type of project, even where the provision is effectively supply-led. The segmenting of target groups by means of surveys, studies and partner selection is just the first step in what has to be an extended process of consultation supported by effective feedback systems. In terms of achieving wide inclusion in the information society and the knowledge economy, there has to be a sustained programme of awareness raising, engagement and conversion of target populations.

2.5.5 Implications for regional policy

- Engagement and education of SMEs

SMEs may not be aware of the fundamental nature of the change to e-business and e-commerce which will be required for survival and growth across most sectors in the future knowledge economy. Regional development strategies need to include a clear identification of those sectors and companies which have growth potential in the future regional economy, together with practical programmes of awareness-raising to generate interest

and stimulate demand amongst existing SMEs and potential entrepreneurs for ICT-related infrastructure and services. Project planning and development could offer top-down strategic leadership and resources in tandem with a bottom-up approach inclusive of all stakeholders.

Public sector lead in bringing about private-public partnerships

Private sector organisations may not be keen to collaborate in investment, in, say, remote and dispersed communities, where any returns might be uncertain, long-term or non-existent. The evidence here, however, is that they might be willing to enter into partnerships where their liabilities are limited, and where majority public investment might enable the private companies to develop the market – along commercial lines and without subsidy - in the longer term. This leadership role for the public sector is seen in many projects as being both legitimate and effective.

Styles of governance and management

The ownership and format of any project delivery vehicle depends upon both the nature of the main development actor and, crucially, the nature of the target groups. There are examples here ranging from an implementation body belonging to and operating exclusively with governmental bodies to another seeking to operate like and to be identified with the SMEs it aims to support.

Sustainability of projects

To a large extent, project work in ICT is inevitably experimental. There is no existing model for such a rapid (and global) change of technology affecting every aspect of industrial, commercial, political and social behaviour. The risks of failure to participate in this technological revolution are clear, in terms of the economic and social decline which would lead to a reduction in European competitiveness in global markets.

Participation means taking risks in trying new things out, and learning from mistakes as well as successes. The evidence here is that ICT projects a) can

lead to a substantial technological progress in a relatively short time; and b) can provide a new partnership space, matching public and private investment to facilitate the transition to the knowledge economy and to redefine the market of the information society.

2.6 Innovation finance

2.6.1 Introduction: policy framework

Innovation finance concerns public-private partnerships support the creation of new companies (start-ups and spin-offs); as well young fast growing firms (so-called gazelles), which face problems to secure funds to develop. The source of difficulties in accessing funds varies depending on the maturity of the firm, the level of risk as well as on specific sectors or technology areas of the new venture.

The most common forms of intervention include:

- Establishing financial engineering initiatives (early stage funding, repayable loans, guarantee schemes, etc.) offering support for general innovation activities of companies;
- Creating innovation funds focused on a particular product or business development phase such as e.g. proof of concept, prototyping and early development stage, commercialisation etc.;
- Support for financing of specific types of innovative projects, e.g. science-industry collaborative projects.

The following case studies have been considered in this comparative analysis:

- The North West Business Investment Scheme (UK);
- The Nstar Co-investment and Proof of Concept Funds (North East, UK);
- The Latvian Venture Capital Fund;
- Scottish Proof of Concept Programme.
- The Welsh Knowledge Exploitation Fund (KEF);
- Thermi incubator (Thessaloniki, Greece); and
- BioGenomica (Attica, Greece).

Since the 1990s, policy makers in the industrialised world have implemented various measures to facilitate the provision of capital to small firms, notably fast-growing new technology based start-ups and academic spin-offs.

The rationale is that by giving the right financial backing, companies are able to realise their innovation potential and thereby become more competitive. Evidence suggests that the most satisfactory way of dealing with the gap of access to finance is to move away from grant subsidies for businesses, which may prompt dependency on such measures. There has been a shift in emphasis towards financial engineering instruments run on a more commercial basis. One of the biggest advantages of the latter approach is the requirement of match funding from private sources stimulates the development of private investors and business angels, not always common in all regions.

Another area, where a clear gap remains is at the early stage of the product development life-cycle for technologically novel and hence riskier innovations. Here grant based funding remains often essential since even 'business angels' are reluctant to invest before the product has passed the "proof of concept" stage. However, again, rather than depending uniquely on subsidies, a mix of instruments can be brought to bear.

The case studies analysed for the purpose of this comparative analysis can be grouped as follows:

- Co-investment funds

One of the forms of support used to facilitate access to risk capital come from so-called co-investment funds. These investment funds differ from earlier forms of regional venture capital initiatives; the distinctive feature of co-investment funds is that private investors invest in individual companies in partnership with public funds, rather than in the fund itself. This approach facilitates approval of such investment funds by the competition authorities in Brussels under the framework of the State Aid rules governing 'risk capital' investments¹⁶.

¹⁶ Community guidelines on state aid to promote risk capital investments in small and medium-

This type of fund is illustrated by the examples of the North West Business Investment Scheme, the Nstar Co-Investment Fund and the Latvian Venture Capital Fund. The key difference between the North West Business Investment Scheme and the Nstar Co-Investment Fund is that the latter is run under a double bottom line approach. In practice, Nstar is able not only to operate a commercially run fund, but also make investments relevant and beneficial to the region as a whole. In the other two funds decisions are taken on purely profit-driven basis.

Besides these co-investment funds, there are also smaller funds developed in the scope of specific incubation type projects. For example, the Thermi Business Incubator in Greece created a small investment fund to make it possible to invest in companies located in the incubator that are likely to produce high investment returns.

- Supporting commercialisation of leading-edge technologies

The main objective of this type of initiative is to address an identified gap or market failure in the ability of funding support for developing universities and other institutions' research into potentially commercial products or services. The term proof of concept refers to the second stage of process for commercialising research. After an idea for commercialisation has been identified, an assessment of its feasibility is required. Such projects can be typically defined as occurring after advances made during curiosity driven or strategic research and usually after a background patent has been filed, but before the following: a fully lab-scale demonstration of the technology; any pre-production development/prototyping; and commercial funds for the development. Therefore, the aim of such initiatives is to finance projects with a strong commercialisation potential and not to provide funding for additional research.

sized enterprises, August 2006; see [http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52006XC0818\(01\):EN:HTML](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52006XC0818(01):EN:HTML)

The Scottish Proof of Concept Programme is an example, as is the Welsh Knowledge Exploitation Fund to the extent that one of its mechanisms, provides financial and advisory support during three key stages i.e. early stage development, proof of concept and intellectual property (IP) management. Another example is the North East Proof of Concept Fund, which aims to pull promising technologies through the initial process to a point where they can become viable and attractive to investors and move on to access capital from other schemes.

- Funding for collaborative industrial research projects

Helping to build the research capacity within research institutions and the companies with which they collaborate is the primary objective of collaborative industrial research projects. Such measures are typically aimed at developing new solutions for the needs of a particular sector, although sometimes may well have applications in other industries. The fundamental difference compared with the proof of concept stage is that collaborative industrial research projects focus primarily on the research phase. This type of funding is illustrated by the collaborative industrial research partnerships of the Welsh Knowledge Exploitation Fund.

2.6.2 Practical lessons - from design to implementation

2.6.2.1 Relevance of political and strategic context

The case studies reviewed suggest that the establishment of all the projects was driven by the efforts of national and regional stakeholders to address an identified funding (or equity) gap. It is obvious that the introduction of financial engineering measures in support of innovative enterprises has been given added impetus by the policy agenda at European level, notably the Lisbon Strategy. The increased public sector focus on higher investment in innovation seems to have encouraged the private sector to take more initiatives.

The three co-investment funds analysed in the case studies, all found their origins in a shared analysis by key stakeholders that the equity gap had to be closed. Existing investment funds, when active, were generally willing to invest only amounts in excess of €1-2m; whilst in all three cases, the perceived need for investment was essentially in the range up to €750,000. This level is indeed often the hardest to raise, particularly if the entrepreneurs seeking investment are proposing a novel or technologically riskier product.

Hence, the public intervention was necessary due to the almost complete absence of private investors willing to take risks in regions with significant industrial restructuring problems (the two English regions) and in a smaller new Member State with one of the lowest rates of innovative firms in the EU (Latvia). In all three cases, the decision of the 'State' to invest public funds was seen not only as a way of helping to solve a short term equity gap but also as a way of attracting financial sector expertise to the region. A by-product of the projects was raising interest in investing on a long-term basis by both regional/national as well as external investors. The cases suggest that to ensure high value added such funds need to be part of the foundations of an overall regional economic strategy, rather than being considered as individual measures aimed at addressing an isolated weakness of the innovation system. For example, in the case of the Nstar Co-Investment Fund this meant that they acted to develop the foundations of a private venture capital environment with a view to creating a virtuous circle sustaining regional development.

The rationale for funding of research commercialisation type programmes can be illustrated by two major barriers identified in the Scottish case: firstly, the pre-seed funding gap which was considered to be restricting the flow of technology from laboratories to the market place; secondly, poor incentives for academics to become involved in commercialisation activities. Indeed, the Scottish programme does much more than just fund the further R&D work required to prove the technically

viability of a product. It also addresses issues related to the incentive system in universities encouraging academics to become entrepreneurs, the capacities to manage, protect and exploit intellectual property portfolios, links of spin-offs to appropriate business network helping them to grow, etc. Moreover, the Scottish Proof of Concept and the Welsh KEF programmes are not isolated one-off initiatives. The Scottish programme managers stress that it is part of a pipeline of support measures (including a Scottish co-investment fund), meaning that a spinout can look and expect to receive additional support as they take their development forward.

2.6.2.2 Project design and planning

The programme design stage requires rigorous analysis of the various bottlenecks and barriers impinging on the operation of a well-functioning financial system in a region or country. A common mistake tends to be to focus too narrowly on addressing specific market failures related to the financial environment rather than taking into account the broader regional economic context. In turn, this poses a risk to the general impact of such funds, which are likely to create only a limited number of successful innovative business ventures.

The origin of the ideas for launching the various cases examined here varies considerably. In the case of the two research commercialisation initiatives, the idea for setting up schemes came from wide ranging national strategy documents looking at how to move towards a knowledge economy: the Knowledge Exploitation Fund arose from the Welsh National Economic Development Strategy of 1998; while the Scottish Proof of Concept Funds was a result of a ministerial decision taken in 1999 to establish a Knowledge Economy Task Force.

Convinced by the assumptions that much more private sector investment would be generated if they were investing directly in businesses on a case-by-case basis the initiators of the three co-investment funds have managed to challenge the standard model on which the venture capital

funds were based. In that model, private funding had to match the public funding on a *pari-passu* (equal) basis requiring the investment into a fund rather than investing into companies.

The idea for launching the Nstar Co-Investment came from analysis carried out by the regional development agency in support of the implementation of the regional economic strategy. This involved modelling potential demand for funds and was verified by independent experts as well as extensive consultation with key stakeholders. Some inspiration was also drawn from the existing Scottish Co-investment Fund, even if interestingly, the conclusion drawn was not to follow exactly the same approach.

In the case of the North West Business Investment Scheme the project idea was born out of the experience of a single project manager previously involved in managing a project providing business angel finance. An action plan on specialist business support had previously contributed to clarifying the most favourable options, with a more traditional fund option ruled out due to reluctance of private investors to get involved within the required time frame.

In the case of Latvia, the idea for a venture capital fund emerged as a result of participation in the EU funded ESTER Project (Early stage investment triggering in eastern regions) designed to transfer successful schemes for the support of high-tech start-ups developed in Israel. The actual programme design was carried out subsequently by an expert group drawn from the main Latvian public agencies involved in financing enterprises.

A degree of internal flexibility plays an important role during the project design and planning stage. The case studies adopted different approaches in that respect. In particular, the Knowledge Exploitation Fund reflects very well a degree of internal flexibility, which was built into programme from the start of its operations. The ERDF funding was used for the core activities, while the regional funding was freed up

to carry out pilots and evaluations enabling the programme to grow and evolve over time. The Thermi Business Incubator offers good insight into how smaller more privately driven structures can often provide advantages in terms of flexibility adaptation to needs: although the creation of the investment fund was not obligatory, the project partners considered it as important tool for securing the sustainability of the business incubator.

While the preparation of independent expert opinions is crucial from the very beginning, it is also worthwhile remembering that unforeseen problems may occur causing lengthy delays and frustration within the potential beneficiaries. The experience of the Nstar co-investment and proof of concept funds shows that even though the initial research went a long way to reduce the risk associated with the success of the project, it was not foreseen that the recruitment of a fund management team would be so problematic. The tender process for the fund management company ultimately failed due to the unwillingness of fund managers to relocate part of their operations to North East England.

2.6.2.3 Management, monitoring and evaluation system

Different management models have been adopted in each of the three co-investment funds. The distinctive feature of the Nstar is that it is an independent not-for-profit organisation with its own board of non-executive directors tasked to oversee the fund to support the development of innovative companies in the North East Region. In comparison, the structure is less complex in the North West Business Investment Scheme, where the North West Development Agency is the accountable body of the fund. Two out of three of the co-investment funds reviewed appointed a private firm as the fund manager. Due to the failure of the initial tender process for fund managers, Nstar created their own in-house management team.

In the case of Latvia, it was decided to launch a competitive call for fund

managers with three funds being selected to run in unison, as a way of validating which of them would be the most effective. The board of the Latvian Guarantee Agency, consisting of three people (including a representative from the Ministry of Economics), functions as the programme supervisory body, as well as the evaluation commission for appraising and selecting fund management companies. The board meets at least once every two months and discusses developments of the programme rather than analysing individual venture capital investments.

None of the co-investment funds have yet been subject to a formal evaluation of their wider impact on the economy. Rather, monitoring and evaluation of investments is carried out by the agencies ultimately responsible, in liaison with the fund managers who monitor the investments made into the individual companies on an on-going basis. In the case of the North West Business Investment Scheme, the investments are monitored on a periodic basis as part of the contractual arrangements between the regional development agency and the fund managers. A number of indicators are monitored including portfolio value and sales of growth of companies invested in. A similar approach is adopted in Latvia where a set of more specific financial indicators related to the individual funds are complemented by a number of 'macro-economic' indicators to measure wider impact. In most cases, a representative of the fund manager is placed on the board of beneficiary company to monitor business progress and provide necessary advice; without necessarily having voting rights.

The research commercialisation programmes tend to be run by economic development agencies with the advantage of an established framework of administration, management and evaluation. The Scottish Proof of Concept programme is a good practice model in terms of the way in which programme beneficiaries have been 'coached' and assisted to meet procedural requirements and in the way that programme requirements

and application procedures have evolved from round to round based on experience learned. Each project is supervised by a dedicated project management group formed by an 'outcome manager' (an experienced business person coaching the academic entrepreneurs) and in-house Scottish Enterprise experts (usually with prior business experience from a specific sector), who provided projects with complementary support (e.g. advising on specialised business events to attend, creating links to suppliers or customers).

The experience of the Welsh Knowledge Exploitation Fund underlines that the continual shift of 'programme ownership' (from a development agency to the government administration) had a negative impact on operations. In particular, the different 'cultural' or administrative approaches of the public 'sponsor' were difficult to handle for the programme managers and beneficiaries.

Monitoring and evaluation procedures for these more traditional programmes are rigorous and were used as tools to inform programme managers on areas where improvements can be made on a periodic basis. In the Scottish case, the monitoring reports submitted to the programme managers by the outcome managers were beneficial since they provided a counterweight to possibly over optimistic reports of project managers. The programme was the subject of an external evaluation in May 2006, which covered the first six rounds of applications (from 1999 to 2005), and which enable the programme activities to be adjusted in time for the additional ERDF funding to be focused on improving performance through introducing new tools.

Equally in the case of the Welsh KEF, projects are monitored on an on-going basis through a sophisticated Internet project management (IPM) system. At the end of each project, funding recipients are required to produce and submit closure reports. These reports are then filed and eventually form part of an evaluation process carried out by external consultants. Both internal and external evaluations are carried out

within the KEF programme, to ensure that issues are highlighted and successes recognised. The programme has developed a number of performance indicators based on solid outcomes such as: jobs created, jobs safeguarded, products created, patents filed and technology valuation.

2.6.2.4 Project governance: partnership and leadership

Strong partnerships are essential elements in the establishment and operation of innovation financing interventions. The aim of the co-investment funds is not only the provision of early stage capital to SMEs, but also to create a network and culture of venture capital within the region. This need for partnership is also evident in the case of funding for collaborative industrial research and commercialisation projects, since a success largely depends on effective industry-science linkages.

Political support and involvement of a wider group of stakeholders is usually pointed to as one of the key success factors. This aspect has been flagged as being of crucial importance in Latvia where the programme development took a considerable amount of time and where a broad based political consensus was required to keep it on course.

Due to the nature of co-investments funds, the leadership of fund management company is equally important. The North West Business Investment Scheme is an example of this, showing that the fund manager is sometimes the lead investor, while on other occasions fills a gap when other investors have committed a share of the required funding.

A positive 'spill-over effect' of the Latvian programme has been the establishment of the Latvian Venture Capital Association. The association has taken on the role of informing entrepreneurs and the public about the opportunities of venture capital funding, and of organising and ensuring co-operation with international and foreign national venture capital associations

2.6.2.5 Effectiveness: overview of innovation results

As noted above, it is still too early in the case of the three co-investment funds to draw definitive conclusions concerning their impact on regional development. All three funds have to their credit a good number of investments after only a few years of operations. Some promising examples of innovative fast growing firms are highlighted by the fund managers and programme authorities. However, in all three cases, the short-term impacts seems to be as much in the indirect support for innovation that the funds have provided. The creation of a private venture capital environment in the two English regions and Latvia is highlighted as a major contribution of the ERDF co-funded intervention. The initial funding has boosted the credibility of the region or country as a location for investment and "got people talking" about investing in riskier or innovative firms.

Indeed, while private investors are interested in the return on individual investments, the public sector aims to foster an investment climate beneficial to the region as a whole. This is best illustrated by the Nstar Co-Investment Fund, which adopted a double bottom line investment strategy, that is to say, achieving a sound financial return on the investment is not the only aim; it tries to ensure that the economic development of the region is taken into account when selecting investment opportunities.

Similarly, in the case of the research commercialisation programmes, the wider impact on the "regional innovation system" is considerable. The Scottish Proof of Concept Programme brand and the quality of projects led other public and private funders to consider support earlier than they might otherwise have, while the Welsh Knowledge Exploitation Fund has led to a cultural change by academics in institutions towards knowledge transfer and commercialisation. In addition, in the Scottish case, the evaluation of the programme was able to estimate the broader economic impacts which are

considerable: the programme had created by end-2007 over 500 new jobs through 38 spin out/start up companies and 35 licencing deals and had leveraged £207m (€304m) of public and private investment which not otherwise have happened in Scotland.

2.6.2.6 Key implementation obstacles and problem-solving practices

All of the co-investment funds had to face up to specific delays and difficulties, partly related to legal requirements, partly due to issues related to sourcing expertise. The reasons behind the delay in setting up the different funds tend to differ due to the specific context in each region. In the Nstar case, it was mainly due to the requirement in the tender process for the fund management company to establish operations in the region, which led to low interest from London based companies; in contrast the Latvian programme competition for fund managers was over-subscribed and the level of demand to set up funds made it difficult to choose only three.

The delays in the establishment of the Latvian funds for up to two years was mainly caused by the lack of public sector experience in this new field notably in how to interpret State Aid rules. Failure to invite venture capital professionals into the early design phase is also recognised as a something to be avoided with hindsight in Latvia. Similarly, the North West Business Investment Scheme ran especially into problems associated with meeting the criteria of the EU's Risk Capital Framework if it adopted the initially planned model of private investment into a fund.

The problem solving practices are quite specific and can be summarised as follows. Faced by the problems in selecting the fund management company due to reluctance of managers to run their operations in the North East, the Nstar established its own private equity firm. The North West Business Investment Scheme finally did not have to gain formal State Aid clearance, because the scheme chose to invest under the limit where the EU

considers there is a market failure and on a co-investment basis. An additional obstacle in Latvia has been an over-optimistic forecast of the number of investments that would be made; which have been revised downwards from 55 to only 30-40 investments. In this respect, the Latvian authorities recognise the need to place greater emphasis on educating enterprises about the advantages of venture financing.

The research commercialisation funding programmes have encountered fewer problems during the implementation stage. As is noted in the case of Scottish Proof of Concept Programme, one of the elements that enabled the programme to avoid major problems has been a flexible and hands-on management approach. Commissioning external independent evaluation studies also help in assessing what worked well and what might be improved. Both the Welsh and Scottish programmes have also worked proactively to overcome scepticism in the research community regarding the commercialisation of research results, a problem which the Greek BioGenomica project team faced.

2.6.3 Sustainability - making projects last

At the time of analysis, none of the projects had become financially self-sustainable, indeed, the experience of North West Business Investment Scheme shows that it will be not possible to meet the level of demand without a new injection of funds. The Nstar case study points out that there will be an interim period between 2008 and 2010 when the fund will struggle due to lack of funds. It also makes a comment about loosing credibility and trust for the fund if there is no continuation of public investment.

Besides the financial sustainability, sustainability can be seen in a broader context of enduing effects on the region. Such systemic changes are at least as important as financial sustainability. For instance, the experience of Nstar suggests that the networks of venture capital/leverage established will have

long lasting effects across the region. Also, the Scottish Proof of Concept highlights that a successful spin-out project can stimulate further interest in research commercialisation in the host academic institutions, creating a climate of academic entrepreneurship.

One of the main conclusions of the analysis is that financial sustainability has not been (except for single projects, such as Thermi and BioGenomica) a primary concern in the planning phase. This is not an insurmountable problem, however, such initiatives should not be launched without a clear 'exit-strategy' on how to proceed after the public funding ends.

2.6.4 Key success factors – learning for future projects

Five steps can be taken to increase the likelihood of success in the venture capital fund type of interventions:

- Consider a co-investment model. The experience of the funds examined suggest this is more in line with current EU State Aid rules, and may allow for an easier involvement of private investors in specific investment opportunities.
- Insist on competition in selecting the fund management companies. The fund management team needs prior experience in running early stage funds and promoting it to potential applicants and co-investors. A guiding principle is that the fund management company should be selected on merit and its willingness to place a presence in the region where the fund is being established.
- Facilitate the early involvement of venture capital professionals in the design phase in order to understand their concerns and establish a common long-term vision.
- Exploit existing knowledge from other region and countries. Lessons learnt need to be tailored to fit the specific context (entrepreneurial culture, legislative framework, etc.).

- Accept that the return on investment takes time to be realised. In all three cases of funds, significant returns had not been generated and the need for a second round of public funding may arise.

In the area of research commercialisation funding, the cases suggest the need to

- Adopt a flexible approach to programme implementation over time. The management teams need to monitor progress and draw measures throughout the programme, and pro-actively intervene to tackle issues that arise. Spin-outs can run into institutional blockages (e.g. release of academic staff to work on commercial application) or face difficulties accessing markets, etc.
- Insist on strong business focus with an in-depth understanding of the incentives for academics to become involved in commercialisation. Given the fact that the researchers are not always the best people to take the spin-out company forward, programme managers need to play an active role in bringing on board relevant CEOs or non-executive directors able to give the spin-outs credibility with respect to investors.
- Actively manage close relationships with stakeholders and beneficiaries. The programme management teams of the cases studied engaged with a wide range of stakeholders, actively promoting the programmes and projects supported. This is important in ensuring that all the projects receive support and encouragement beyond the direct financial aid.

2.6.5 Implications for regional policy

There is by now a significant accumulated experience in Europe in strengthening industry-science linkages, commercialisation of scientific results and supporting early stage venture financing. However, the case studies suggest that the co-investment funds often take longer than expected to get off the ground. Tendering (for

fund managers), legal (State aid) and regulatory issues slowed down implementation in the cases examined. Policy makers need to make all possible efforts at the design stage of such programmes in order to avoid the obstacles, which will subsequently trigger important delays and send a negative message to the private sector.

Nevertheless, the advantages of implementing such instruments outweigh such problems. Aside from providing early stage capital to help companies launch their activities, grow and innovate, the help to develop networks of financiers will have long lasting effects across the region.

Research commercialisation funding programmes create conditions for collaborative research projects, support spin-outs, provide support for IP protection, and enable companies to access leading-edge technology and specialist advice. The challenge of this type of intervention is primarily to trigger cultural change towards knowledge transfer and commercialisation in knowledge institutions and businesses.

The main policy orientations arising from the case studies analysis are to:

- Run innovation funds as a commercial concern. This is important to ensure the financial sustainability of interventions in the future. It is also important to ensure that the management teams are locally based.
- Consider opting for a double bottom line approach. The challenge is not only to be able to operate a commercially run fund, but also make investments which will be relevant and beneficial to the region as a whole.
- Build synergies. Fundamental structural problems are unlikely to be solved by simple policy initiatives. Therefore, it is important to establish the combination of policy instruments, which will interact to influence in a positive way the quantity and quality of innovation investments. For instance, the mismatch

between the research capability of the top academic institutes and the absorptive capacity of smaller firms is unlikely to be solved by a single policy initiatives. In this context, the challenge is to design a pipeline of actions supporting research commercialisation.

- Design flexible programmes. One of the most important decisions, which needs to be taken at the planning stage, is whether all sectors will be eligible for funding or specific attention will be paid to certain priority sectors. The practice in several of the projects was to be open to fund projects from all sectors and at the same time focus on certain priorities during implementation. This approach is especially appropriate for regions beginning to launch such interventions, while at the later stage a sectoral focus may be more valid.

2.7 Project planning and design

2.7.1 Introduction: policy framework

The objective of this analysis is to capture the most interesting planning and design methods in the 60 case studies and to highlight some good practice lessons for regions considering embarking on similar projects. Effective project design and planning delivers a range of benefits:

- Clarity of purpose: the objectives of the project are clearly understood and mapped against the larger strategic picture of where the lead organisations are going;
- Credible plans: the implementation of strategic projects is tested by looking at the capacity of the project and the teams involved to deliver the results and outcomes that are required;
- Commitment: buy-in is achieved from all areas of the organisation and all other organisations involved through effective communication processes;
- Control: projects that are planned and delivered in phases allowing for important review points.

Experience shows that projects, which have these characteristics, reach their objectives more successfully and are better at delivering long terms sustainable benefits to project target groups. There are many ways of achieving these four key characteristics of successful projects as the projects

Decisions about precisely how projects are designed and planned are invariably left to the partners making the proposal and running the project if it is funded.

Project design and planning in ERDF innovative projects is not subject to a particular policy framework either at EU programme level or at regional level. Projects must be well enough presented to get through the evaluation process and well enough planned to follow programme guidelines. In this sense, all the projects in the group of 40 under review are well planned and designed because they were selected for funding and have in many cases

managed to attract additional financial support from project partners.

The more important and difficult question is: are these projects well designed enough to have established clear and significant objectives and well planned enough to reach them? At first glance this might seem to be a question for project planners. However, it is also a matter for programme managers and policy makers.

Programme managers need to be aware and act upon the reality that project teams are primarily in search of funding for an activity of their organisation or partnership. Hence, the project presented will follow the procedures of the programme or funding rules to the extent required to secure support, not systematically tools for monitoring and evaluation or risk analysis. Higher standards of design and planning will only come with clearer rules set at programme level, which specify the design and planning criteria of the projects to be funded.

2.7.2 Practical lessons from design and planning

2.7.2.1 Political and strategic context

One common question when looking at ERDF innovative projects is: 'how was the political and strategic context of the region taken into account when designing and planning the project?'

The answer is quite complex as clearly there is no 'one size fits all' design solution and projects can be appropriately fitted to regional context in a wide number of ways and to very different extents.

Whether or not detailed background work was done to fit the project to its context depends on a range of factors. If a project is experimental or where no agreement exists about objectives then extensive background research, consensus building and team development was found to be very helpful in initiating projects successfully.

If the project is 'vision-driven' (e.g. Netport.Karlshamm), started by a small

core team or an individual and aimed at focused objectives then knowledge of the regional context brought into the project through the tacit knowledge and networks and connections of the project 'champion' or pioneer group may prove to be as important as a careful analysis of the regional context in starting the work and maintaining momentum. In some cases, in particular the ones dealing with developing individual academic institutions or courses (Competence Platform for Artists, for example) the context for the project doesn't extend beyond the institution and these can be considered more like 'organisational development' projects than regional development projects.

Other projects build on previous programmes or are implementing national or regional policy that was made before and outside the scope of the individual ERDF project. In these cases they are much less customised to regional context as they are obliged to follow policy which determines project objectives and methods. In practice, this relative lack of customisation to regional context is not a weakness in the project design because they tend to be less risky and more routine projects.

Other case study reports don't mention regional context or don't allow for a clear take on it. What does this suggest? There is, perhaps, an orthodoxy in regional planning that insists that background research and careful customisation to context is a key to successful regional projects, that planning workshops and consensus building are necessary to lay strong foundations.

Clearly, in the more experimental projects this might add a lot of value, but the number of these in this group is actually surprisingly small. It is clear from this group that regional projects come in all shapes and sizes and that some really have no need for much fitting to regional context. Some are organisational change projects with very limited objectives, some are large projects with very strong visions behind them, while others are 'roll outs' of national initiatives with political agendas behind them that render regional context largely irrelevant.

Therefore, ERDF managers should focus their efforts on supporting projects with high impact potential, sustainable benefits to users, clear, ambitious objectives, excellent teams and professional planning and management, but reflect whether or not the question of regional 'fit' is actually relevant.

Examples of the different approaches to dealing with political and strategic context are:

- In-depth consultations to achieve clarity of purpose

Experimental projects did in-depth consultations at the design stage to take regional context into account as completely as possible.

WellLabs in Finland went through a detailed pre-planning phase to assess the key future development needs of the regional health care service. The team worked-through a wide range of different possible options with business, university and health stakeholders before finally deciding to focus on the pre-commercialisation phase of product development.

This decision was tested again with business and policy players and finally a feasibility study was carried out to test the idea in detail: an excellent example of thorough, iterative strategic approach to design.

- Informal assessment also leading to clarity of purpose

These are examples of the projects that did not do any detailed design or planning at the initiation stage and where extensive formal inputs regarding the regional context would have added very little.

For example, Aviation Valley project in Poland was thought up and developed by an individual at the heart of the aviation sector in the region, i.e., the managing director of a leading firm in the cluster, a key player in the industry association and at the centre of all the commercial networking between companies. To such an individual the needs of the sector were clear and for a small project such as this one is this is a quick and effective way to start a focused intervention.

Although these projects might put less emphasis on design they balance this with very active and professional planning and management, which is constantly evolving over time to reach the original vision. If the vision is clear enough and the promoters strongly embedded in the regional research, development and innovation system then excellent implementation can be as important as careful design.

In fact, such cases underline that the role of project managers in guiding projects day-to-day is as essential as detailed initial design and planning in ensuring they reach objectives.

- Clear objectives set outside of the individual ERDF project

This group includes examples of the projects implementing national or regional policy or research findings from previous projects.

For instance, Opportunity Wales in UK drew on a Wales wide survey of e-business take up and did not require further project specific background work to confirm that it was a strategic project of high importance.

In these projects planning and in particular management is more important than design and resources should be dedicated to they are professionally executed without repeating background work that has already been done.

2.7.2.2 Approaches to design and planning

Depending on regional circumstances, the profile of the stakeholders, the level of innovativeness and the skills of the team behind the projects there is a wide spectrum of approaches to design and planning. On the one hand, there are very highly customised and ‘hands-on’ approaches, which are often necessary in risky or experimental projects introducing a new idea to the region. At the other extreme, some projects adopt straightforward planning for the implementation of a routine service or ‘roll-out’ of a policy set at national level.

Once again, in the absence of data about project impact it is difficult to

deduce whether certain approaches are better than others at helping projects reach their objectives. Without this ‘missing link’ of impact data the most that can be said is that at proposal stage the teams must be made to state in categorical terms why their approach to the project is ‘fit for purpose’ and will maximise their chances of delivering sustainable benefits to users.

The EU's Research Framework Programme is a good model here as the teams have to spend a great deal of effort explaining approaches and methods and how their choices will lead to high impact outcomes. In this way each project can be evaluated *sui generis* without presuppositions about which project approaches work which we shouldn't have in the absence of evidence linking approaches to results. The best way to ensure better projects is for programme managers to insist on complete justification of approaches to design and planning in each proposal project when assessing them at programme level.

Some of the distinctive and interesting approaches in this group were:

- ‘Agile’ design and planning techniques

Some teams used ‘agile’ design and planning techniques. This means that the project is split-up into modules, with short term tasks planned in more detail. This gives the project maximum flexibility to evolve in the best way to meet its objective. In risky or experimental projects in fast changing environments it can be very effective.

For example, the Competence Centre for Artists in Germany was a highly experimental project triggered by student demand and supplying training that was outside for the regular university curricula. The team leading had no experience of developing on line tools and had to do so against a very tight budget. The planning approach they chose was to build the project in very small steps with all partners and users engaged at each stage to ensure they were meeting users needs and minimising risk.

- Use of independent experts

Some projects dealt with specialist fields where in-house expertise was inadequate. In these cases the strategic decision was taken to use experts to design the activities within the tolerances set down by the promoters.

For example, the North West Business Investment Scheme in UK had seen previous funding schemes not perform due to poor commitment from the private sector. Therefore, they decided to bring in a private specialist fund manager to plan the details of project and take responsibility for implementation.

- 'Top-down' design and planning

The design of some other projects can be thought of as 'top down'. It should not be assumed that this in itself is a barrier to take up and success despite the fact that good practice messages tend to stress the importance of bottom up approaches in regional projects.

For example, MST-Factory in Germany originated in a comprehensive analysis of the scientific, technological and economic potential of the region performed in 1999. The decision to start the project was taken by the city administration to exploit existing potential in MST (microsystems technology) in the framework of a larger programme (Dortmund-project) to attract new companies to the area and promote new start-ups. To overcome the possible problem of there not being enough start-ups asking for support the project was designed in three phases which would be adjusted according to user demand thus providing a responsive if not user driven design approach.

2.7.2.3 Monitoring and evaluation system

Monitoring and evaluation are crucial activities for effective project implementation and the delivery of sustainable benefits. Without monitoring and evaluation it is impossible for projects and programmes to learn about what difference they are making and how strategies and plans must evolve over time to continue to deliver benefits. The

monitoring and evaluation systems need to be put in place at the planning and design stage if they are to capture all the knowledge about the project concerned: monitoring and evaluation is therefore an ex ante and in-term activity not simply an ex-post obligation.

As a general point, monitoring and evaluation are areas of the design and planning of the projects in this study group that could be strengthened significantly. It is too often considered an optional 'bolt on' or ignored. Rarely is it seen as a key management tool for the project and for the programme of which it is a part.

This aspect of project design is, in practice, often of little significance to the teams themselves when developing the proposal, it is not something they tend to include voluntarily and is mostly seen as a bureaucratic burden imposed upon them. Once again, if projects have poor monitoring and evaluation components, then it is the wrong question to wonder why teams don't do it better: a more important question is to ask why the programme does not put in place support actions to correct for identified weaknesses. For instance, Scottish Enterprise sent a financial expert to every Scottish research institute to review their project cost accounting techniques as a preventive measure to avoid problems at a later stage in the implementation of Proof of Concept projects. Without such measures, it makes it almost impossible for programme managers to learn about impacts and is a barrier to their own higher level work of reaching regional objectives.

Good practice would be to design a monitoring and evaluation system that provides sufficient feedback on the attainment of project purpose at milestones (the example of Opportunity Wales can be cited here). Like all other aspects of design it is not an end in itself and needs to be scaled carefully to help both project and programme managers deliver results.

The examples that follow illustrate the range of approaches and methods used in the study group drawn from the

limited number of project reports that describe monitoring and evaluation activities.

- Systemic approach to monitoring

Some projects have taken a systemic approach to monitoring and planned their learning system thoroughly during the project design phase.

A good example of this is the STIM project in Poland. STIM is about creating a network of technology transfer centres across Poland and has a detailed list of both short term deliverable indicators (inter alia: number of consultants employed, creation of service points at STIM centres, number of new services defined) and longer term output indicators (inter alia: number of technology audits prepared, number of conferences for SMEs, hours of individual consultations in SMEs). The key result used to measure progress towards project purpose was the number of consulted companies who signed technology transfer contracts with the STIM centres. In this case, the inclusion of a detailed monitoring system in the project planning was a programme requirement.

- Learning by periodic evaluation

Other projects focus more on learning by periodic evaluation often using external experts to improve the learning process.

The example below is from Sweden and it is probably true that most of the more developed evaluation systems that go beyond the monitoring required by programme guidelines and involve external evaluators come from North West European or Scandinavian countries rather than Southern countries or new member states.

This is explained by the differences in evaluation cultures that are found across the EU, which in turn is caused by the different political and administrative traditions in the public sector. Strong evaluation cultures are often associated with traditions of transparency and accountability which were reinforced by the trend towards New Public Management (NPM) in the 1980s and 1990s.

NPM promotes the idea that control and accountability in public policy are keys to successful implementation and that evaluation is an important part of the process. NPM is strongest in Anglo-Saxon countries. Other countries such as Sweden followed their lead in the 1990s while later other countries such as Norway, Switzerland, Germany and France pursued similar but less thorough reforms. Other countries, in particular Southern European countries are only currently and slowly undergoing reform for accountability and transparency at national and regional level and consequently evaluation cultures are much less developed and independent expert evaluation comparatively rare.

Tjarno Innovation System project in Sweden, which aimed at developing innovative research ideas for the maritime sector, lasted two years. During that time there were two external and one internal evaluation all programmed as part of the design and planning phase. The evaluations looked at both qualitative and quantitative aspects of the project, used to give feedback and help with the implementation of the project and were highly valued by all stakeholders.

- Monitoring and evaluation against focused outcome targets

Typically, projects with business start-up or development objectives set monitoring and evaluation targets that relate to the attainment of these goals. For instance, WellLabs project in Finland has a straightforward approach and measures the number of development and consulting projects that the laboratories in the project have brokered with companies.

- Continuous feedback from users

Other projects have adopted an approach to learning that is based on continuous feedback from users to ensure that the project evolves and adapts and remains relevant to its target groups. For example, the Competence Platform for Artists in Germany was an experimental project to provide new services to students beyond the reach of regular university courses and as it was entering new

territory the key feedback loop was between the managers and the students themselves to ensure the project was meeting user needs.

In summary, there is evidence of some very good customisation of monitoring and evaluation approaches and methods depending on project type and objectives.

2.7.2.4 Key obstacles and problem-solving practices

Dealing with risk was the most important challenge during the design and planning phase. Risk is uncertainty of outcome and can be negative and take the form of a threat or positive in the form of opportunities. Risk is a major element to be considered at the planning stage of all projects and managing risk is one of the most important factors in delivering successful and sustainable projects.

Assessing risk, like monitoring and evaluation, is an aspect of project design and planning that is not addressed in many of the project reports informing this review. In some cases where it was mentioned the risk was standard risk associated with business development activities and the question was mostly 'would enough companies get involved?'

In another group the risk had been assessed as part of the national or regional strategic plan of which the project was a part. This left a limited number of reports, which mention risk and had a distinctive approach to addressing it. As with monitoring and evaluation, the responsibility for this weakness is not only with the project teams. Project teams often don't assess risk well as it is complicated to do properly and tends to be viewed as revealing possible weaknesses to funders. But risk, especially 'killer assumptions', the terminal problems that cannot be controlled by the project, is the main reason for the high rate of ineffective project work done in all organisations. If risk is assessed badly in these projects it is because this aspect is not being well enough highlighted in project application forms

and is therefore not being taken seriously.

However, there were some very distinctive strategies used to deal with risk at the design and planning stage, which could be examples for others. The following is the list of risk-related issues illustrated by an example of the project:

- Risk of rejection by local communities

Warhol City in Slovakia perceived a risk during the planning stage that local communities would not accept the new urban development direction being taken by this project. To manage this risk the promoters launched a campaign in the press and on local government websites to keep everyone informed about the project and its objectives.

- Risk in a fast moving scientific environment

In Greece, BioGenomica is a start-up developing new medical services based on gene mapping. A full risk analysis was done to assess whether the costs of testing would be met by insurers and that the staff involved in developing the project would be able to keep up with developments in genetics to maintain a leading edge services. The analysis showed that both risks could be managed and the project went ahead.

- Setting wider project tolerances for risk

The Interactive Institute Sonic Studio found it very difficult to look at risk over its three year lifespan and at the same time remain innovative and responsive to user needs and so adopted a flexible and evolutionary approach to dealing with the uncertainty in this exploratory project. The project team adopted a planning philosophy, which would accept project deliverables different to those initially described as long as they contributed to the attainment of the overall project objectives and were of high quality.

- Sharing of risk

ACTNOW in Cornwall, UK, was a broadband roll out and take up project targeted at new SME customers with benefits both to the regional development agency, the region and the

broadband service provider. The public and private sector partners developed a shared risk model to implement the new services, the service provider putting in the infrastructure with the regional agencies creating demand and sharing the benefits, the profits to the provider and increased competitiveness to the region.

2.7.3 Strategies for sustainability

Nearly half the reports underpinning this review do not refer to sustainability strategies and those that do give very little detail about it. Therefore, this aspect of the design and planning process could be very significantly improved. However, a sustainability strategy is not logically a separate part of a project design or plan at all; it is the same thing as a very clear project purpose which should be attractive, necessary and address a real problem and, therefore, be highly likely to persist and become self-sustaining if it is delivered. The deliverables and outcomes described in the proposal should make it abundantly clear if the project is viable in the longer term as well as if it really responds to a problem or opportunity in the region.

Examples from the projects that did mention sustainability are:

- Business-based initiatives

The vast majority of projects are planning for their future as a self-supporting commercial enterprise of one kind or another. This is a good approach as the only real 'acid test' for business services is if customers will pay for them beyond the funding period. It is unsustainable and market distorting for the public sector to underwrite innovation services over the longer term.

Hibridmolde in Portugal aimed at advancing rapid tooling and prototyping techniques for mould making in the ceramics sector in Portugal and was led by a research based mould company building on previous collaborations with local universities. This project has purely commercial objectives and is targeted at developing new high value services for the ceramics sector and will only be

sustainable if it delivers services that sector players want.

- Non-commercial projects

Although the group is dominated by projects whose sustainability strategy is based on supplying profit making services not all projects had this character. There is a smaller number of projects which are not business projects and so have other types of sustainability strategies.

The Gesamtschule Ückendorf (GSÜ) project in Germany was concerned with the better integration of minority groups into the local school system and was one of the few projects in this group that had no conceivable commercial application and thus no clear prospects of sustaining itself beyond the project funding: the project promoters were well aware of this problem at the design phase. Their response to this difficulty was to ensure that the work done by the project became completely embedded into the life of the school and that it was not viewed as an 'add on extra' and would be included as part of the routine work of the school in future planning rounds.

The case of GSÜ is particularly interesting as it shows that if projects focus on delivering significant benefits they can embed themselves into the routine work of the beneficiaries and achieve sustainability in this way.

2.7.4 Key success factors: learning for future projects

Looking at the group as a whole, some general success factors emerge that together would amount to good practice in design and planning for ERDF innovation projects.

- Carefully scaled processes

The extent to which projects need design and planning varies considerably. For example a relatively simple project with limited numbers of partners and a clear objective involving few project staff and a single manager needs very little design and only a short planning phase. In contrast experimental projects with a larger group of participants involving the coordination of various agencies and

numerous staff would be impossible to manage without detailed planning. There is no single rule to guide projects to the right levels of design and planning. However, a key test of this is the extent to which they deliver against clearly stated objectives.

- Collaborative design and planning

The majority of projects in this group are 'bottom-up' activities initiated either by individuals or groups at 'grassroots' level. Good practice emerging from this group is to include the project users and beneficiaries in all stages of the project design and planning using a collaborative and team based approach. The benefits are many and include, clearer objectives, better fit between intended results and beneficiaries' needs, commitment of partners, clarification of what partners will contribute and take out.

- Monitoring and evaluating

High achieving, high impact projects usually have some learning mechanism built into. Monitoring and evaluation are basic management functions to allow projects to evolve over time and the best projects tend also to be willing to face up to the tougher learning tests of external evaluation. Like design and planning in general, monitoring and evaluation need to be carefully scaled so as not to become a burden, but good practice probably comprises a combination of monitoring, self and external evaluation with inputs ex ante, in term and ex post.

- Iterative cycles of planning and design

As the context in which the project is working changes or as new risks emerge over the horizon and need to be dealt with, so projects must be able to redesign and re-plan themselves to cope. Planning and design are not a 'one shot' process at the start of the project but need to part of the project's governance structure and revisited when events push the project beyond agreed management tolerances or when evaluations signal that a major review of the project is necessary.

Transferability of project design and planning methods

It is never advisable to simply 'cut and paste' a project design from one context to another. However, unlike other aspects of ERDF projects this is not because of any complex reason to do with regional industry, research capacity or political culture.

It is simply that each project has different objectives and intended results and needs to be designed specifically to clarify what they are and then deliver them. In general, the elements of project design and planning are completely transferable across different regions and the only criterion for transfer is that they are the right problem-solving tools for the job and that they produce projects with clear objectives and plans to manage the project against. It is possible to combine planning and design methods very freely to initiate and run effective projects.

However, some elements should be transferred from good examples in this group to all new projects. The majority of projects do not deal well enough with two key aspects of design and planning, namely, analysis of risk and monitoring and evaluation. Risk in particular will kill or damage projects very quickly unless managed systematically. Poor monitoring and evaluation means that a project will never be as efficient and effective as it could be and the programmes will never be able to learn and evolve over time.

2.7.5 Implications for regional policy

Good ERDF supported projects are emerging in a range of regional contexts to address a wide spectrum of problems. There were no particular problems mentioned concerning design and planning. The ERDF procedural framework is a non-restrictive programming approach, within the limits of an agreed set of strategic priorities, where a wide variety of projects are able to get support using the planning and design methods they feel are best suited to their regional situation and the topic of their project.

However, to take knowledge about the impacts of design and planning to another level more research needs to be

done. At the moment, there is still limited understanding about the relationship between how projects are designed and planned and how efficient they are at reaching objectives compared with other projects using different approaches. Without this knowledge it is difficult to make recommendations about how projects should be set up to deliver different kinds of benefits.

A key next step for regional policy makers would be to evaluate in much greater detail how design and planning influences outcomes. Design and planning at project level are an overlooked aspect of policy making but it is actually one of the few areas that programme managers can influence through programme regulations and should be the focus of more policy thinking once basic knowledge gaps are filled.

Three policy recommendations to the regional authorities implementing or planning to implement similar projects are:

- Design and plan to achieve results

Only start design and planning processes if there is a reason to do so, if they will solve a particular problem preventing the project from starting or reaching sustainability. Apart from this always apply the 'law of succinctness' that the simplest procedure to get where you want to go is the best in each case: don't design and plan any more than you need to do in order to deliver sustainable benefits to the project beneficiaries.

- Design and planning is part of the project cycle not a one-off activity

Design and planning must be done at project initiation, but not only then. It is part of learning cycle of that involves feedback from monitoring and evaluation and risk analyses. It needs to be regularly revisited at every key milestone of the project lifecycle to make sure the project remains focused on user needs and will deliver sustainable benefits. It is the mechanism by which projects should be closed down if they are no longer relevant.

- Use expert assistance

Designing and planning projects is difficult but there is plenty of expert help available across Europe and a number of very well established methods can be employed to do the job quickly and accurately. Workshops and other group work usually work best with professional facilitation, studies are best contracted out to expert teams whether in universities or consultancies, experts in monitoring and evaluation are available to help plan the optimum information system for your project. Many of the projects in this review have used external assistance very effectively.

2.8 Project governance: partnership and leadership

2.8.1 Introduction: policy context

Good governance has become a central principle of European Union policies; it has been particularly often used in the context of the Structural Funds and Cohesion Policy. This paper reflects on the three central elements of project governance that are partnership, leadership and management.

The overall message coming from the case studies is that the capacity to establish effective partnerships is seen as one of the prerequisites of designing and implementing a successful ERDF co-funded project.

Governance has gained more policy attention along with the rise of the knowledge economy and new insights into understanding of knowledge generation and innovation process.¹⁷ As information and knowledge is dispersed among many organisations and individuals, cooperation and exchange between stakeholders at many levels is required.¹⁸

Governance is understood as networks of interdependent organisations, which exchange resources and collaborate in order to achieve their objectives.¹⁹ A project partnership and its relations with other relevant stakeholders and beneficiaries is a specific form of governance structure. In the context of this analysis, networks set project

objectives and pursue them in the course of project implementation. On the other hand, leadership is seen as a capacity of organisations involved in a particular network to “steer” and strategically manage the partnership. The role of project management is critical in this context.

An emphasis on collaborative processes of learning involving many actors should inspire policy makers to promote new participatory ways of policy design, planning and delivery. This trend is of key importance for the local and regional level where capacity to consolidate and gain new competences can be particularly challenging. Importantly, this strategic capacity may prove decisive for constructing or retaining regional comparative advantage.²⁰ The latter message has been picked up by policy makers at all levels who in recent years have been increasingly promoting policy measures requiring collaboration between various actors holding different types of knowledge and other assets. The capacity to build and sustain various forms of synergetic partnerships is perceived as key for successful delivery of such policies.

Another important factor contributing to the growing importance of the governance dimension of policies is the emphasis on inclusiveness and popular acceptance of government initiatives. Public policy design often involves a wide range of stakeholders, including final beneficiaries, in the process of planning and design as well as during and after project implementation. In this context, opening up project governance processes contributes to better project design as well as a wider social consensus and acceptance of implemented measures.

Governance can be analysed against a number of dimensions.²¹ This analysis

¹⁷ See for example: Lundvall, B-A. (ed.) (1992) *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*, London: Pinter; OECD (1996) *The Knowledge-based Economy*, Paris: OECD; Braczyk H., Cooke P., Heidenreich M (eds.) (1998) *Regional Innovation Systems*, London: UCL Press.

¹⁸ For a conceptual background see Gibbons M. et al. (1994) *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*, London: Sage.

¹⁹ The paper refers to a definition of governance originally introduced by R.A.W. Rhodes in “The New Governance: Governing without Government”, *Political Studies* (1996), XLIV, 652-667.

²⁰ See for example: Cooke Ph. et al (2006) *Constructing Regional Advantage*, European Commission: Directorate-General for Research

²¹ For different approaches of assessing partnership see also Hardy B. et al., “Assessing Strategic Partnership. The partnership

focuses on four dimensions particularly relevant for project partnership and leadership in the context of ERDF co-funded projects²², that is:

- partnership formation process
 - partnership agenda and setting project objectives
 - experience of collaboration prior to project implementation (partnership history)
 - process of project partnership formation
- composition and inclusiveness;
 - composition of formal and informal extended project partnerships
 - degree and forms of involvement of various stakeholders in different stages of project development - starting from design to results exploitation.
- formal organisation and leadership
 - organisation of partnership, most notably as regards degree of partnership formalisation and roles of different partners, including role of local and regional authorities.
- management and coordination
 - management's role in formal and informal learning processes, knowledge exchange and problem-solving processes and mechanisms
 - role of project management in respect to building trust, communication, and involvement of project stakeholders in project process.

assessment tool", Office of the Deputy Prime Minister, Strategic Partnering Taskforce, May 2003 and Halliday J. et al., "Evaluating Partnership. The Role of Formal Assessment Tools", *Evaluation* (2004), 10(3): 285-303.

²² 'Projects' in the context of this study refer to a range of diverse initiatives, which often went beyond a single project activity. For simplicity, this analysis will refer to these initiatives as 'projects' explaining the relevant context whenever necessary for the analysis.

2.8.2 Partnership formation process

2.8.2.1 Partnership history

The partnerships behind the analysed ERDF projects are diverse in respect to their previous collaboration experience. In this context, the partnerships can be differentiated as:

- new partnerships - formed by partners who had never formally collaborated before (26 projects);
- experienced partnerships - composed of partners who had formally cooperated before (25 projects);
- strategic regional partnerships - partnerships based on pre-existing formal organisations with a shared vision and objectives such as e.g. business associations, foundations or not-for-profit organisation etc. (nine projects).

New project partnerships have been created with different objectives ranging from implementing a single project to setting up a long-term formalised collaboration with objectives going beyond an analysed project and plans to become a fully sustainable initiative in the future. All these partnerships face a challenge of building mutual understanding and trust.

Experienced partnerships have a history of collaboration, but are not formally linked in any organisational structure. They have some good knowledge of each other's strengths and a built-in degree of trust before the kick-off of the project. In the case of strategic regional partnerships the ERDF projects are considered a part of their longer-term agenda.

Strategic partnerships are characterised by a high degree of trust and shared vision. The projects run by these partnerships contribute to the activities of the existing local or regional alliances and as such are likely to be followed up and developed further in the future.

Implementation of a joint project may contribute to emergence of an experienced partnership or even a strategic partnership. Importantly,

some of the analysed projects considered new collaborations and networks as one of the most important value added of the projects. A number of the newly created partnerships have been institutionalised at the beginning of the project in order to carry out project activities (e.g. an association in the case of Porto Digital, a non-profit company in the case of Opportunity Wales etc.). A considerable share of the new project partnerships surveyed in declared a will to continue cooperation beyond a single project.

2.8.2.2 Project design and planning: reaching clarity of purpose

Past experience is not a guarantee of the success of a project. Over-reliance on past experience can lead to ignoring new developments and trends, which puts the new project at risk. Previous experience has, nonetheless, a significant influence on the whole project process, most notably on the initial phases of project design and planning. These first steps are critical for building mutual trust, creating a shared understanding and vision of project, agreeing on objectives, and, importantly, gaining commitment to these objectives from all the key partners.

Evidence gathered in the case studies confirms that investing time in the project design and planning phase increases the chances of a smooth working of the partnership throughout the project duration. For example, the manager of Fibre Optic Valley, a cluster initiative in Sweden, underlined that it was worthwhile to spend a long time in the design phase in creating shared understanding and commitment of stakeholders. Moreover, he emphasised that if the project had to start again, the core partnership and management would have probably spent even longer time at the beginning building a shared vision and setting project targets with all the relevant partners and key stakeholders.

Similarly, the promoters of the local entrepreneurship initiative Intotalo (Finland) were involved in lengthy negotiations with local and regional

partners and stakeholders. The doubts about the project expressed by some actors were overcome with patient negotiations, a feasibility study and convincing a few key regional stakeholders to support the initiative. This process delayed kick-off of the project, but, on the other hand, it allowed more time for the project design and planning. The project manager emphasised that when consensus was reached the actual project activities started faster than in the case of other projects in the region.

Ensuring involvement of all relevant partners in the design and planning phase is often a challenge, especially in the case of private sector partners who see it as an unnecessary investment. For example, in the Estonian Competence Centre case the project developers found it difficult to motivate private partners to join partnership discussions of a not-yet-functioning organisation. The project manager played a key role in overcoming this challenge and securing early commitment from partners.

Despite such difficulties, experience from numerous cases proves that investment of time in convincing key partners to get involved and commit to the project early usually pays back in later stages. The key role in helping this early trust and vision building exercise is played by the project leader or core leadership group along with a project manager. Depending on the context, the leadership role can be played by regional authorities, research or business sector, or a core leadership group based on public-private partnership.

2.8.2.3 Project feasibility: setting realistic goals

One of the strong sides of mature partnerships is self-assessment capacity. Failure to undertake such self-assessment at the beginning of the project planning risks not delivering upon project objectives and losing credibility of the project owner in the eyes of regional stakeholders. The project partnership has to realistically assess its position in the broader

regional governance system of the region. The level of commitment of partners is strongly determined by the extent to which project activities contribute to their own strategies.

This notion was recognised in case of some analysed projects. A major obstacle reported in the case of Snowpolis project (Finland) was its dependency on other organisations such as the decisions and strategies of universities and the location choices of enterprises. It was recognised that even with support from key regional stakeholders, gaining credibility and changing existing organisation took nearly two years to accomplish.

2.8.3 Composition and inclusiveness

2.8.3.1 Partnership composition: selecting the right team for a challenge

The composition of project partnerships varies greatly among projects depending on their specific objectives as well as the wider regional and national context in which they are developed. Taking this into account, this analysis distinguishes between two broad types of projects:

- strategic development projects with a potential broad impact on local or regional development (such as urban regeneration projects, broad entrepreneurship support schemes, comprehensive cluster projects etc.); and
- focused projects: aiming primarily at supporting specific sector, technology field or a process (e.g. incubators, R&D projects, science-business collaboration schemes, innovation funds, etc.).

The partnerships of broad strategic regional development projects typically attempt to engage all key relevant local and regional stakeholders, most notably public authorities, education and research, business and civil society. The partnerships of such projects are generally wider as their objectives are directly relevant for regional strategies and policies while their activities concern larger groups of stakeholders. The examples of such projects in the

analysed cases include urban regeneration initiatives (e.g. Knowledge Dock in the UK), cluster projects (e.g. Fibre Optic Valley, NetPort.Karlsham and PUCK in Sweden) as well as broad information society initiatives (e.g. Porto Digital in Portugal and Opportunity Wales in the UK).

If the emphasis is on *inclusiveness* in the case of wider regional development initiatives, then *selectiveness* becomes of key importance in more specialised projects. The science-business collaboration initiatives or innovation funds require participation of key actors in the targeted field. The projects target a narrow group of stakeholders. Forming an effective partnership in this context requires an in-depth knowledge of a sector or a specific process to be addressed by the project (e.g. innovation financing). The examples of such projects in the analysed cases include business incubators (MST Factory in Germany or Thermi in Greece), innovation funding schemes (Nstar and NWBIS in the UK) and competence centres (e.g. Estonian Food Competence Centre).

2.8.3.2 Creating wider partnerships: involving regional stakeholders and beneficiaries

In order to implement projects or build wider acceptance for their activities, core partnerships often extend their networks to other regional stakeholders, final beneficiaries or civil society organisations. In some cases, ensuring project stakeholders involvement was recognised as a challenge and a risk for project delivery.

The Knowledge Dock initiative in London is a broad urban regeneration initiative. The project promoters actively sought acceptance and active involvement of the local population and business. They undertook extensive preparations during the project design and planning phase including interviews with 200 companies and a wide marketing campaign including local newspapers and consultation meetings to keep the local population informed. The management explicitly recognised that such initiatives require

extensive networking to succeed and become a true community initiative.

Similarly, the work on the local initiative NetPort.Karlshamn (Sweden) included wide consultations and discussions with stakeholders, including businesses not directly concerned by the project as well as the opposition parties from the municipal council. Building a broad development consensus was the most difficult challenge encountered by the initiative.

The consultations and negotiations with numerous partners in the Drava ecological tourism initiative in Hungary took longer than expected because of the participation of inexperienced partners. The project manager recognised that organising such a broad partnership slowed down implementation. Nonetheless, the learning process was deemed positive as the project promoters considered it contributed to future initiatives.

Exhibit 7 presents an overview of methods used to engage project stakeholders in the projects process.

2.8.3.3 Contextualising inclusiveness: impact of administrative culture

The degree and style of ensuring inclusiveness of project governance is also influenced by administrative culture and the public policy delivery style of the country where a project is implemented. Typically, the most inclusive –or partnership oriented– approaches are those of Nordic and Anglo-Saxon cultures while more hierarchical and centralised cultures, most notably France or Poland, are characterised by less inclusive and public sector dominated approaches.

One of the examples of a project with a limited inclusiveness is PASI (Aquitaine Forum for Information Society), which was designed as a forum composed of administrative bodies and agencies. Limiting the forum to public institutions was an explicit choice. There was a feeling that the public sector did not have a “clear view” about the ICT related issues facing the region so the platform’s task should be to focus on clarifying this ‘internally’ first. The

case study underlines that this choice reflects the administration culture of the French system. It is noteworthy that this approach was recognised as a limitation and civil society actors and private companies are likely to be involved in the follow-up initiative.

Exhibit 7. Tools used for including stakeholders in project activities

Communication tools

- conferences and other public events
- marketing campaigns (e.g. publications, local media, websites)
- professional fairs and exhibitions

Consultative tools

- open consultations (e.g. round tables)
- expert consultations (e.g. expert panels)
- informal meetings

Research tools

- feasibility studies (e.g. face-to-face interviews, surveys etc.)
- surveys and opinion polls (e.g. surveying companies or local population)

Learning tools

- active involvement in development and testing project deliverables (e.g. educational or business services)
- workshops (e.g. involving stakeholders in shaping agendas; user-workshops assessing project deliverables)

Another French project is worth mentioning in this context. The Information Society White Book initiative in Corsica encountered difficulties in ensuring a broad involvement of SMEs in its activities. This failure was seen as a consequence of a general lack of collaborative culture in the region. Interestingly, the risk of low participation was taken into account already at the outset of the project.

Exhibit 8. Classifying partnerships by project objectives and level of project governance inclusiveness

		Project objectives	
		Strategic projects	Focused projects
Project governance	High inclusiveness	Knowledge Dock (UK) NetPort.Karlshamn (SE) Porto Digital (PT) Intotolo (FI) Fibre Optic Valley (SE) PUCK (SE)	Sonic Studio (SE) Competence Centres (EE) E-Business Forum (GR) Competence Platform for Artists (DE)
	Low inclusiveness	PASI (FR) Corsica Information Society White Book (FR)	Nanotechnology Centre of Excellence (SI) BioGenomica (GR) LAV laboratory (IT)

Having failed to engage new companies in the initial stage, the decision was taken by the authorities to continue the project using already existing contacts with business. Despite the public sector claim that this project will be used to start creating a more collaborative culture in the future, its contribution to governance change has been limited.

One can raise a question whether 'culture' can indeed explain a failure of this or other similar initiatives. Experience from countries with more 'inclusive cultures' shows that collaborative projects are always time consuming and difficult to initiate and manage. Whether in Sweden, Finland or the UK, there is always the challenge to build trust or gain credibility. Perhaps investing more time in the design and planning phases and broadening the ownership beyond the public sector, as in other cases studied here, could help to build trust and overcome identified barriers.

One could argue, that apart from the stringent administrative structures and cultural barriers, one of the critical elements explaining the failure of governance initiatives is a deficit of strategic planning and operational management capacity. Either the project owners did not take into account that the overall cultural context would resist an attempt to change it with just one initiative or they never seriously tried to ensure wider involvement in the process.

2.8.4 Formal organisation and leadership

2.8.4.1 Choosing the organisational form

The reasons for and consequences of the choice of organisational form of project partnerships can be understood in the context of the project objectives, national legal system and policy framework.

The most common form of formalisation of the core partnership running a project is a project consortium agreement establishing a body (steering committee or a board) overseeing overall performance and strategic issues related to the project operation. This body often includes key stakeholders who are not part of the formal partnership delivering the project, but are considered important partners nevertheless.

The analysed projects include examples of the following forms of project organisation:

- associations (e.g. Aviation Valley in Poland, Omnipack cluster in Czech Republic, PUCK in Sweden, Porto Digital in Portugal);
- foundations (e.g. Spanish initiatives: Scientific Park in Barcelona, CENER);
- not-for-profit companies (e.g. Multitel in Belgium, Opportunity Wales in the UK, Fibre Optic Valley and NetPort.Karlshamn in Sweden).

The choice of the formal organisation of the project is a strategic decision as it determines the operational limits of the new organisation and further formalises responsibilities of the partners.

For example, the association model allows an inclusive broad membership based on differentiated contributions (e.g. fees related to member turnover) from project stakeholders depending on the financial capacity and relevance of the partner participation (compare Porto Digital in Portugal and NetPort.Karlshamn in Sweden).

The discussions related to choosing the formal organisation for 'competence centres' provide interesting examples in this context. In the case of the Estonian Competence Centres programme, the academic partners had a preference to establish the Food Competence Centre as a university unit whereas companies preferred an independent legal entity operating under private law. After discussions moderated by the project manager the choice was to establish a separate non-profit organisation. Interestingly, the Estonian competence centre programme does not impose a one-size-fit-all organisational solution leaving the choice to the centre partnerships. Having this choice, four other centres were also established as separate commercial entities.

The organisational model is sometimes a consequence of the formal regulations guiding project design. For example, the agreement creating the Nanotechnology Centre of Excellence in Slovenia did not allow for involving additional partners from industry who showed interest in participation after the activities began. Efforts are being made to change this in the future so more openness and flexibility is allowed in leaving and joining the centre. If an alternative exists, such design flaws can be avoided in early stages of project design. For example, the Estonian competence centres were explicitly designed to remain open for new Estonian or international business partners.

2.8.4.2 Changing organisational structures

The evidence from projects indicates that a step towards changing organisational structure requires strong commitment from all the partners as well as a clear definition of the new participation rules. Changing the organisational status can lead to discussions among partners and reveal fundamentally different visions of the project.

The LAV laboratory (Italy) was organised as a university unit. Currently, a discussion is taking place on whether the laboratory should remain part of the university or be established as an independent entity. This discussion revealed diverse opinions among collaborating organisations. The former option is favoured by some academics while the latter is unanimously supported by business.

The Swedish Fibre Optic Valley (FOV) association recognised that changing the formal organisational structure of the initiative is a risk. In order to deliver more advanced services to its member, it has set up a private not-for-profit company. It is feared that this change may come at the cost of loss of "the public mission" reputation of the association. Finding a correct formal organisational model has been considered one of the key challenges in association development.

The case of Multitel centre (Belgium) exemplifies an interesting change in the formal representation of the partnership in the organisation structure. The regional authorities urged the centre to include private actors in the hitherto fully academic management board. In effect, the board has equal representation of business and researchers with rotating presidency. The centre claims that the change was introduced without any major problems, as close collaboration with business was a fact already.

2.8.4.3 Strategic leadership

Strategic leadership generally comes from organisations with largest share of budget and whose goals are the closest to the project objectives. Not surprisingly, public authorities led the largest number of analysed initiatives (21). Research and business assumed leadership of nearly the same number of projects (respectively seven and eight) while education institutions led two projects. It was noteworthy that a number of projects were characterised by shared leadership coming from the whole core partnership (six), business and public authorities (10) or research and business (four)²³.

Interestingly, a great majority of projects with leadership provided by the whole core partnership come from Nordic countries (e.g. Swedish NetPort.Karlsham and Finish Intotalo). Another example is Porto Digital project in Portugal. Most of these are cluster projects or local development projects. Joint leadership from business and public authorities include UK innovation and information society initiatives as well as the Flemish knowledge cluster project. Initiatives strategically led by research and business actors are not surprisingly competence centres (Estonian Food Competence Centre and Belgian Multitel) as well as an R&D project (Portuguese Hibridmolde).

The case studies include several messages as regards project leadership. It is argued that in order to increase credibility of the project, strategic leadership should be ensured from the early stages of project planning. Early active support from regional and local authorities is especially important for broad local development initiatives. This can help to involve other key stakeholders and form the core leadership group. Shared leadership enlarges the chances of a project, as its success does not depend on just one

source of strategic support. Whilst strategic leadership is of key importance for the project, it is not sufficient for success. The case studies make it clear that the strategic leadership has to be complemented with efficient *operational leadership* provided by the project management and project manager in particular.

2.8.5 Management and coordination

The role of management and project manager are considered key not only for smooth project implementation, but also for the effective functioning of project partnership and working relations with the project stakeholders. In many cases, the project manager ensured day-to-day operational leadership of project operations.

2.8.5.1 Building trust and reputation: gaining acceptance and credibility

One of the key roles of management is to build trust among partners, especially in the case of forming new partnerships or considerable changes in partnership organisation (e.g. creating a formal organisation). The role of the project manager and management credibility was strongly underlined in most of the projects relying on active participation of business actors who approach new initiatives involving collaboration with academia or the public sector with caution (e.g. Competence Centres in Estonia, Actnow in Cornwall, financial schemes Nstar and NWBIS in the UK, Science and Business Parks in Canavese and Barcelona, Sonic Studio in Sweden).

Scepticism is common also on the side of academia. The Canavese Science Park management had to convince universities that the park was not in competition with their activities, but they sought collaborative solutions. A similar problem was encountered in the case of the Barcelona Science Park where the scepticism of the scientific community was overcome by showcasing good examples of science-business collaboration. Interestingly, the Nanotronic centre in Germany explicitly recognised already in the planning phase the challenge of

²³ Naturally, the sample of projects used for this study was not representative therefore the proportions between these numbers should not be over-interpreted.

managing relations between different professional communities, such as researchers and business, as a managerial risk.

Many cases underline the necessity to ensure that the project manager is selected -or at least accepted- by all the project partners as well as by key stakeholders. This is considered a first step in creating trust in cases when the project partners do not have long experience of collaboration. This was especially important in projects involving groups of stakeholders with different professional backgrounds and cultures. In the case of science-business collaboration projects, the manager should have experience in both 'worlds' to be able to find consensus between different partners (see e.g. Competence Centres in Estonia).

In the case of public-private innovation funds, the projects gained the trust of investors by assuming a commercial approach to administering public funds. In order to ensure professionalism of management, some projects made an explicit choice to hire experienced managers and offered competitive remuneration packages rarely found in public sector funds (e.g. Nstar).

2.8.5.2 Managing synergies: enabling knowledge flows and interactive learning

The management's task is also to ensure that information and knowledge is shared among different partners so their collaboration can produce synergies. The Nanotronics centre (Germany) organises a summer school to share and discuss achievements of various partners participating in the centre. Similarly, the Nanotechnology Centre of Excellence (Slovenia) organises an annual conference where all the centre's projects present their results to other centre's partners as well as to the wider public. It is underlined that this occasion is especially important for younger researchers who present their work to more senior colleagues and a business audience. Efforts are made to include an international audience to get feedback from other research centres in Europe.

The management of the Competence Platform for Artists project in Berlin designed the project implementation process to develop exchanges and learning loops on three levels: within the development team, between the team and end-users as well as between the team and funding partners. This gradual learning approach with close cooperation between different project partners was considered as a key project success factor.

The management of the Thermi incubator in Greece assumed the networking role to ensure the constant flow of business ideas and creating various exit options from the incubators investments. In effect, the incubator has a strong network of associates such as the regional innovation intermediaries and business associations.

2.8.6 Implications for regional policy

On one hand, a well functioning partnership is one of the key success factors of a project. Thus, the capacity to establish effective partnerships can be considered one of the prerequisites of designing and implementing a successful project. Establishing unusual and interdisciplinary partnerships is a challenge, but it can pay back with new creative solutions and innovative processes. One of the most illustrative examples of such a creative partnership was established to run Sonic Studio in Sweden: an organisation including collaboration between business, researchers and artists.

On the other hand, the formation of regional partnerships, collaborations or networks is seen as an important intangible result of some projects. For example, the project stakeholders of Snowpolis Park (Finland) indicated that their collaboration in the project has significantly increased relations between various actors in the local innovation system, which was critical for starting clustering activities in the region.

The following points sum up the main conclusions and recommendations on building effective project governance:

Partnership formation process

- Take time in the project design phase to build trust and understanding between project partners and stakeholders, especially if they haven't had a chance to collaborate before;
- Be realistic in setting the project goals taking into account the actual competencies of project partners and level of their involvement;
- Take into account the characteristics of the wider governance of the region when setting the objectives of the project.

Composition and inclusiveness

- Make sure to involve key strategic partners who are capable to deliver the project objectives; otherwise revisit the project planning
- Make sure the partners contribute complementary assets and skills
- Involve relevant stakeholders in project activities from the design stage
- Be aware, however, that greater inclusiveness may lead to implementation delays especially in initial phases, which on the other hand pay back in higher project acceptance and social impact in later stages
- Inclusiveness depends on the administrative culture of the region; changing the rules of the game requires significant efforts and patience, as well as sound management.

Formal organisation and leadership

- Carefully choose the formal organisation of the partnership ensuring the desired degree of organisational flexibility and openness at the beginning
- Keep in mind that greater formalisation requires more detailed design and planning of partners roles and contributions
- Both strategic and technical leadership should be ensured from the early stages of project planning

Management and coordination

- Trust and acceptance of management structure should be gained as early as possible and ideally in the design phase
- Organise on-going learning mechanisms to anticipate and solve (potential) problems
- Channel knowledge and information exchange in order to create synergies and interactive learning process between partners

2.9 Sustainability of projects

2.9.1 Introduction: policy context

Project sustainability refers to continuation or follow-up of the activities developed in the project including valorisation of the results and outcomes. The concept of sustainability is used here in the sense that is applied in evaluation studies to measure the likelihood that the effects of ERDF (or indeed, public funding in general) last in the medium or long term after the end of the project.

According to the evaluation guide available on the Directorate-General for Regional Policy's website:

"effects are sustainable if they last after the funding granted by the intervention has ceased. They are not sustainable if an activity is unable to generate its own resources, or if it is accompanied by negative effects, particularly on the environment, and if that leads to blockages or rejection"²⁴.

At a more macro-level, the question of sustainability is of course related to the concept that Structural Fund support is a temporary feature aimed at addressing specific economic, social or physical issues (peripherality, accessibility etc.) that impinge on a territory exploiting fully the potential for economic development. In this sense, sustainability would imply that at some stage the need for ERDF intervention would disappear as development levels attain a higher level.

The question of project sustainability is a complex one and cannot be easily reduced to a 'self-financing' equation whereby the share of public funding is reduced over time to be replaced by own-generated revenue. Indeed, projects funded by the ERDF can be classified into various types with different "life expectancies":

- Short-term projects aimed at addressing a specific problem or opportunity facing regional development (partnership based or strategic planning type projects fall into this category as do infrastructure projects);
- Initial 'seed funding' for an instrument (such as a venture capital fund) or organisation (technology centre, etc.) or development of new services by an existing organisation or partnership with an expectation that the organisations supported will then seek other sources of funding for sustaining future activities;
- Projects that address a specific market or system failure which may take a certain period of time to be resolved (unlikely to correspond to an ERDF programming period).

In many cases, the ERDF co-financed project is only one source of financial support for a project team or organisation, while in others it may be the only or main source of funding. This obviously influences the need to think more or less urgently about 'life-after the ERDF'.

Each of these types of projects can be expected to generate different forms of follow-on activities with different needs for on-going financial support.

- 'Governance' projects may generate spin-off activities (new projects) or develop a plan of action that leads to a series of actions being funded. The partnership may extend its life in another form as a committee to oversee implementation of the projects generated.
- A new infrastructure (transport, energy, communications, etc.) may lead to the creation of new services which help to finance the future upgrade or renewal of the infrastructure originally financed;
- A fund, organisation or services may require a second round of support to reach a mature level of development or may immediately become financially self-sustaining (through a mix of private funding

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http://ec.europa.eu/regional_policy/sources/docgener/evaluation/evalsed/glossary/glossary_s_en.htm

and national/regional public funds);

- A programme may similarly submit a follow-up application for ERDF support or may be budgeted into national or regional funding streams without a need for additional European support.

Whatever the nature of the project, it is normal good project planning to foresee what can be termed a plan for project succession or an "exit strategy" (i.e. how the benefits will be preserved or continue to accrue beyond the life of funding from ERDF). Increasingly, Structural Fund programming authorities build such a concept in explicitly to their project selection criteria²⁵ and score projects on the extent to which there is a clear and sustainable exit strategy in place. Exit strategies are important in the bidding process in order to win approval but in reality they become a project tool supporting the applicant through the vagrancies of short term funding.

A 2005 guide produced for the Government Office for London (intended to inform ESF project participants on project succession following the winding up of the 2000-2006 programme)²⁶ proposed four main 'roads' for project succession:

- "mainstreaming" – transferring particular aspects of a project and/or knowledge, lessons and best practice arising from the project's delivery in order to influence the way public sector services are provided;
- further funding – identifying alternative sources of grant funding

²⁵ Most of the UK ERDF/ESF authorities impose such a condition in project funding application forms and selection criteria. See for instance, the Welsh European Funding Office: ERDF and ESF programmes for 2007-2013 All-Wales programme monitoring committee project selection and prioritisation; <http://www.wefo.wales.gov.uk/>

²⁶ <http://www.gos.gov.uk/497417/docs/189146/329872/HowToProjectSuccession.pdf>

or loan finance in order to continue a project's activity;

- the enterprise route - developing an alternative business and/or operational model, through commercialising aspects of the project, or creating a realisable asset base in order to bring in sustainable income to the project;
- project closure – winding down a project's activities as efficiently and effectively as possible in order not to impact adversely on the project's staff and its clients, and to capture the benefits and any lessons learned.

The approach adopted in the London example includes a useful 'readiness assessment' tool²⁷ which enables project managers to assess which of the above four options is most realistic in their case and the strengths and weaknesses they need to tackle in developing an action plan, or exit strategy, for after the end of the current project.

The analysis in this paper focuses on comparing material from the case studies putting it in the wider context of the project type and regional profile. Key elements, likely to influence sustainability include:

- the legal form/type of structure that is recipient of the funding: public authorities, not-for-profit organisation, educational institute (university, school), private firm, cluster of private firms, public-private partnership;
- the type of project: infrastructure including equipment, service delivery, business projects (product development, enterprise creation), policy development (strategy planning, exchange of know-how, inter-regional projects, etc.), (venture) funds, programmes

²⁷ The "Readiness Assessment Tool" for assessing the exit strategy for a project has been prepared in Excel format and is available at: <http://www.gos.gov.uk/497417/docs/189146/329872/ReadinessAssessmentTool2b.xls>

(grants, services to multiple recipients); and

- the exit strategy, using the London region classification presented above.

A ranking was attributed to each project based on the evidence available from the case studies. It should be underlined that this should not necessarily be read as a hierarchical scale (i.e. '1' is not necessarily bad and 5 is not necessarily 'good'), rather it reflects the timing in the project cycle and the type of project examined. Hence, a grant based socially orientated project run by a public authority is almost certainly going to be extended with purely public funds (but hopefully without further need for ERDF support); while a one-off product development type project (e.g. Hibridmolde or VUT100) is likely to be self-financing assuming that the project outcome is positive.

The main questions addressed in the rest of this paper include:

- Was project sustainability or an 'exit strategy' built into the project design from the beginning or at a later stage?
- In what form, if any did the project activities continue, or are expected to be continued, after the end of ERDF funding?
- How was funding ensured for continuation of the project activities?
- Did the management of activities and organisation structure change following the closure of the project?
- How did the activities evolve? In the context of projects, which are part of bigger initiatives, how are the activities integrated into these initiatives?
- How did the role of the public and private partners change in continued activities? How did the partnership and leadership evolve?

The analysis will conclude with the key lessons learned from the case studies for different approaches to ensuring project's results sustainability.

2.9.2 Life after the ERDF: a typology of projects and exit strategies

The analysis of the 60 projects suggests that very few were 'one-off' isolated initiatives with no obvious scope for follow-up. Several projects were essentially self-contained with a discrete deliverable in a relatively short-time frame, but these mainly concerned direct funding or support to private firms (VUT-100, Hibridmolde, Biogenomica); or public support programmes which tested a regional development instrument through grant funding, with less than conclusive results (Exporting North Jutland, Digital Territories). Only a couple of projects can be considered to have failed, indeed only one has had no outright follow-up.

The latter group concerns several projects funded in educational establishments (schools and universities) where the services developed were integrated into the general services of the institution (e.g. Dialogues in Scotland, Ueckendorf School in Germany, ePortfolio in Berlin).

While some of these projects could have been labelled as 'further funding', the mainstreaming definition appears more relevant since a) the pilot actions or are extended or replicated in the next ERDF period (so mainstreamed); b) exchange of know-how fostered through INTERREG IIIC projects is expected to be integrated in regional level policies; and c) the strategic plans of the governance projects are used to create a 'project pipeline' for future ERDF (and/or national/regional) funding periods.

Exhibit 9. Number of projects per type and exit strategy

Exit strategy Type of project	Main-streaming	Further funding	Further funding/ enterprise	Enterprise	Project closure	Total
Business project			1	2		3
Fund		1	1	1		3
Policy development	7		1			8
Infrastructure		1	1	1		3
Infrastructure/ services	1	9	7	8		25
Services	3	6		2	1	12
Programme	2	2			2	6
Total	13	19	11	14	3	60

Exhibit 10. Number of projects per type of recipient and exit strategy

Exit strategy Recipient	Main-streaming	Further funding	Further funding/ enterprise	Enterprise	Project closure	Total
Private firm				4		4
Not-for-profit	1	5		4	1	11
RTO			2	1		3
PPP		5	5	4		14
Cluster		3		1		4
Education	2	2	3			7
Public authority	10	4	1		2	17
Total	13	19	11	14	3	60

Nb: RTO = Research and technology organisation, PPP = public-private partnership, education= an primary, secondary or third level educational institute

The group of projects seeking further public funding include three out of four of the cluster projects (only Fibre Optic Valley hopes to be able to 'stand on its own feet' thanks to the creation of a legal entity in the form of a development company); but are otherwise rather diverse in terms of recipient of funding or type of projects.

Exhibit 11. Sustainability scores for 60 case study projects

Score	Number of projects
1- No clear exit strategy or no potential for continuing except public funding	18
2 - Limited potential to generate other funding, on-going need for public funding	8
3- Potentially self-financing in long-term	19
4- Already partly self-financing - sustainable in mid-term	9
5- Self-financing and sustainable at end of project	6

As can be seen from the exhibit, only 10% of the 60 case studies were self-financing at the end of the project. While 18 of the projects are expected to only continue with public funding (including in many cases a presumption of additional ERDF support), these projects tend to be public programmes, policy development or INTERREG IIIC projects and several projects from the new Member States where national financial resources are limited. Aggregating projects that are potentially self-financing in longer run, sustainable in mid-term and already self-financing, leads to a majority of projects with a reasonable potential for sustainability.

2.9.3 Paths to sustainability

2.9.3.1 From grant dependency to revenue generating projects?

A number of projects exemplify the difficulties public agencies can experience in trying to shift from a subsidy based to a fee based or revenue generating activity in support of

regional enterprises. Certain programmes or projects providing services to SMEs made an explicit decision to charge or not to charge commercial rates for services provided (e.g. Cybermassif in France or Opportunity Wales, both aiming at providing e-commerce or IT support services to firms). The rationale in both cases was that smaller regional firms would not be willing to pay for the services provided. The issue raised by such programmes is to what extent the public sector intervention is helping to correct a 'market failure' in stimulating demand by SMEs for e-commerce and advanced IT solutions; or whether the public intervention maintains a grant dependency and undercuts the development of a private sector supply of IT services in the region. Several other projects involved instances, where the ERDF was, positively, filling gaps in the national policy mix supporting innovation and product development (VUT-100 aircraft project in the Czech Republic), or, somewhat paradoxically, running contrary to a national 'orthodoxy' against grant funding of firms (Exporting North Jutland). In the first case, it can be hoped that the new form of support can help to complement the range of policy instruments and will continue, if effective, post-ERDF with national funds; while in the second, the ERDF funding scheme although considered effective in reducing administrative burden on local firms, seems unlikely to be extended or replicated in the Danish context.

A number of projects took place in regions or cities where the local authorities have significant budgetary problems and where local resources for investing are severely limited. Such projects raise an issue of longer-term sustainability in terms of the renovation of the infrastructure, renewal of equipment or continuation of services developed with ERDF support. Examples include projects from new Member States, Warhol City (Slovakia), the Drava project (Hungary) but also two German projects 'Ueckendorf school' (North-Rhine Westphalia) and ePortfolio (Berlin). A range of other projects, not always from the poorest

regions, reported that ERDF financial support was a vital complement to limited public funding possibilities (including Finnish, Slovenian, Spanish, UK etc. projects).

Methods for sustaining the ERDF investment may vary, with the German or Finnish authorities usually finding a mix of revenue generating and public funds to continue activities, but the projects in the new Member States generally require a further round of ERDF support to maintain the benefits accrued during the first period. To what extent should conditionalities be placed on ERDF financial support (e.g. evidence of a commitment by national authorities to support post-ERDF, medium-term budgetary plan of local/regional authorities to ensure the ERDF investment is sustainable, etc.)? The two or three examples of very local/rural development projects supported are the tip of a large iceberg in terms of ERDF funding during the past and current period. Renewing small-scale tourist infrastructures, repaving town centres, etc. are certainly worthy investments from a public good point of view. However, the cases suggest that they are most likely to generate significantly improved regional development prospects as part of a wider urban or rural development initiative generating critical mass in specific sectors (tourism, alternative rural products, urban regeneration plans attracting new businesses to inner city areas, etc.). The Drava project, for instance, is linked to a series of investments at regional level in Hungary as well as inter-regionally through INTERREG IIIA support across the Hungarian-Slovenian-Croatian borders. An overall drive to promote eco-tourism and improve accessibility to the region generated by this 'portfolio' of projects makes it more likely the regional ERDF funding will generate new sources of economic activity and revenue, helping to improve the public finances through increased tax, etc. revenues.

2.9.3.2 Financially viable regional 'knowledge' centres

The stakeholders or public authorities overseeing the various 'centres' (innovation, competence, industrial laboratories, science parks, etc.) supported in the projects reviewed tend to impose a minimum level of cost-coverage if not financial self-sufficiency, although time horizons tend to differ depending on the type of activity and the regional context. However, it is not enough to fix a 50%, 60%, etc. own revenue target and expect centres to achieve it. The various cases provide some interesting pointers to ways of ensuring such centres to find their own 'market niche' and generate own resources.

A key message is that such centres need to be close to industry in order to capture what the Finnish project WellTeknia calls "weak signals about upcoming business trends". Another example is the NanoFab project in Italy, where the ERDF investment has created an environment for contract research and services to industry and where the national government has committed significant funds for such projects, which the centre only can access indirectly through developing projects with industry; a sort of performance contract on a case-by-case basis.

The evidence from the case studies (notably the successful and already basically sustainable centres such as Multitel in Belgium, Nanotronics centre in Germany, CTAP and CENER in Spain), suggests that a number of factors are important in ensuring such centres reduce their dependency on public funding and become suppliers of 'valued' services to regional, and indeed non-regional, enterprises.

These include:

- A distinct legal structure, independent from 'host' organisations (such as universities) with a management board composed of a representative mix of 'academic', technical and business representatives;

- A clear mission distinct from academic or more scientific driven objectives of the academic sector, encapsulated and developed operationally through a business plan forecasting expected investment needs and outcomes three-to-five years ahead;
- Flexible employment possibilities enabling younger engineers or scientists to develop more industrially orientated projects but with the possibility to shift back upstream into the 'faculty' as well as 'downstream' into the business sector
- A balanced mix of funding avoiding dependence on any single source, for example, a mix of contract research/services delivered to both regional SMEs and larger multinational firms; or only securing EU Research Framework Programme, etc. projects related to the core business of the centre.

The public funding component of the annual budget of such centres is best provided in the framework of a multi-annual 'contract by objectives' setting a limited set of targets against which performance of the centre can be measured from a regional development perspective. The multi-annual nature (five years is common) of the contract enables the management of the centres to develop an operational strategy and recruit required staff for these 'publicly funded' activities, without worrying about the vagaries of annual public budget rounds.

Several of the projects examined ran into difficulties due to the absence of one or more of these basic conditions, e.g. lack of a legal structure for the LAV laboratory in Emilia-Romagna; imposition of ERDF funding rules after an initial stage of national funding for the Estonian Competence Centres; or Sonic Studio in Sweden which face difficulties securing national funding (with a risk that their original mission will be distorted in a search for alternative funds).

The incubators and science and technology parks examined in the case studies tend to have a slightly more

facilitated road to financial viability thanks to a mix of 'real estate revenue' and sale of services (or subsidies received for providing services) to tenant companies.

Multitel (Wallonia, Belgium): a pro-active strategy to achieve sustainability

The innovation and industrial research centre, Multitel, located in Mons (Belgium) has since its creation actively pursued a policy to avoid such a dependency on continual public funding. The innovation centre aims to be self-financing in the medium-term, in line with targets set for all regional industrial research centres by the Walloon Government. The additional obligation imposed by the regional government to include business people on the board of such centres was welcomed by Multitel and has aided their strategy of seeking strong collaboration with industrial customers.

Following, its creation in 2000, Multitel pursued financial sustainability by both seeking revenue generating projects with industry, allowing it to post a positive balance sheet after only a couple of years of operation. In addition, investment in a new building, financed using €2.5m of ERDF funding plus €1.1m of own funds, gives the centre collateral and hence a stronger financial basis.

Multitel operates a five-year rotating business plan and the management considers the viability of the centre is guaranteed to 2020 thanks in part to a new project in preparation with a consortium of industries. By 2010, Multitel plans to have less than 50% of its annual operating budget sourced from public funds, based on increased contract research revenues, the sale of specialised training services to businesses and an active, but focused, participation in European research programmes.

Again, however, a pure real estate investment seems less viable, or at least interesting from a regional development perspective, than the more dynamic models where specialised advanced facilities or equity financing tools are winned with the infrastructure investment. MST Factory (Germany), Thermi Incubator (Greece), Sonic Studio (Sweden), Snowpolis (Finland) all seem on the road to achieving sustainability through an

intelligent mix of specialised services and in most cases a 'thematic' specialisation in one or more technological fields.

2.9.3.3 Investment funds: leaving a legacy?

The investment fund projects reviewed all have a built in assumption of sustainability in that there is an expectation that the return on investment will generate fresh funds for future investments; as well as stimulating the development of a private equity industry in the region.

The NStar example (see box) illustrates that a well thought through strategy in creating a regional investment fund can lead to a significant long-term build up of capital in a region.

However, a similar investment approach in the neighbouring North-West of England to create the NWBIS legacy fund was, at the time of writing of the case study, at some risk due to a risk of a discontinuity in investment flows due to growing demand for investments. The current fund will have been fully invested by April 2009, but it will not be possible to meet the level of demand without a new injection of public funds to invest for the period 2008-2013. If the next fund is not in

operation before the end of the current fund it will affect the performance of the latter because of the growing equity gap. The first significant returns to the legacy fund are expected around 2010, with the NWBIS successor needing to be in place by early to mid 2008.

Hence, a critical issue in the investment fund approach is one of timing related to 'legacy funds', since a gap in availability of financing may undo some, if not all of the momentum of investment built up and jeopardise legacy funds.

All three of the investment schemes underline that sustainability is about more than a return on specific investments, or even generating legacy funds. The sustainability of such projects depends on the creation of awareness of the potential interest for enterprises to make use of venture or other forms of equity capital to support their development as well as the creation of specialist knowledge, in country or in region, in the investor community.

Creating a climate for investment in Latvia

In Latvia, three fund management companies supported by the ERDF have acted as pioneers, attracting external private financing to supplement public and in-house funding. The newly created Latvian Venture Capital Association acts to promote the concept of venture capital market mechanisms and competitive investment projects by organising joint events. The funds were also able to attract local institutional investors (two pension funds) to co-invest. The launch of the ERDF co-financed public scheme has helped to promote Latvia as a location for venture capital investment and reinforces the interest of other funds, notably from the Nordic-Baltic area to invest in the country.

Nstar Fund in North East Fund: a lasting legacy

By using a legacy fund created from return on investments and interest accrued on idle funds, the Nstar project aims to extend both the North East Co-Investment Fund and the North East Proof of Concept initiative past the December 2008 deadline for using ERDF funds. The North East Proof of Concept fund is already seeing an initial return from the original pilot stage, so due to the lower than expected failure rate, it is fully expected to be able return close to the full investment, and to operate for the foreseeable future.

However, sustainability is not just being achieved financially. The networks of venture capital/leverage established through the North East Co-Investment Fund along with the credibility and trust for the fund achieved by the managers will have long lasting effects across the region.

2.9.3.4 Regional clusters and partnerships: membership and shared services

In general, the cluster and public-private partnership projects reviewed require some degree of further public funding to sustain their activities. However, several have moved successfully towards a fee-sponsorship based membership approach or have begun to generate some revenues from services linked to shared facilities or equipment.

The most advanced model studied is undoubtedly Medicon Valley Alliance (in the cross-border Copenhagen-Malmö 'Öresund' region) which by 2007 was one of Europe's most significant cluster organisations with 256 paying members, involving university departments, healthcare organisations and most of the biotech and medical technology related companies and other organisations located in the region. In return for the membership fee, members receive a range of support services helping them to identify business collaboration opportunities, or partners from the health research sector; as well as benefiting from the spin-off of being part of one of the most visible 'regional branding' campaigns worldwide.

Other cases examined are obviously further away from achieving such notoriety and are of a small scale, but a common pattern builds up where cluster organisations need to offer more than 'a brand name' or regular meetings. Specialised service provision (e.g. the electronic platform for identifying sub-contractors of Aviation Valley in Poland), pooling equipment to create joint laboratory and testing facilities (the Omnipack cluster in the Czech Republic, PUCK polymers cluster in Sweden), offering complex 'packages' of solutions to major customers by pooling know-how of different cluster firms (Omnipack again), developing 'testbeds' or 'living labs' (Fibre Optic Valley in Sweden or I-City in Flanders) allowing companies to test and demonstrate pilot products and applications in 'real-life' circumstances; are all examples of the way in which the

cluster projects have worked to create value for their members in order to sustain co-operation beyond public funded projects.

Equally, a second message on sustainability of cluster type structures is the need to involve a 'triple-helix' type partnership bringing together companies, education and research organisations and public authorities. This is not a new message but is clearly visible in the majority of cases examined by this study. Such partnerships enable fund raising and competence pooling from a mix of sources and give not the cluster 'project' but the cluster itself longer term potential for sustainability.

The issue for the ERDF is at what stage European 'seed funding' for such clusters has played its role and national or regional public-private funds should take over the job of sustaining the cluster. Certainly, beyond an initial start-up phase an over-dependence on public funds for clusters is probably a good indication of a lack of pertinence of activities or services provided to the key cluster members: the regional businesses.

2.9.3.5 Public programmes: when to cut off the ERDF funding tap?

Various programmes (Proof of Concept in Scotland, Knowledge Exploitation Fund in Wales, Competence Centres in Estonia) delivering State Aid to enterprises or support research commercialisation from universities aim at producing longer term 'cultural' shifts in academic entrepreneurship and in stimulating the private sector to invest more in innovation.

These programmes tend to see sustainability in a wider 'system' context whereby the broad range of actors (enterprises, private investors, universities) involved are expected over time to integrate lesson learned and create an incentive system that operates without the need for public intervention.

In terms of funding programmes, the issue for the ERDF is not so much 'sustainability' but the role of European funding. Should the ERDF intervene to extend coverage and/or pilot 'add-ons' to an existing programme (e.g. Proof of Concept in Scotland), or simply to provide co-financing without any significant change to existing programme benefits? The issue is clearly complex. One argument is certainly that ERDF intervention to co-finance a successful programme is 'good value for money', it may allow to experiment new approaches and may also free up resources in the public budget of the region or country for other related actions. Another case, is where a programme supported helps to complete the regional or national policy mix (the programme support the Czech VUT-100 aircraft project is an example). Again here, once the approach has been experimented and, hopefully, proves to be successful, should the ERDF continue to fund a second round, or move on to help tackle new issues?

The issue is clearly one of political priorities and maximising support to the national or regional policy mix in support of innovation, information society, etc. The Greek ELEFTHO

programme, which supported the Thermi incubator case, is part of a new approach to promoting more innovative start-ups in the country and is complemented within the national policy framework by other actions such as PRAXE (pre-seed funding for spin-offs which supported the Biogenomica case). ERDF intervention here seems more than justified given the low rates of academic spin-offs and more technologically advanced start-ups in the country.

Again, success and sustainability for such programmes will be measured by the day when such interventions fall down the list of priorities and ERDF support is re-directed to a new challenge.

Programme sustainability: working to remove the need for intervention

Two examples help to illustrate the process by which programmes may eventually resolve the 'market' failures they were targeted at initially.

In Scotland, the Proof of Concept Programme (PoCP) addresses the 'system' failure of the financing gap between academic research and the moment when venture capital funds are willing to step in and fund further business expansion. According to senior officials, the final aim should be that universities find mechanisms to give incentives to academics to undertake proof of concept and that venture capitalists are willing to intervene earlier. However, they concede this day is still some way off even if two small seed capital funds have been set up aimed at post-PoCP projects. However, this is recognition that the PoCP includes a good deal of credible 'due diligence' that enables investors to back projects with more certainty at an earlier stage.

In Wales, the Welsh Assembly Government will continue to fund the Knowledge Exploitation Fund for patent and proof of concept and collaborative industrial research partnerships beyond the end of ERDF funding. The technology transfer centres and technology transfer networks will continue with the aid of the revenues they internally produce from institutions. As a result of the end of the ERDF project, the overall programme funding will be reduced by roughly a third. It is a requirement of KEF that institutions build sustainability into their operations, and its funding aims to build capacity and develop institutions' ability to support the needs of the Welsh SME base. In the longer term, it is felt that the networks and relationships established through collaborative industrial research partnerships and other projects should be able to exist long after ERDF and KEF funding has ceased.

2.9.4 Implications for regional policy

This cross-cutting review of the sustainability of 60 ERDF co-funded projects enables a number of useful conclusions to be drawn. These main messages are as follows:

- the need to adopt a differentiated approach to the concept of (financial) sustainability depending on the type of project:
 - Funding of programmes run by public agencies needs to be viewed in the context of a developing policy-mix with ERDF funding phased out after the pilot phase of the programme has proved the value of the intervention.
 - Support for regional development projects, often supporting limited local authority budgets, needs to be linked to some form of conditionality in terms of an on-going commitment to maintain infrastructure or services supported;
 - Investment funds projects need ensure a legacy but lower than expected investment rates, or discontinuities in investment funds before legacy funds build up can undermine otherwise well functioning projects.
- the importance of developing rapidly mixed-sources of revenues for regional 'knowledge centres', avoiding dependence on one source, or mission drift linked to chasing public funding under open calls. Public shares of funding should be gradually decreased and the remaining public support linked to clear, objective objectives in a multi-annual contractual agreement;
- the need for cluster type initiatives to build in a service package or joint structures creating value added above and beyond a single project, thereby encouraging a healthy 'membership' of private companies investing in the future of the cluster.

A clear operational message is that 'exit strategies' need to be given more than a passing glance during project design and selection procedures. Experience of countries such as the UK in promoting a 'succession' process at the end of the ERDF intervention could be usefully drawn on in the new Member States.

2.10 Value added of the ERDF intervention

2.10.1 Introduction: policy context

The concept of the value added of the ERDF intervention is at one and the same time, the very essence of what the 60 case studies have been seeking to examine; and a notoriously difficult concept to define operationally or appraise. In the simplest possible terms, value added refers to the additional quantitative or qualitative features of a project, which the ERDF funding made possible²⁸.

The concept of "Community value added"²⁹ has been used repeatedly in the context of the Structural Funds, and notably in terms of the evaluation process. In the current (2007-13) period it is not explicitly defined in the regulations but is still referred to in several places in the main regulation, notably in terms of the need to maximise "Community cohesion policy value added" by concentrating resources and adopting a more strategic approach³⁰.

The evaluation guidelines produced by the evaluation unit of DG REGIO in support of the evaluators of ERDF programmes for both the past (2000-2006) period and the current (2007-13) period both refer explicitly to the concept of value added.

The guidelines for the mid-term evaluations of the 2000-6 period³¹ argued that:

"the community added value of the Structural Funds is made evident in studies which examine the counterfactual situation, i.e., what would have happened in the absence of Structural Fund support".

The Commission services noted that, in general, only anecdotal evidence is available on the aspects of added value such as:

"development of the planning process through the development of programming documents, development of partnership through the monitoring committee structures, broadening the range of implementation bodies through open tendering procedures, development of an evaluation culture, etc.".

More recently, the guidance for the ex-ante evaluation of the 2007-13 programmes³² argued that throughout the development of the programme and the process of the ex-ante evaluation, there should be a concern to maximise Community added value. The Commission guidance defined the concept on the basis of five criteria:

- economic and social cohesion;
- policy added value in relation to Community priorities;
- financial added value, in terms of additionality and leverage effect;
- the added value of the Structural Funds method, including partnership, multi-annual planning, monitoring, evaluation and sound financial management,
- added value which stems from the exchange of experience and networking at a transnational, national or regional level.

²⁸ For instance, the English authorities responsible for the ERDF programmes adopt the following definition: added value is the amount of extra benefit in terms of outputs gained as a result of European funding for the project, over and above those benefits obtained from other funding sources.
<http://www.erdf.communities.gov.uk>

²⁹ The word Community is used in the sense of "European Community" policies.

³⁰ http://ec.europa.eu/regional_policy/sources/docoffic/official/regulation/newregl0713_en.htm

³¹ http://ec.europa.eu/regional_policy/sources/docoffic/working/doc/midterm_en.pdf

³² See: http://ec.europa.eu/regional_policy/sources/docoffic/2007/working/wd1_exante_en.pdf

Thirdly, the EVALSED guide³³ notes that evaluations of Structural Fund programmes specifically consider the Community value added of the interventions. The guide argues there is no right or wrong way of identifying and measuring Community value added and its consideration needs to be tailored to the specific interventions and context. A number of "starting points" for examining the issue of value added are proposed.

EVALSED 'principles' for assessing value added

Firstly, the principles underpinning the intervention should be considered. These include the principles of: partnership; subsidiarity and additionality. Did the planning and implementation process engage the appropriate partners? Were the key decisions taken at the lowest appropriate level? Were the interventions additional to what would otherwise have occurred?

Secondly, how does (or did) the intervention contribute to the wider EU policy agenda (Cohesion policy, the Lisbon Strategy, the European Employment Strategy, gender mainstreaming, etc.) should be assessed.

Thirdly, the extent to which there have been impacts on institutions and systems including the transnational exchange and transfer of good practice or policy mainstreaming that are a consequence of EU financing of the intervention should be assessed.

Fourthly, the assessment of Community value added should consider the extent of complementarity between the EU interventions and national policy instruments. To provide a balanced assessment these and other aspects of Community value added should be set against any attendant transaction costs.

Drawing more on experience of programme managers and evaluators, a useful discussion of the concept of community added value is contained in

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http://ec.europa.eu/regional_policy/sources/docgener/evaluation/evalsed/index_en.htm

Bachtler & Taylor (2003)³⁴. This paper proposed five types of value added:

- Cohesion added value: reduction in economic and social disparities - relative to other regions or within the region; measurable additional contribution to economic development such as creation/safeguarding of jobs, R&D activity, new firm formation etc; visibility of the EU to the citizen.
- Political added value: enhanced visibility of the EU; increased participation of sub-national economic development actors, businesses and citizens.
- Policy added value: additional expenditure on regional development - national co-financing; sub-national co-financing; private sector leverage; higher profile of regional policy; changes in existing policy; innovation in policy.
- Operational added value: defined in terms of changes to institutional arrangements or implementation methods with respect to: (a) enhancement effects – additional or enhanced variants of existing practice; (b) innovation effects – new practices; (c) detractive effects – enforced use of undesirable practices; and (d) learning implementation can be done.
- Learning added value: exchange of practical experiences; dissemination of good practice.

Finally, a 2006 paper prepared by the Scottish Structural Fund authorities³⁵ proposed two broad categories of value added sub-divided into a number of

34 The Added Value of the Structural Funds: A Regional Perspective IQ-Net Report on the Reform of the Structural Funds. EPRC, University of Strathclyde, Glasgow. Available at: <http://www.eprc.strath.ac.uk/iqnet/reports2.cfm>

35 The definitions and possible types of value added presented here are drawn from 'Adding Value, Keeping Value', Draft Report of The Scottish Structural Funds Value Added Group, February 2006.

more specific ways of creating value added.

According to this approach, quantitative value added can be captured in three ways:

- Greater scale of outputs/outcomes. Structural Funds support can boost the outputs and results of projects by increasing its scale: e.g. more places on a training course.
- Wider scope of outputs/outcomes. Support can also allow different types of outputs and outcomes that were not originally envisaged by the project designers: e.g. providing additional qualifications to beneficiaries being trained.
- Shorter timescales. With additional funding, projects may be completed sooner than originally anticipated: e.g. construction projects.

Qualitative value added is more complex and can be thought of in a number of ways:

- More efficiently managed projects. Although the Funds have been criticised for the level of bureaucracy associated with application and accounting for the funding, the level of monitoring required by the Structural Funds regulations has led to a relatively close tracking of projects in many cases, often resulting in their improved management and implementation.
- Better fit with national/local strategies. Projects should demonstrate a clear fit with existing domestic strategies when applying for funding – strategic complementarity of the different funding streams is more likely to result in greater impact.
- More integrated with parallel/similar projects. Through its strategic overview, Structural Funds programmes can provide opportunities for ‘clusters’ of projects to reinforce complementary actions at a local level. At the same time, they can minimise duplication of project activity, leading in many cases to an

integration of different projects with a common objective as part of a single funding application.

- Better supported by evidence base and evaluation. Project demand is an important requirement of Structural Funds funding – by insisting on an evidence base for support, Structural Funds can compel projects to review their rationale. The evidence base can also become a resource for wider policy development, as, for example, when projects make use of labour market studies in justifying demand.
- Promotion of key policy goals. The promotion of the horizontal themes in the Structural Funds – particularly equal opportunities and sustainable development – has been an important feature of their value added. The Funds have been marked by a comprehensive approach to supporting the horizontal themes, characterised by the need for applications to comply with particular criteria, the need to demonstrate active measures to consider the themes, training support for project design and delivery and periodic monitoring and evaluation of the themes.

This short review of the value added concept highlights that while there have been slightly different approaches to the question used by different official documents, a number of common themes are visible:

- Scale, scope and timeliness of regional policy interventions;
- Improvements in management and programming capacities;
- Synergies in terms of local, regional, national and European policy goals;
- Improvements in learning and transferability of know-how on regional policies.

2.10.2 Synthesis of the value added effects

Building on the literature review, the approach adopted was to scan and score each of the 60 case studies against six "value added" criteria.

- *Innovative value added:* this criterion measures the extent to which the project concept, processes or output are 'new' to the region. The criteria addresses the question of what the ERDF has done to stimulate new approaches or new methods in regional policy.
- *Quantitative value added:* this criterion captures the three 'input effects' where ERDF intervention can enable regional authorities or partners to implement projects of: (i) a greater scale of outputs/outcomes; (ii) a wider scope of outputs/outcomes; and (iii) shorter timescales.
- *Cohesion value added:* This criterion could also be called regional impact value added, the issue addressed is to what extent a quantifiable or observed impact has occurred as a result of the project.
- *Strategic value added:* This criterion captures two elements of the case studies, firstly (i) to what extent the project fits with the regional development strategy; (ii) does the project contribute to wider EU policy goals (Lisbon, sustainable development, etc.).
- *Operational value added:* this criterion draws on the review of management and partnership elements in the projects. The issue here is to what extent the project has led to new management methods or contributed to creating or extending regional partnerships.

- *Learning value added:* This last criterion attempts to capture the extent to which the project has led to an improvement in evaluation and monitoring methods and related learning tools.

A simple scoring process has been applied to each criterion using a three level ranking:

- 2 - Good value added effect observable,
- 1 - Observed but modest effect on value added;
- 0 - No effect on value added or no evidence yet of any effect.

The time dimension is an element in the level of effect observed. Hence, a project scoring 0 or 1 may simply reflect that it is still early in the implementation process. However, this remark concerns more the cohesion (impact) value added and is less valid for the innovative, quantitative and strategic criteria, since such effects should be observable from an early stage in any 'good practice' project.

The table below summarises the scores attributed to each of the 60 case study projects based on the criteria. The strongest value added appears to be present in terms of the strategic contribution and coherence of the projects to regional/national policies and/or to European policy goals.

This is encouraging given that the projects selected were considered 'good' practice by the Commission services or national/regional authorities. A high number of cases with no observable strategic value added would have hence been surprising.

Exhibit 12. Number of cases per rank and per value added criteria

Number of cases Criteria	Innovative VA	Quantitative VA	Cohesion VA	Strategic VA	Operational VA	Learning VA
Good	17	21	8	40	22	12
Modest	36	31	38	20	34	38
Not observed	7	8	14	0	4	10

Source: case studies, analysis Technopolis Group

A third of the cases exhibit good value added in terms of the quantitative and operational criteria, and the vast majority of cases have observable effects for these two criteria. The number of cases scoring highly on the innovative value added criterion falls below a third, but the majority of cases display at least a modest level of 'innovation' in terms of the project concept.

The following sections explore in more detail and provide examples of the types of effects witnessed for each of the value added criteria.

2.10.2.1 Innovative value added

The overall theme of this study has been "innovative ERDF projects", hence the relatively low number of projects scoring "good" for this criterion can be considered as somewhat disappointing. The explanations are manifold but often reflect that value added of the ERDF intervention is not so much to be found in the content or techniques of the projects as in the process, partnership or operational aspects. Too few projects, however, were truly aiming to 'break new ground' with most either extending or building on existing actions or duplicating/replicating similar measures in neighbouring regions. Hence, the majority of regional projects were scored as having modest innovative value added since while the project concept or one specific tool might be considered innovative, the overall project activities themselves were rarely novel even from a regional perspective.

This might reflect the need to comply with the n+2 rule during the 2000-2006 period with the result that only 'mature' projects were favoured in selection processes. However, this is a hypothesis that requires further research to be confirmed.

Why should regional politicians and policy-makers and practitioners be concerned to favour more innovative approaches? One argument is certainly the, pre-assumed, 'temporary' nature of Structural Fund support, if funds are being purely channelled into 'business as usual', then they are less likely to have a structuring effect on regional development processes and change development trajectories.

On the other hand, adopting a more innovative approach implies heightened risk that projects will fail and that the return on the ERDF funding may be reduced. The trade-off between adopting a more innovation-driven policy approach with heightened risk but potentially greater long-term paybacks versus a risk-adverse short-term return on investment approach is clearly at the heart of this question.

A number of projects stand out in as much as they sought to 'innovate' either in terms of the project concept, technologies or delivery methods, good examples include: Intotalo and Snowpolis (Finland), Digital Health Record (Estonia), I-City living lab (Flanders, Belgium), Warhol City (Slovakia), etc.

At the opposite extreme, ERDF funding has been applied also to a number of projects, which risk distorting market conditions: science park infrastructure project favouring an existing local firm, funding of public agencies in direct

competition with local private IT specialists; or offering one-off grants to a single producer.

Breaking through the sound barrier towards new sources of regional growth

With European Regional Development Fund financial support, the town of Piteå in northern Sweden tapped into the field of sound and music in search of new opportunities for boosting local development. Seeking to diversify from more traditional industries, Piteå has invested since 2003 in an entrepreneurship stimulating environment around an existing School of Music in a partnership with the Swedish national Interactive Institute. By mid-2007, the Sonic Studio has scored a number of successes. The most significant is DigiWall, a combined interactive climbing wall and computer game, with musical applications for therapeutic healing where the applications are adaptable to the patients actual physical status, etc.

evident that INTERREG projects would not have taken place without the ERDF support;

- Cases where the ERDF funding provided a "quality label" enabling the leverage / acting as a catalyser for additional private or public funds to be mobilised in favour of the project;
- Cases where the ERDF funds allowed to experiment or implement a wider range activities than would have been possible with national funds (in some cases freeing up national/regional resources to channel into complementary activities).

The ERDF as a catalyst for 'open innovation'

The ERDF co-funded Nanotronics Centre (North-Rhine Westphalia, Germany) is a good example of how public support can encourage a large multinational firm to open up its research and development processes to co-operation with local firms and research centres. Rather than continue to internalise research in the nanoelectronics field, the Degussa company built a state-of-the art centre where some 40 partners work together on joint product development projects. ERDF funding was crucial in convincing the company to adopt this more modern 'open-innovation' approach. The centre has already yielded results after less than two years of operations, with some six patent application filed and economic results expected within a five year time horizon.

2.10.2.2 Quantitative value added

The quantitative value added effects of the projects are generally ranked strongly and the experts carrying out the case studies appear to have often taken at face value the remarks and comments of the people interviewed that "*ERDF funding was necessary for the project*". While such affirmations need to be taken with the proverbial "*pinch of salt*" (as telling an interviewer working for a study on behalf of DG REGIO that "*we didn't need the ERDF money*" would be a bit like turkeys voting for Christmas), there does seem to be a range of factors which justify this conclusion for a majority of cases.

The cases can be grouped according to the differing nature or intensity of the quantitative effect:

- Cases where ERDF funding was vital or 'really' necessary due to limited own resources: these tend to be found in the 'cohesion' countries (the new Member States) but also in a number of 'cash-strapped' cities or local authority areas (including surprisingly two of the German cases). Equally, it is

The second type of effect is particularly interesting and is a relatively common refrain amongst the projects. ERDF funding, due to the strategic programming framework or more developed selection procedures can often be likened to a form of '*due diligence*', so that 'investors' feel more relaxed about committing their own funds to the project.

Quantitative value added was scored lowly in a number of cases, notably 'Objective 2' zones, where the use of ERDF funds was not particularly effective. In these cases of economically advanced regions with a complex policy mix, policy makers and programming

The ERDF: changing regional prospects in multi-faceted ways

Tjärnö Innovation System: a €205,000 project which added a thematically focused (marine technology) commercialisation service to an existing technology centre on the west coast of Sweden. In only two years, the project has led to the approval of six patents, six newly established companies and supported the creation of around 100 jobs in the region.

MST Factory (Dortmund, Germany) is a specialised incubator facility uniquely dedicated to start-up firms in the fields of micro- and nano-technologies. In addition, to the standard business incubation services, it provides clean-room facilities, which are shared by the companies located in the facilities. The centre is fully occupied and has attracted four start-up companies from outside of the region (and indeed Germany) to locate to the incubator due to the unique services provided.

The Porto Digital (Portugal) project brought together a unique and comprehensive partnership of public agencies with the shared objective of radically and rapidly closing the digital divide in the second most important city in Portugal. Thanks to ERDF co-financing, broadband connections covered in 2007 about 55 public sites and will be extended to over 200 by 2009. The broadband infrastructure has been built in such a way to guarantee a geographical coverage of most of the city. The project has been so successful that neighbouring municipalities have joined the initiative and the Internet is now accessible by a wider public including young people, poorer communities, and people with physical or mental disabilities

Fibre Optic-Valley is a cluster for the development and testing of products and services based on fibre optics technologies. It is situated on the north-east coast of Sweden between Gävle and Sundsvall, with its centre in the town of Hudiksväl. Launched in 2000, and co-funded by the European Regional Development Fund amongst others, the cluster has assisted to turn around the flagging fortunes of the local fibre optic firms. By the end of 2006, 230 new jobs had been created in the region, and about 500 nationally thanks to the activities of Fibre Optic Valley.

authorities need to consider more carefully the value added which can be contributed by the ERDF.

2.10.2.3 Cohesion value added

Cohesion value added is in some ways the hardest criterion to assess. The case studies are in many ways a snapshot of a project at particular instance in time. It is clear from reading them that many projects will not generate a full impact in the short-term; and that other projects (notably in the cohesion countries) will require a second round of ERDF/public support before reaching operational maturity.

Equally a number of projects considered were platforms or partnership based initiatives, which aim at generating a solid analytical and strategic basis for future development actions. These projects do not often in themselves generate significant impact directly (unless mobilising additional public funds in favour of the 'spin-off' projects is considered as an impact).

This said the same pattern of 'top-performers' versus 'could-do-better' projects emerges from the set of 60 considered here. In terms of direct and

appreciable impact: a few projects stand head-and-shoulders above the others, these include: Fibre Optic Valley (Sweden), Snowpolis (Finland), BioGenomica and Thermi incubator (Greece) Porto Digital (Portugal), ActNow (South-West England), Proof of Concept (Scotland), Tjarno Centre of Excellence (Sweden). Each of these projects has generated direct impacts of a different nature and quantitative scale (relative to the size of the initial project), but the key point is that they have can demonstrate that ERDF funding has led to positive effects in terms of employment, business creation, innovative products, etc.

At the other extreme, there was a group of initiatives with low direct impact including projects with a focus on policy-design and partnership building. These projects can be expected to generate indirect impact in the medium term through the various projects they help to foster.

Moreover, INTERREG IIIC projects tend to produce more intangible results in terms of transfer of methods, tools or know-how, or producing 'guides' on how to (introduce renewable energies, support internationalisation of SMES,

Regenerating a future for the marble industry in Andalusia

Macael marble has been hewn from the Sierra de los Filabres Mountains in Almeria in southern Spain since Phoenician times. Today, the stone sector of Andalusia remains concentrated in the area of Macael in the north of the province of Almería, where there are some 400 companies and a direct workforce of some 9,000 people. The region of Macael draws together the largest number of mining workings, production and workforce in the sector of extraction and transformation of natural stone in Andalusia.

Due to a range of factors (exchange rates, competition from lower cost producers, substitute products, etc.) production and exporting of marble from Andalusia has become uncompetitive. The Macael stone cluster began to look for new sources of added value, rather than continue producing 'raw materials'. As a strategic response, the Andalusia Stone Technology Centre (CTAP) was founded in 2001 based on partnership between public authorities, private firms and the research organisations in the region. The CTAP activities range from laboratory tests to the development of quality programmes and certification and the staff provide contract research and technical-commercial services in response to the need to improve competitiveness in the Andalusian ornamental stone sector, and the necessity to incorporate more suitable technology into its production procedures.

etc.). Hence, the measurement of cohesion effects of INTERREG IIIC projects requires a longer time frame and the capacity to track the use made of know-how exchanged inter-regionally in implementing policy locally.

2.10.2.4 Strategic value added

As noted above encouragingly, most projects scored well on this criterion, notably by displaying a good rationale in terms of their contribution to

resolving regional development challenges or fostering regional strengths (often in niche areas).

Particularly noteworthy examples of projects with a strong strategic value added include: the Snowpolis centre in northern Finland (building on the unique niche of winter technologies), cluster type projects such as Aviation Valley (Poland), OMNIPACK (Czech Republic), PUCK (Sweden) where the projects build on existing (often competitively threatened) sectors which are significant regional employers; large strategic programmes aimed at supporting knowledge based business development (KEF in Wales or Proof of Concept in Scotland); novel venture or seed funding structures supporting

entrepreneurial dynamics in regions or countries with low business birth rates or rates of innovative firms (such as in two schemes in the north of England and Latvia).

Aside from the many contributions to the Lisbon related fields such as innovation and information society, a number of projects were also contributing directly to a more diverse range of European level policy objectives. These include:

- *Sustainable development*: Samsø Energy Academy (Denmark), POWER, Encourage and Energy'regio (INTERREG), Drava project (Hungary), CENER (Spain), etc.;
- *Cultural policy*: Integrated Virtual Library (Lithuania), Warhol City (Slovakia);
- *Educational, training and social cohesion*: Ueckendorf School (Germany), Intotalo (Finland), ePortfolio (Germany)
- *Health sector*: Digital Health Record (Estonia).

The issue of how well the various projects were embedded in a strong regional strategy is further explored in separate comparative analysis addressing this theme.

Stimulating new partnerships in rural Hungary

The Integrated Ecotourism Development project of the Dráva Basin ("the Dráva project") aims at mobilising the Dráva river area's economic potential and intensifying revenue generating and higher value-added activities in the region. Second, it aims to improve nature conservation. It is a complex project consisting of 44 different sub-projects and bringing together 31 partners. It covers two regions along the river Dráva, which both have an already recognised tourism potential.

The participation of so many partners, many of which had never co-operated together before, in a single project is new at the regional level where 'entrepreneurial behaviour' of local authorities is uncommon. The partners' commitment and willingness to participate was greatly enhanced by the fact that the project was funded by ERDF and national grants. The inclusive nature of the project was typified by the fact that all local authorities representing the region's many small towns and villages were invited to participate in the design phase. An action plan was formulated as part of this sustained discussion process.

2.10.2.5 Operational value added

The operational value added criterion captures the contribution of the ERDF intervention in terms of improved project management and delivery as well as partnership elements of the project (the latter aspect is further explored in a separate comparative analysis).

While in overall terms, the operational value added was scored relatively well, the diverse nature of the projects makes drawing conclusions on these elements more difficult. Certainly, many projects report positive effects arising from the fact that they were obliged to put in place stronger management structures through the ERDF programming process.

Project management methods and approaches are to some extent 'project' and 'context' dependent, however particularly effective approaches to programme management can be observed:

- 'programme level', either overall or in the way certain aspects of the programme delivery were novel : KEF, ACTNow, Opportunity Wales and Proof of Concept (all UK based projects), Digital Health Record (Estonia), Digital Territories (PACA, France), Regional Competence Centres (Campania, Italy);
- in terms of introducing a more 'business orientated' approach in terms of management methods into existing or newly created structures: Multitel IT centre,

Belgium; Thermi incubator and BioGenomica (Greece), Tjärnö Innovation System (Sweden), or

- in terms of managing complex broad-based partnership type initiatives: PASI (France), e-business forum (Greece), Corsica White Book (France), etc. INTERREG projects by their nature tend to fall into this last category with a strong emphasis on developing appropriate management methods to deliver projects successfully in different regional contexts.

A Lithuanian digital treasure trove opened to the world

The Integrated Virtual Library project in Lithuania, co-financed by the European Regional Development Fund which is contributing €2.8m out of the total budget of €3.8m, aims to preserve in digital format Lithuanian cultural heritage objects collected by 'memory institutions' like libraries, museums and archives and to make the virtual collections accessible via the Internet. By the end of the project, the digital collections created will contain over 3,605,000 digital images of original manuscripts, newspapers, old books, church registers of births, chronicles, art-works and other especially valuable and historically important objects.

The project has strongly influenced Lithuanian cultural policy and its contribution to the achievement of the goals of the EU strategy on cultural heritage digital preservation. During the project's initial phase the best practices and strategic initiatives of EU programmes such as "TEL-ME-MOR", "eContentplus" or "i2010: digital libraries" were studied and worked into the Lithuanian strategy for safe-guarding and exploiting cultural heritage.

Advanced systems for project monitoring and evaluation in Wales

The Welsh Knowledge Exploitation Fund programme provides financial assistance to enable higher and further education institutions and industry in Wales to create a culture of innovation, cross-sector partnership and facilitate the transfer of knowledge between the two. By integrating a number of different funding mechanisms under a single programme, KEF acts as a launching pad for new technologies and spin-outs from inception to launch. The programme is a complex multi-annual initiative, multi-measure initiative with a budget in excess of €25m over the 2000-2006 period. The programme has funded 46 patent and proof of concept, projects; 23 collaborative industrial research partnerships; over 230 collaborative projects between industry and academia; 22 new technology transfer centres and ten technology transfer networks.

The programme management at the Welsh Assembly Government has put in place a sophisticated approach to monitoring to ensure that all projects are subject to monitoring and audit exercises through an Internet project management (IPM) system, with the project outputs used to inform internal and external evaluations of the programme. In addition to the IPM, at the end of each project, funding recipients are required to produce and submit closure reports. These reports are then filed and eventually form part of an evaluation process carried out by external consultants. Internally, KEF management creates learning logs so that lessons can be learned and fed back into the overall operational system. Both internal and external evaluations are carried out within the KEF programme, to ensure that issues are highlighted and successes recognised.

However, a fair number of ERDF funded projects also reported difficulties arising from compliance with stricter financial, procedures and rules imposed by national and regional programming authorities. Difficulties arose notably in the new Member States: e.g. OMNIPACK cluster (Czech Republic), Warhol City (Slovakia), Aviation Valley (Poland), VUT100 aircraft (Czech Republic), Competence Centres (Estonia). This clearly reduced the value added gained from implementing the projects.

2.10.2.6 Learning value added

The final form of value added concerns efforts by the project participants and managers to learn from the experience of implementing ERDF co-funded projects and, potentially, to transfer this experience within their own region or beyond. The generally low scores attributed to projects for this criterion reflect that many projects had not put in place robust or comprehensive evaluation and monitoring procedures.

In some cases, where projects were run by single organisations, this could appear justified (VUT-100 aircraft, Samsø Energy Academy, etc.), however, even here the need to monitor and assess quality of implementation and draw lessons should not be forgotten. A limited number of projects, or rather

programmes, have taken significant steps to 'institutionalise' sound monitoring and evaluation methods; while others have experimented with different approaches to either self-assessment or periodic reviews of progress.

In the case of formalised and advanced evaluation and monitoring methods for 'programmes', external evaluators (or peer reviewers) were used to select projects and then monitor implementation progress.

Secondly, what could be termed a 'technical' monitoring twinned with 'strategic oversight' approach tends to exemplify a mix of projects covering financial engineering and projects with a significant technology elements. In these cases, technically competent experts or staff monitor progress of the technical implementation of the project on an on-going basis; while periodic reviews of progress are undertaken at a more strategic level by a project or programme committee.

A larger number of projects, however, tended to adopt very standard approaches to monitoring and evaluation, by obligation rather than own-initiative, and hence lessened the likelihood to encourage learning and feedback for future rounds of ERDF programming.

A few projects have made a significant effort to disseminate and transfer

results beyond the scope of the project partnership or region. Staff from the Andalusian Stone Technology Centre, which was the first such centre of its kind in the region, are active in coaching and training staff from other newer centres.

INTERREG IIIC projects tend to place a significantly stronger emphasis on learning and knowledge dissemination by the nature of their activities and the overall objectives pursued by the programme. However, too often the outcomes of these projects are guides and 'toolboxes' which while useful in themselves in distilling knowledge in a particular field require take-up locally in order to generate real 'cohesion' results. The extent to which INTERREG IIIC projects have led to such spill-over or multiplier effects should be the focus of future evaluation studies.

2.10.3 Implications for regional policy

This brief synthetic review of the value added observed from the 60 case studies of ERDF co-funded projects during the 2000-2006 programming period provides insight into a number of issues that can be summarised as followed using the categorisation of value added effects.

Innovative value added

While the ERDF has clearly contributed to supporting a number of highly innovative projects, a key message arising is that many project promoters and programme managers are still tending to adopt a 'risk-averse' approach. The n+2 rule during the period may have encouraged this trend but further research would be needed to elucidate this hypothesis. One aspect that is clearly not always taken into account, is that more innovative approaches can require longer time horizons, with some projects running since the previous programming period only beginning to bear fruit with additional funding during 2000-2006.

Quantitative value added

Perhaps the most interesting conclusion to arise is that of the concept of the ERDF as a quality label for encouraging other public and private 'investors' to engage in supporting regional development projects. ERDF funding has also been used in a fair number of projects to extend existing programmes or widen the scope of activities beyond what would have been possible with regional resources. Equally, the time dimension is important and in several cases, the ERDF has allowed a faster and more effective implementation.

Cohesion value added

The degree of direct impact of the 60 projects examined varies widely, with a limited number, often those of a more structured and programme nature, displaying significant socio-economic impact. However, in many cases, the projects were still too early into their implementation to allow hard conclusions on final impact.

Strategic value added

This criterion fared best in the review of projects and encouragingly some two-third of projects were considered to provide good value added in terms of their contribution to national/regional and/or European objectives. This may reflect that several decades of ERDF programming practice, including innovative actions since 1995, have improved strategic capacities at regional level. However, as witnessed by the low scores for other value added criteria, being able to prove a case for the need for an intervention, does not suffice to ensure the expected outcome.

Operational value added

Results were more mixed here (remembering that these cases were initially selected as potentially interesting by the Commission or national officials) with a fair number of projects not displaying strong management skills or "*learning-by-doing*" during project implementation. Again a limited number of project can be considered as star performers (often run by long-standing and well-

structured regional development agencies or partnerships); while a number of partnership based models offer interesting lessons on how to mobilise regional stakeholders behind an initiative.

Learning value added

The need to further strengthen project monitoring and evaluation practices can be underlined as a conclusion. A number of the project offer interesting and sophisticated approaches to monitoring and appraisal which could be usefully learnt from in other regions. Equally, the increasing emphasis on public-private partnerships may lead to a requirement for the type of technical-strategic split in monitoring and evaluation observed in a number of projects.

2.11 What lessons can be drawn for strategic programming?

2.11.1 Introduction: policy context

This comparative analysis of the 60 ERDF case studies seeks to draw a set of overall conclusions from the experience gained by a diverse range of regional development projects and partnerships during the 2000-2006 period. The focus is on the lessons learned for strategic planning of ERDF programmes from the project level studies carried out.

What sort of projects from a programming perspective were examined by the case studies? Broadly speaking, five main types can be identified, with the regional project category being sub-divided between 10 projects of a rather more important financial scale and a larger group of smaller projects.

The need to understand how 'projects function' and can contribute to the successful fulfilment of a regional development strategy is something that should concern all regional policy stakeholders.

Yet, the pressures on programming authorities to complete and launch programmes in a short-time scale (often with only scant conclusive evidence as to how the previous programme has contributed to alleviating development constraints) is

increasingly combined with the need for ERDF 'regional development' instruments to contribute to meeting the EU's 'Lisbon', 'climate change', etc. targets.

Indeed, the focus of ERDF programming discussions shifted over the last 15 years, in part logically, from supporting major projects (infrastructure, etc.) to developing a more structured and strategic programming process at national or regional levels. At the same time, the officials in Brussels responsible for over-seeing programmes have become less involved in discussions on the operational content of the programmes as their pre-occupations were increasingly on management and financial issues.

As summarised in the table below, the Structural Fund regulations have given increasing autonomy to the Member States in deciding on how funding provided by the ERDF is used. The Commission services interact increasingly at a strategic level, considering how well the NSRF and the operational programmes contribute to national or regional development priorities, and how the programmes contribute to the wider strategic priorities of the Union. The upside of this story could be considered to be elevating the debate to a longer-term view on the challenges and opportunities faced by each country or region.

Exhibit 13. Types of Structural Fund interventions addressed by 60 case study projects

Type of project	# of cases	Country of the case study
National programme – ERDF co-funded (regional) project	8	Austria, Czech Republic (2), Estonia, Greece (2), Portugal, Sweden
National project	7	Estonia, Greece, Latvia, Lithuania, Poland, Slovenia and Spain
Regional programme	8	Denmark, France (2), Italy, UK (4)
Regional projects (large-scale)	10	Belgium, Germany, Italy (3), Portugal, Spain, UK (3)
Regional projects	21	Austria, Belgium, Denmark (2), France (3), Finland (3), Germany (2), Hungary, Italy, Slovakia, Spain, Sweden (4), UK
INTERREG projects	6	Lead or case study partners for each project: Denmark/Sweden, France, Italy, Poland, Sweden, UK

The downside is that with this trend has come a risk of loss of understanding of what is actually happening 'in the field'. Hence, operational level obstacles to implementing a perfectly well-written strategy may not be apparent to the Commission when negotiating the strategic framework and operational programmes.

In short, understanding the process elements of designing and implementing regional policies (and hence the projects funded), is at least as important as counting the funds actually disbursed or the outcomes recorded by broad programme level evaluations.

Different approaches to programming are clearly to some extent driven by such changes to EU level programming methods, however, they are also 'context' dependent in the sense that national authorities, regional partnerships, etc. have developed over the years their own tools and methods for developing regional development plans.

The role of the ERDF clearly differs between regions or Member States

where the Structural Funds may invest a majority of the public intervention over a large zone (the Convergence regions) and those where more limited funds plead for a concentration of resources on a smaller number of targeted interventions (the Competitiveness Regions).

Equally, there is a need for a considered trade-off by regional policy planners between investing ERDF funds through 'strategic programmes' managed by a regional agency, to which enterprises or other organisations compete for funds; and continuing with a more diversified "bidding system" where various stakeholder submit smaller individual projects in line with 'regional priorities'.

The importance of embedding individual ERDF operations in the wider regional policy context is undisputed. This implies an understanding of how each individual project fits in to a broader regional policy mix and hence contributes to the overall regional development strategy.

Exhibit 14. Changing programming methods for ERDF interventions

Period	Programming approach	Role of EC versus national/regional authorities
1994-99	Objective 1 zones: Community Support Frameworks and operational programmes Objective 2 (5b) zones: Single Programming Documents	EC officials still present with voting rights in monitoring committees Discussion on content of programme (specific measures) as well as broader strategic priorities.
2000-2006	Objective 1 zones: Community Support Frameworks, Single programming documents and operational programmes Objective 2 zones: Single Programming documents + Programming Complements	Member States given more autonomy with EC as observer in monitoring committees. Programme complements introduced containing details of specific measures, etc.
2007-13	Community Strategic Guidelines on Cohesion Policy National Strategic Reference Frameworks Operational Programmes (regional or sectoral)	Further autonomy for Member States and application of national expenditure rules. Simplified approach with greater emphasis on strategic priorities (linked to Lisbon objectives); operational programmes more strategic and less detailed than in past

2.11.2 The ERDF as a co-funder of national or regional programmes

The first set of projects considered concern the ERDF as a 'donor of funds' to national/regional programmes. In this type of model, the ERDF funds are only one element of the financial jigsaw puzzle enabling a programme to be rolled-out. The interest of the EU is to ensure that the funding is additional to national/regional sources and that ERDF intervention creates a value added beyond the financial aspects in terms of contributing to the strategic policy-mix. For national or regional authorities, the advantage is clearly that ERDF funding is channelled through a tried and tested programme management structure or if a new programme is at least, one assumes, managed by a competent agency. This avoids the need to set up new or additional structures with the 'learning curve' and related investment costs associated with the development of any new organisational structure.

Exhibit 15. National programmes (supporting ERDF funded projects)

Country	Region	Project title
Czech Rep	Severovýchod and Jihovýchod	The OMNIPACK Cluster
Czech Rep	Střední Morava	VUT 100 Aircraft
Estonia	National	Competence centres
Greece	Kentriki Makedonia	Thermi - incubator
Greece	Attiki	Biogenomica
Portugal	Central	Hibridmolde
Sweden	North	Fibre Optic Valley

It is important to underline here, that the case studies did not examine directly the management or operation of the national programme itself, but rather the operational implementation of the programme, in the form of a specific project grant provided to a regional company, cluster, organisation or partnership. The group of case studies falling within the scope of a national programme include a relatively

diverse set of projects including two specific grants (VUT-100 and Hibrimolde) essentially for product or technology development in single company, two projects aiming at spin-off and incubation activities in Greece, two cluster type projects (OMNIPACK and Fibre Optic Valley); and finally funding for two 'competence centres'.

The OMNIPACK cluster: a pioneer regional cluster

The Czech OMNIPACK cluster was initiated by a key industrial holding, the PolyPlast company, which also provided co-financing. More than 300 firms and other organisations (such as universities) were contacted during the launch phase and in the end 21 organisations agreed to become part of the new cluster and to participate in the ERDF co-funded project. The impetus for establishment of the cluster came from the association of packaging companies operating mainly in the Královehradecký region, which is the centre of the packaging industry in the Czech Republic. The ERDF co-financed Clusters Measure was seen as an opportunity to speed up and broaden co-operation, and the OMNIPACK cluster project was amongst the first to request support.

The Czech and Estonian programmes supporting the projects examined clearly complemented the national policy mix, helping to plug gaps in the previous mechanisms supporting clusters, product development or industrial research consortia. Equally, the two Czech projects, the Greek Thermi incubator or the Hibridmolde project in Portugal were all projects supported through nationally run programmes, but which clearly fitted with regional priorities or pre-occupations (see OMNIPACK example). Similarly, the Fibre Optic Valley cluster project in Sweden was one of the regional projects selected by the national VINNVÄXT programme, co-funded in part by the ERDF, facilitating the mobilising of 48 co-financiers (businesses, county and municipality authorities and university and research institutes) and helping the project expand to cover a population of half a million citizens.

In contrast to the projects examining the ERDF intervention through national programmes, the eight ERDF projects delivered in the form of a regional programme were all examined broadly at the programme level, including a series of interesting observations on the design, management, evaluation, etc. of the programmes themselves.

Exporting North Jutland (Denmark): complementing national policy to boost regional SMEs

During the past decade, the regional economy in North Jutland has been characterised by relatively high unemployment rates (approximately 2% above the national average) and closures of large industrial plants. Accordingly, there has been a strong political focus on promoting economic growth and employment in the region. The ERDF co-funded Export Programme was inspired by a report produced by Aalborg University, according to which although SMEs were profitable, in the main, they were not exploiting their full export potential.

The project must be seen in the context of Danish industrial policies, which, since the early 1990s, had gradually reduced national funding in the form of subsidies to firms.

In at least two of the cases (the Danish programme and the French Digital territories programme), the ERDF intervention enabled a programme considered strategically important at a regional or sub-regional level to be rolled out, with 'learning effects' about the process of programme delivery (removing layers of bureaucracy in Denmark to allow a more cost-effective and rapid support to firms) arguably as important as the actual economic impact.

Exhibit 16. Regional programmes co-funded by the ERDF

Country	Region	Project title
Denmark	North Jutland	Exporting North Jutland
France	Province-Alpes Côte d'Azur	Digital Territories
France	Massif-Central	Cybermassif
Italy	Campania	Regional Competence Centres
United Kingdom	South-West Engand	ACTNow
United Kingdom	Wales	Opportunity Wales
United Kingdom	Scotland	Proof of Concept
United Kingdom	Wales	The Knowledge Exploitation Fund

All of the regional programmes appear to have developed out of a relatively rigorous prior analysis (see North Jutland example) of regional level factors impinging on exports, broadband rollout, take-up by SMEs of e-commerce tools, research commercialisation, etc. Equally, in most cases, the programme was either a key element of the regional policy mix (evident in the Italian and UK cases) or was complementing other national or regional initiatives.

Regional Competence Centres in Campania: a tool to foster innovation

In line with a growing emphasis on research and innovation in national level development laws, the Campania region drafted a regional innovation strategy in 2000. Given that low private R&D investment is one of the most important weaknesses of the regional innovation system, the issue of knowledge transfer and technology diffusion assumes particular relevance in Campania. Therefore, the creation of CRCs in sectors related to public research excellence represents a clear and coherent attempt to overcome the barriers that hamper university-industry cooperation and prevents the application of the most promising research outcomes in regional industry.

*2.11.3 Major national projects:
meeting strategic priorities*

The relatively small third group of projects considered are those where the ERDF has contributed to supporting the development of major national initiatives. The exception is the Polish project STIM, which was a pilot action initiated by bringing together a group of regional projects, since programme funding rules did not allow consortia of partners to bid for funds from different regions. The Spanish project CENER is technically a regional project, very much in line with the position of Navarra as a leader in the field of renewable energies, but the national status of the centre leads to it being included in this group.

Estonian Digital Health Record: a pioneering project contributing to European goals

The Estonian Digital Health Record (EHR) project is clearly driven by a national priority to improve management of patient data by health care professionals for the good of the patient as well as with a view to increasing the cost-efficiency of the health insurance system. The EHR concept derives from several strategy plans and policy papers initiated by national healthcare institutions and government bodies

Moreover, it was influenced by the European Union's e-health policy objectives and represents a significant part to Estonia's commitment to contributing to structured cooperation on developing European wide cross-border electronic health services.

These projects are interesting from a strategic point of view since in all cases they contributed to both meeting national socio-cultural, research and innovation or sustainable development priorities while contributing at the same time to helping the recipient country contribute to EU level goals. Their focus is on:

- creating an advanced digital health record as a contribution to the EU's e-health priorities,

- digitising the cultural heritage of Lithuania in line with European cultural policy targets,
- boosting finance available to innovative firms in Latvia to help lift the country of the bottom rung in the 'innovation scoreboard';
- helping to build Slovenian science-industry co-operation and reinforce the potential for co-operation in nanotechnology research and applications in the European Research Area;
- developing new tools and capacities to help Polish firms manage technology transfer and boost their competitiveness;
- further strengthening the position of Spain as a leader in European renewable energy technologies;

All the projects examined here share the common theme of ERDF funding helping to boost national 'performance' while contributing to EU level objectives.

These types of projects are clearly very much in line with the idea championed in the current 2007-13 period of the Structural Funds and 'regional policy' acting as a partner for the achievement of other EU policy objectives in a more 'joined up' manner than in the past.

Exhibit 17. Major national projects funded by the ERDF

Country	Region	Project title
Estonia	National	Digital Health Record
Greece	Attika	e-business forum
Latvia	National	Venture capital financing
Lithuania	National	Integrated Virtual Library Information System
Poland	Multi-regional	STIM
Slovenia	National	Centre of excellence in nanotechnology
Spain	Navarra	CENER: renewable energies centre

2.11.4 Regional projects: big and powerful or small is beautiful?

As noted above, the case studies of regional projects can be divided into two groups in terms of the scale of funding mobilised. The group of large projects includes a number of science park type investments, advanced industrial R&D and innovation centres and facilities and two investment schemes as well as a major programme of broadband network and related services (Portugal). The projects are considerably larger in terms of total budget and ERDF contribution than the average (even larger than some national projects). Admittedly in one case the total funds are provided through six ERDF projects during 2000-2006 (Multitel), while the two technology parks (Barcelona and Canavese) received funding in both the 1994-99 period and the 2000-2006 period (in both cases a lower scale of funding being provided in the second period).

What tends to set these projects aside is clearly their scale and their identified importance as a lever for development in regional strategic plans. In each case, the failure of the project would mean both a significant financial fall-out and the removal of a major building block of a regional development strategy.

The last group of 'smaller' regional projects is the largest, and hence clearly most diverse. It is more difficult to

draw "stylised facts" in terms of how the projects are derived from and contribute to a regional strategic framework. Several of the projects here concern partnership based strategic projects reflecting the concern of a group of stakeholders to improve future programme design (the French projects in the field of information society: PASI in Aquitaine and Corsican White Book) with significant results in terms of generating a 'pipeline' of future projects for regional programmes.

Exhibit 18. Large regional projects

Country	Region	Project title
Belgium	Hainaut	Multitel
Germany	North Rhine Westphalia	Science to Business Centre - Nanotronic
Germany	Dortmund City	MST Factory
Italy	Piedmont	Bio-industry Park Canavese
Italy	Veneto	NANOFAB
Portugal	Norte	Porto Digital
Spain	Catalonia	Scientific Park of Barcelona
United Kingdom	North West England	North West Business Investment Scheme
United Kingdom	London	Knowledge Dock
United Kingdom	North East England	Co-investment Fund NStar

A few projects, while seeking to meet worthwhile goals, do seem to have been driven more by the interests and aspirations of the lead organisation and were not contributing either to a

MST Factory: a strategic element of the Dortmund-Project

The City of Dortmund faced a severe structural changes during the past decades. The last factory of the local steel industry shut down in 1998 and coal mining in the region will come to an end by 2010. Unemployment rates are high at approximately 15% compared to a German average of 9.5%. In 2000, in response to this economic crisis, the City of Dortmund launched the so-called "Dortmund-project", an initiative bringing together the city administration, local industry, scientific partners and citizens in order to transform the development prospects of the city: from a former coal and steel production to a leading technology and business location in Europe. A task-force manages the "Dortmund-project", under the patronage of the Mayor of Dortmund, but is more than just an organisational unit of the city's administration. It is a broad-based public-private partnership initiative with more than 1,000 individuals involved structured into a number of individual sub-projects.

Many of them are supported by ERDF funds and the MST-Factory is one of these sub-projects. Thematically the "Dortmund-project" covers: information technologies, logistics, micro- and nanotechnologies, biomedicine, health management, and energy technologies. These fields were selected based on a thorough analysis of the scientific, technological and economic potential in Dortmund performed in 1999.

The 'kitchen cabinet' driving a new model of regional development in Karlshamn

Karlshamn is a port city in Sweden with a strong tradition in trade and manufacturing. During the last decades, local industries lost 3,000 jobs and the city population declined by 1,500 people. Forecasts until 2010 suggested a further loss of another 1,600 inhabitants, and a worsening position in the share of people with third-level education. The municipality, while aware of these issues, was not capable alone to reverse the trend. The local trade and business organisation also realised that the climate for establishing new businesses in Karlshamn was not favourable. Finally, the Blekinge Institute of Technology had difficulties in profiling itself in competition with other technological training providers in Sweden.

This converging set of preoccupations led to the creation of a triple helix organisation in 1997. Initially, NetPort.Karlshamn was hosted in a small and charming, old customs building in the port. Meetings of the board were held in the kitchen, hence the nickname gained of "the kitchen cabinet". The partners arrived at the conclusion that co-operation was essential if they were to create the foundation for a sustained development of new businesses in the knowledge intensive services, more specifically in the digital media field, and thereby compensate for the decline in industrial activity.

coherent regional strategy or failed to mobilise a wide enough group of other stakeholders to make the project effective. Others were complementary to previous investments in infrastructure and know-how (Samsø Energy Academy, Snowpolis, Tjärno Centre of Excellence) or can be thought of as additional building blocks to other on-going initiatives (DIALOGUES in Glasgow, Scotland) which is complimentary to the broader Proof of Concept programme studied in another case.

Another group of projects have been inspired by more local issues or opportunities and have often been driven by small dynamic groups of individuals (see NetPort Karlshamn example) or have brought together a partnership of local or regional stakeholders in order to meet a challenge, which individually none of the partners could achieve.

Finally, a number of these smaller projects were truly risky or would most likely not have gone ahead without the ERDF funding (and the 'quality label' this funding provides to attract other funders). The Knowledge Cluster project (Belgium), which at the time of the case study still had to prove it was going to meet its objectives, is a novel form of intervention attracting significant interest from private companies, while potentially helping to position the Belgian town of Hasselt as an innovative environment for mobile applications.

The ePortfolio project in Berlin, responds in a highly novel way to both the city's existing image as a 'mecca' for artists and a pressing need to improve the job prospects of students graduating from the arts university. The Warhol City project in Slovakia used the reputation of the internationally renowned artist, the family of whom originated from the town, to do 'something different' with an otherwise standard urban renovation project. The Sonic Studio project in northern Sweden saw the potential of combining a music academy with the expertise of a national research institute and a local business park, to generate a novel new breeding ground for regional enterprises.

In short, these smaller projects suggest on the one hand that a purely project-by-project approach in the absence of a regional strategy setting priorities or ensuring synergies between 'portfolios of actions' is rarely an effective road to follow; and on the other, that room for experimenting with 'seed money' should not be excluded from ERDF programmes all together.

Exhibit 19. Small scale projects

Country	Region	Project title
Belgium	Flanders	I-City Knowledge Cluster
Denmark	Svendborg	The Research Park in Svendborg
Denmark	Samsø	Samsø Energy Academy
Finland	Itä-Suomi (East Finland), Kajaani	Intotalo
Finland	Itä-Suomi (East Finland), Vuokatti	Snowpolis - Centre of Excellence
Finland	Itä-Suomi (East Finland), Kuopio	WellTeknia Innovation Management
France	Aquitaine	PASI
France	Corse	White Book Information Society
Germany	Berlin	ePortfolio
Germany	Nordrhein-Westfalen	Ueckendorf school
Hungary	Southern Transdanubia	Drava project
Italy	Emilia Romagna	LAV industrial R&D lab
Slovakia	Presov	Warhol city - change of image of the city
Spain	Andalusia	Andalusian Stone Technology Centre
Sweden		Interactive Institute, Sonic Studio
Sweden	West Sweden	Tjarno Centre of Excellence
Sweden	Västervik	PUCK - Polymer cluster
Sweden	Södra	NetPort.Karlsham
United Kingdom	Western Scotland	DIALOGUES

2.11.5 Implications for regional policy

This comparative analysis has looked at what can be learnt for strategic approaches to programming ERDF interventions from analysing a diverse, microcosm of ERDF projects funded during the 2000-2006 period. First and foremost, the analysis emphasises the rich seam of information that can be drawn on when policy analysis adopts a more in-depth case study approach as opposed to more 'macro-level' evaluation studies at programme level.

Neither approach is sufficient, however, in order to truly understand what makes a regional development project 'tick' (or sometimes fizzle out like a damp squib), a structured case study analysis clearly offers considerable advantages. Officials responsible for programming at European national or regional level, when faced by an expert or project champion selling them the merits of a project or measure as a solution to a challenge, often lack this type of reference material in order to be able to discuss in a more informed manner about the advantages or drawbacks of going down the road

suggested. Equally, project managers handed the job of implementing a complex project often seek to learn from a project implemented in another region or country. In doing so, they will often be given a rose-tinted picture of the final outcomes of the projects, and fail to hear about how long it took to get the partnership together, the unexpected costs that arose, the difficulties in getting enterprises involved or the legal maze to get the funding approved under national or EU regulations. Again, a candid case study will give insight into the pitfalls as well as the expected benefits.

Strategically, the analysis in this paper does suggest that a large enough group of case studies of projects from a wide enough range of countries or project types can provide real additional insight for policy-makers in planning future regional strategies. A good base of case studies improves understanding of the factors fostering an effective intervention of the ERDF in favour of the Lisbon objectives.

3. Conclusions and lessons learned

3.1 Methodological reflections and lessons for the future

A case study approach has both advantages and limits. This method alone does not allow for drawing general policy conclusions if it is not accompanied by other representative research methods. It is, however, an insightful and a powerful research method providing in-depth contextual knowledge, which cannot be provided by quantitative methods.

The knowledge and experience of undertaking case studies itself can become an important complementary source of policy intelligence, especially if they are undertaken regularly and in significant number. A case study is a powerful demonstration method, which can be effectively used to promote good ideas and approaches.

However, a case study approach is a demanding tool requiring background knowledge about the studied project as well as research and writing skills. The process of preparing a case study can be for the author an intensive learning exercise. In some ways, it could be considered as a method for improving know-how and competence (a sort of 'on-the-job' training) in the case of European Commission desk officers responsible for regional policy.

The results are useful for both the regional project managers and planners (e.g. practical approach, concrete examples, knowledge and experience sharing). Equally, the knowledge 'from the ground' is useful for the desk officers who can better understand the operational implications of their normal activities at a strategic or programme level.

The experience of this study has enabled a number of over-arching issues to be highlighted for the future use of the case study methodology developed. These include:

- The selection of cases: a problem clearly arises when the source of project selection is based on the limited knowledge of EU officials about regional level projects. The DG REGIO officials often depend on advice from the regions, which have an incentive to paint a rosy picture about their projects. It is difficult operationally to get around this problem. However, using evaluation reports to select identified examples of projects with specific interesting features is clearly one route.
- Avoiding a search for best practice: although initially often presented as 'best practice' the projects studied turned out often to be at best interesting practice. Positively, a number of cases can be considered as excellent examples. A key conclusion of the study team is that a) innovation is as for commercial products a relative concept, what is innovative in one region may not be earth-shattering in another; b) as much can be learned from studying the 'real-life' experience of an "average" regional project (or even ones that ran into serious difficulties).

Hence, future applications of the methodology should seek to focus on a representative sample of project types, than picking a few "winners". The types of criteria that can be used include size of project (funding), type of beneficiary, category of intervention, relevance to priorities of the operational programmes or national strategic reference frameworks, etc.

As noted above, the case study methodology developed here could be usefully applied as a systematic tool for future evaluation studies undertaken by the Commission services. Over time, this would allow the building up of a significant 'knowledge base' of project level insights to add to those already made available through this study.

3.2 Main policy lessons

The overall objective of this study was clearly not to arrive at sweeping generalisations on how to design, select, manage and evaluate ERDF funded projects in the future, based on only 60 examples. It would be equally difficult to draw firm and robust conclusions in terms of the future orientations of Structural Fund interventions from a more strategic point of view.

Nevertheless, the cases analysed provide a relatively representative sample of ERDF funded projects during 2000-2006 (in terms of Structural Fund objective zone, size of project, type of project or category of intervention) with respect to the fields of intervention most relevant for the Lisbon targets (research, technology development and innovation, information society and to a lesser extent renewable energies and the environment).

The case studies raise at least three critical issues that require further reflection:

- the value added of ERDF interventions needs to be considered in a more sophisticated manner, than is often done. Building up a funding package for specific projects supported is only one element of this equation. If Cohesion policy is to promote 'structural economic change', then innovation, risk-taking and flexible approaches to designing and rolling out the projects funded need to be encouraged. A number of the case studies illustrated that innovative solutions can be found to ensure that Structural Fund interventions are not simply business as usual.
- Governance and partnerships at the project level appear to be one of the most critical factors (this includes the composition of partnership as well more formal issues such as the legal structure of partnership based models). This topic is one that has risen up the

policy-making agenda over the last decade. The case studies tend to confirm the relevance of asking serious questions about 'how will you deliver that project' and not just 'what will you do' when selecting projects. Equally, exit-strategies to ensure that ERDF project funding is not a 'one-off' event seem to be in need of more attention, from the project design and selection phase onwards.

- The type of projects studied varied quite considerably. The last comparative analysis considered the relative advantages of various approaches from channelling funding through national/regional programmes, to "flagship" national or regional projects or to a more bottom-up process of selecting smaller projects proposed by regional stakeholders. The ERDF contribution to a strategic policy mix at regional level certainly has its advantages in terms of efficiency of delivery; however, the need to leave scope for more innovative smaller projects in the programming cycle should not be discounted.
- Project level evaluation and monitoring techniques are often inadequate. If programme level evaluations are to be carried out cost-effectively then they require access to more structured and evidence based (whether quantitative or qualitative) appraisals of the (at least major) projects funded. Numerous evaluations at EU level of Structural Fund programmes have highlighted this previously. It appears the message is only trickling down slowly to the operational level. A few case studies offer interesting pointers in how to improve this situation.

In conclusion, as policy-makers look towards defining the priorities for the post 2013 period, more effort needs to be put into building a robust 'knowledge base' to which both strategic planners and programme managers can turn for inspiration and guidance.

Appendix A

Annotated template for a project analysis

PROJECT TITLE

Please provide a simple and self explanatory title for the selected project and the acronym of the project if any (this should not be necessarily the official name of the project)

SYNTHESIS (1 - 1.5 page)

The synthesis is a summary of the case study to be used for publicity and communication purposes. It has to be understandable as a stand-alone text. It should be written in a clear way avoiding copy pasting from other sections of the report.

The synthesis should feature the following points:

- short description of the project objectives;
- information on where and who (core partnership) implemented the project;
- key project activities and their beneficiaries;
- links between the project objectives and the regional context explaining the specific challenges and needs addressed by the project;
- description of the results, notably the innovative achievements, and exists impacts;
- explanation on what were the success factors and main lessons learnt;
- short information on current developments (sustainability).

IMPORTANT:

Please write this text at the end of the process of filling out the template!

BACKGROUND INFORMATION (0.5 page)

Country:

Region:

Full project title:

Duration of project: *date – date (month/year)*

Key words:

Funding:

total budget

ERDF contribution

national budget

regional budget

private contribution

ERDF Objective:

Convergence

Competitiveness

Territorial cooperation

1. PROJECT DESCRIPTION (1 – 2 pages)

Describe the project using the following structure:

- **Overall objective/objectives:** what is/was the overall objectives of the project? Describe them shortly using official documents of the project.
- **Description of activities:** write a short description of the project's activities. Shortly explain the logic of the approach, that is how different activities are linked with each other and in what way they lead to achieving the objectives.
- **Beneficiaries:** list and describe direct and indirect beneficiaries of activities of the project e.g. citizens, SMEs, public organisations, higher-education and research organisations, researchers, etc.
- **Main results:** what are/were the main (intended) results of the project? Describe shortly the results foreseen or achieved by the project.
- **Expected impact:** what is the expected impact? Use the original project proposal or evaluations if available.

2. POLITICAL AND STRATEGIC CONTEXT (1 page)

Provide a description of the **key elements of a regional and national context** relevant for the project (not a general description of the regional economy!).

The idea is to give a reader key background information for understanding the motivation behind the project, e.g. if the project targets removing barriers to innovation in SMEs sector, give a short overview of company system and main barriers identified OR if project aims at improving science-industry cooperation describe shortly regional science base and main industrial sectors as well as main problems related to science-industry cooperation to be addressed by the project.

Indicate if the project refers or belongs to a wider regional or national economic development strategy or policy.

IMPORTANT:

After reading this section a reader should be able to understand how the results of the project contribute to tackling barriers and/or fostering drivers to regional development in the particular regional context. The description should be seen as “setting a scene for the story” of the project.

3. IMPLEMENTATION (3 - 4 pages)

3.1. PROJECT DESIGN AND PLANNING

Describe the process of project design and planning. Key questions to be answered in this section are as follows:

- Where and from whom did the idea of project come from?
- Is the project based on a specific needs assessment research and/analysis?
- How, why and on which basis was the project selected?
- What type of risk was considered in the design and selection process? Comment on the level of risk associated with the innovative character of the project and how the risk was dealt with.
- Did the project take into account sustainability, results exploitation and transferability (wider application) issues from the design phase?
- Was the evaluation aspect taken on board from the beginning?
- Would the project have gone ahead if it were not for EU support? What was the added value for the project in being supported by ERDF?
- Is the project funded by more than one EU fund, e.g. European Social Fund? If yes, please describe why and how was the funding integrated.

3.2. MANAGEMENT, MONITORING AND EVALUATION SYSTEM

Describe the management system and management process of the project (e.g. structure, relations between main bodies, tasks etc.). The key questions to be answered in this section include:

- How was the project manager selected?
- How was the management structure organised and were the tasks distributed in the project team?
- How many man/months were used for the management of this project?
- How many persons were involved in the steering group, how many meetings of the technical groups took place etc.
- How was monitoring organised?
- Explain approach adopted towards evaluating results (auto-evaluation, external evaluation, etc.). Were the targets quantified and performance indicators assigned?
- Was the management structure able to adapt in case of unexpected obstacles and what was done to solve the problems? Give examples and explain.
- If the project was also funded from EU funds other than ERDF, how did it influence organisation and management? (e.g. how was cooperation between ERDF and ESF authorities and management teams organised?)

3.3. GOVERNANCE: PARTNERSHIP AND LEADERSHIP

Describe the main elements of project governance. Key questions to be touched upon in this section are as follows:

- What was the composition of partnership?
- What was the interest for each partner to participate?
- What were/are roles of partners (funding provider, end-user, expertise provider, inspirational/creative contribution etc.)?
- What is/was the role of the local/regional authority?
- Is/Did a "leader" or a "core" partnership emerging/emerge (the most active group)?
- How did the partnership and leadership dynamics evolve, especially in the wake of unexpected events/implementation obstacles? Give examples and explain.
- How did the political support evolve throughout duration of the project?

3.4. INNOVATIVE ELEMENTS AND NOVEL APPROACHES TO IMPLEMENTATION

To what extent did the project innovate in terms of the process of project design, partnerships implementation and evaluation? The following questions should be tackled in this section:

- Did the partners already collaborate in other projects? If no, please explain why new partnership was created.
- Did the project design, planning and management include practices different from common practice? If yes, please describe new approaches.
- Was the approach to acquiring funding different from normal practice? If yes, please describe new approaches.
- Were any new approaches used to communicate and disseminate project's ongoing work and results? If yes, please describe new approaches.
- Were any new approaches used to ensure best possible ways of the project's results exploitation (e.g. commercialisation, wider application, transferability, communicating the results to the policy making process)? If yes, please describe new approaches.
- Who/which organisation was the initiator of new approaches?

Based on information gathered, assess the new approaches described above in comparison to previous practices applied in the region and/or in other regions.

3.5. KEY IMPLEMENTATION OBSTACLES AND PROBLEM-SOLVING PRACTICES

Describe main obstacles experienced during project implementation. Constraints can be both internal (e.g. management, partnership etc.) and external (e.g. priorities and scope of regional policies, priorities and rules of the Operational Programme the project belongs to, expectations of beneficiaries, political situation etc.).

Please describe the obstacles, indicate their (potential) impact on the project results and, most importantly, explain the way they were tackled (problem-solving practice). The obstacles may be tackled by e.g. adapting management structure, changing timing of deliverables, enlarging/narrowing focus of the project etc. Please indicate the role of partnership and individual partners for solving implementation problems.

Taking into account lessons learned, would you consider planning the implementation process differently if you had a chance to implement a similar project again? Briefly explain the relevance of each change for avoiding or overcoming potential obstacles.

4. PROJECT RESULTS (1 – 2 pages)

This section focuses on identifying, explaining and assessing the results and –if evidence exists- impacts of the described project. Note, that the emphasis should be given to the results, which can be considered novel and innovative.

IMPORTANT:

This case study has a broad understanding of innovation including new solutions in both private and public sector implemented on the level of individual organisation or a group of organisations (e.g. cluster). Note, focus is not only on R&D driven high-tech technological innovations but also on organisational innovations, new services delivery methods, innovative business support in traditional sectors in rural areas, social innovations, new ways of policy and strategy making etc.

It is important to underline these project results, which are innovative in the context of particular locality or region, even if they may be considered routine elsewhere.

5. SUSTAINABILITY AND TRANSFERABILITY (1 page)

5.1. SUSTAINABILITY

Has there been a follow-up of the project or will the project continue after ERDF funding is discontinued? Did the project partners define an 'exit-strategy' from an early stage? If so, explain how e.g. funding, structure, legal status, activities, partnership etc.

5.2. TRANSFERABILITY

Are individual innovative elements or the whole project applicable in the whole region or transferable to other regions? Describe which elements of the project could be applied elsewhere. Consider transferability of both practices applied to implementation and project results. Please highlight possible obstacles and solutions to implementation of this project in different contexts. What might have to be changed in order to make the experience/result transferable?

6. CONCLUSIONS: KEY SUCCESS FACTORS AND LESSONS LEARNED **(1 - 1.5 page)**

This section presents key factors of the project based on the material presented in the previous chapters. Key project performance factors are, both positive and negative, elements of planning, governance, management and implementation, which proved decisive for the project. List maximum five factors including a short justification in relation to the real project developments (practical examples!).

Furthermore, discuss factors learned to be of key importance for the project during its final stages or after its completion. These points –even if missing or not fully realised for this initiative (see section 3.5)- are meant to be used as valuable lessons learned for future. Similarly to above provide short justification of each point in relation to the real project developments.

IMPORTANT:

A simple bullet point e.g. “strong political backing throughout the project” is not sufficient! Explain what was done to sustain the political backing and what was learned to ensure such backing in the future.

CONTACT DETAILS

Please insert name, organisation, website, address, telephone and e-mail details of the project manager OR other relevant person. Give a website address dedicated to the project (if available).

DATE OF THIS INFORMATION

= date of study visit (or of the last phone interview)

ANNEX 1. PERSONAL ASSESSMENT (1 page)

This section is devoted to the information and your thoughts that will not be published. This may be due to an explicit request from your respondents, speculative nature of your assessments or character of information that is not suitable for publication on DG REGIO website. The main emphasis should be on obstacles to project implementation and lessons learned from the particular examples of the project. This section can bring additional insight to the points raised in the previous sections.

Appendix B

Distribution of 60 case studies in the EU Member States

Country	Region	Project title
Austria (2)	Burgenland	KERP Centre of Excellence
	Lower Austria	Technopol Programme
Belgium (2)	Flanders	Knowledge Cluster
	Wallonia	Multitel
Czech Republic (2)	Stredni Morava	VUT 100 Aircraft
	Severovychod	The OMNIPACK Cluster
Denmark (4)	North Jutland	Exporting North Jutland
	Svendborg	The Research Park in Svendborg
	Samsø	Samsø Energy Academy
Denmark/Sweden	Copenhagen and Malmo	Medicon Valley
Estonia (2)		Food Technology Competence Ccentre
		Digital Health Record
Finland (3)	Itä-Suomi	Intotalo
	Itä-Suomi	WellTeknia Innovation Management
	Itä-Suomi	Snowpolis - Centre of Excellence
France (6)	Massif Central	Cybermassif
	Aquitaine	PASI
	Aquitaine	Bio-Aquitaine
	Corse	Information Society White Book
	Ile de France	ENCOURAGE
	PACA	Territoires Num et Boucles Loc Alter
Germany (5)	Berlin	ePortfolio
	Nordrhein-Westfalen	Nanotronic
	Nordrhein-Westfalen	Ueckendorf school
	Nordrhein-Westfalen	MST Factory
Greece (3)	Thessaloniki	Thermi incubator
	Attica	BioGenomica
		e-Business Forum

Hungary	South Transdanubia	Drava project
Italy (5)	Piedmonte	Scientific Park Canavese
	Veneto	NANOFAB
	Emilia Romagna	LAV laboratory
	Campania	Regional Competence Centres
	Emilia Romagna	Energy' regio
Latvia		Venture capital financing
Lithuania		Virtual Library Information System
Poland (2)	Podkarpackie	Aviation Valley
		STIM network
Portugal (2)	Norte	Hibridmolde
	Norte	Porto Digital
Slovakia	Presov	Warhol city
Slovenia	Slovenia	Nanotech Centre
Spain (3)	Andalusia	Stone Technology Centre
	Catalonia	Scientific Park of Barcelona
	Navarra	CENER
Sweden (6)	North	Fiber Optic Valley
	Vastervik	PUCK
	Sodra	NetPort.Karlsham
	Tjarno	Tjarno Centre of Excellence
	Norrbotten	Sonic Studio
	Ovre Norrland	STIMENT
United Kingdom (9)	London	Knowledge Dock
	North East	Nstar
	North West	NWBIS
	Wales	The Knowledge Exploitation Fund
	Wales	Opportunity Wales
	Western Scotland	DIALOGUES
	East of England	POWER
	Scotland	Proof of Concept
	Cornwall	ACTNow

Appendix C

List of 60 projects analysed: key words, authors and interviews conducted

1. Austria: KERP

Author: Brigitte Tiefenthaler

Key words: clusters and business networks, technological and market innovation; waste disposal and recycling

Interviews

- Thomas Leitner, managing director of KERP
- Christoph Herrmann, scientific director of KERP
- Stefan Salhofer, University of Natural Resources and Applied Life Sciences Vienna
- Martin Grünberger, UEG, industrial partner and co-owner of KERP
- Josef Scheider, AKG GmbH
- Hannes Rabitsch, Magna Steyr Fahrzeugtechnik
- Harald Polak, FFG, federal and ERDF funding and funding co-ordination
- Sigrid Hajek, WIBAG, regional funding Burgenland
- Dieter Zabrana, ZIT, regional funding Vienna

2. Austria: Technopol

Author: Brigitte Tiefenthaler

Key words: clusters and business networks, transfer of technology, technological and market innovation; start up, spin off, incubators

Interviews

- Claus Zeppelzauer, programme manager, Ecoplus
- Rainer Gotsbacher, Technopol manager at Wiener Neustadt, ecoplus
- Helmut Miernicki, managing director of Ecoplus
- Irma Priedl, Lower Austrian Department of Economic Affairs, Tourism and Technology (programme owner)
- Manfred Peritsch, Innovation Management Group, consultant and external reviewer
- Manfred Bammer, Austrian Research Centres, client
- Andreas Pauschitz, AC2T, managing director, client

3. Belgium: MULTITEL

Authors: Alasdair Reid and Nelly Bruno

Key words: Information society: services and applications for companies; Spin-off; Technological and market innovation

Interviews

- S. Boucher, Multitel's president
- S. Deketelaere, head of department "speech and signal processing", Multitel

- D. Giannone, head of department “photonics”, Multitel
- N. Point, head of department “networking”, Multitel
- J.Meessen, engineer in the “image processing” department, Multitel
- R. Beaufort, engineer in the “speech and signal processing” department, in phase of launching a spin-off (voice synthesis and recognition), Multitel
- J-F. Delaigle, CEO of the spin-off ACIC
- E. Jessel, project coordinator, Multitel

4. Belgium: i-City Knowledge Cluster

Authors: Michal Miedzinski and Nelly Bruno

Key words: information society: services and applications for citizens, services and applications for companies; support for enterprises: start up, spin off; technological and market innovation

Interviews

- Daphne Tubee, CEO, i-City
- Mark De Colvenaer, Manager Project Operations, i-City
- Els Sevenants, Project manager, i-City Team Member
- Nico Reeskens, Senior Vice President, Telenet Solutions

5. Czech Republic: Omnipack

Authors: Jiri Blazek and Pavla Zízalová

Key words: clusters and business networks; technological and market innovation; business advisory services

Interviews

- Petra Všeteczková, Project manager, Omnipack cluster
- Katerina Pašková, Director of the regional office CzechInvest, Hradec Králové regional office
- Petra Klunová, Head of department for company co-operation development, CzechInvest – head office
- Luboš Rozkošný, director of Innomia company

6. Czech Republic: VUT

Authors: Jiri Blazek and Pavla Zízalová

Key words: transfer of technology, technological and market innovation

Interviews

- Miroslav Martinek, project manager of the projects VUT100 and EV-55 projects, Evekter-Aerotechnik a.s.
- Radek Sejbál, Head of the VUT100 project (development of the prototype and engineering), Evekter s.r.o.
- Josef Martinák, financial manager of the VUT100 project, Evekter-Aerotechnik a.s.
- Martin Kobzán, Director of the regional office, CzechInvest – Zlín regional office
- Antonín Píštecký, Director of Institute of Aerospace Engineering, Faculty of Mechanical Engineering, Technical University Brno, Head of the project and chief designer of the VUT 100 aircraft family

7. Denmark and Sweden: Medicon Valley

Author: Karin Eduards

Key words: regional cooperation; clusters and business networks, transfer of technology; support for enterprises: start-up, spin-off

Interviews

- Stina Gestrelus, Deputy Managing Director, Medicon Valley Academy
- Per Belfrage, Chairman of the Board, Professor, Lund University
- Mikael Ørum, Vice Chairman of the Board, Managing Director
- Ulf Åberg, project manager - Food, Life Science, region Skåne

8. Denmark: North Jutland Export Program

Author: Henrik Halkier

Key words: support for enterprises: business advisory services

Interviews

- Gitte Madsen, County of North Jutland (Now Himmerlands Kommune), Administrator
– Head of unit responsible for the project within the County
- Jørgen Pagh, Centre for Business Development, North Jutland, the commune, Head of unit responsible for the project in his affiliation
- Olav Jull Sørensen, Aalborg University, Professor
- Poul Knorborg, National Agency for Enterprise and Construction Administrator

9. Denmark: Samsø Research Academy

Author: Henrik Halkier

Key words: renewable energies; education and training; remote, coastal areas and islands

Interviews

- Aage Johnsen, Samsø Energy Company (now closed)
- Søren Hermansen, Office for Energy and Environment, Samsø Academy manager
- Mette Løkke, Samsø commune, Office for business development, Administrator
- Peder Bang, County of Aarhus, Office for business development, Administrator

10. Denmark: Svendborg Research Park

Author: Henrik Halkier

Key words: research activities and infrastructures

Interviews

- Jørgen Henningsen, Retired, Former mayor in Svendborg
- Karl Morten Pedersen, Svendborg Commune, Manager of science park and contact person, Member of steering group
- Jørgen Lundsgaard, IRD A/S - Fuel cell technology, CEO
- Lars-Erik Hornemand, Svendborg Commune, Current mayor in Svendborg

11. Estonia: Competence Centre on Food and Fermentation Technologies

Author: Katrin Mannik

Key words: research activities and infrastructures, clusters and business networks, technological and market innovation

Interviews

- Urmas Sannik, Director, CFFFT
- Harri Faiman, Programme manager of the Competence Centre Programme, Enterprise Estonia
- Aavo Sõrmus, Chairman of the Board, CFFFT

12. Estonia: Digital Health Record

Author: Ruta Rannala

Key words: health; information society: services and applications for citizens, ICT access, e-inclusion

Interviews

- Oliver Lillepruun, Project manager, Foundation E-Health
- Riina Paal, Project coordinator, Ministry of Social Affairs
- Lea Avango, Financial and Administrative Manager, Foundation E-Health

13. Finland: WellLabs

Author: Kimmo Viljamaa

Key words: support for enterprises: new business process and business advisory services; technological and market innovation; information society

Interviews

- Ossi Haatainen, Project manager
- Jarkko Pellikka, Reseacher, WellTeknia, project designer
- Juha Lång, CEO, Mindcom Oy
- Arsi Itkonen. Roche Oyj. partner and creator of WellTeknia idea

14. Finland: Intotalo

Author: Kimmo Viljamaa

Key words: support for enterprises: start up, spin off, incubators, new business process; education and training, life long learning

Interviews

- Marko Leppänen, Project manager
- Erkki Vähämaa, Town Manager, Town of Kajaani
- Marjaana Seppi, entrepreneur, Intotalo Start-up
- Jouko Käsmä, Development manager, Kajaani University Consortium
- Samuli Karjalainen, Entrepreneur, Intotalo activist
- Arto Karjalainen, Rector, Kajaani University of Applied Sciences

15. Finland: Snowpolis

Author: Kimmo Viljamaa

Key words: clusters and business networks; technological and market innovation; employment and labour market

Interviews

- Antti Leppävuori, Project manager
- Jari Tolonen, Municipal manager, Town of Sotkamo (main local financier)
- Erkki Vähämaa, Mayor, town of Kajaani (Municipal manager in Sotkamo when project idea started)
- Vesa Linnamo, Research director, University of Jyväskylä
- Ari Kotro, Headmaster, Sotkamo Upper Secondary School / IB World School

16. France: ENCOURAGE

Author: Yann Cadiou

Key words: regional cooperation; energy efficiency, waste disposal and recycling, environmental technologies; transfer of technology; urban areas

Interviews

- Frédérique Vinay, San Sénart, Project coordinator
- Eric Lestien, San Sénart, Director of Development, Project manager
- Line Magne, San Sénart, General Director
- Engineer in charge of sensitizing

17. France: PASI

Author: Pierre Bourgogne

Key words: information society: ICT access, e-inclusion; Structural Funds management and governance

Interviews

- Hervé Le Guyader, Managing director, Aquitaine Europe Communication
- M. Nivard, General secretariat for Regional Affairs – SGAR
- M. Eimer, Head of project ICT to the Regional Council of Aquitaine
- M. Rumeau, XYZ (CEO)

18. France: PACA Digital territories

Author: Pierre Bourgogne

Key words: information society, local development

Interviews

- Mrs Chabot, Head of project ICT to the Direction of Regional Economy, Innovation and Higher Education, Regional council of PACA
- M Fellmann, Direction of Regional Economy, Innovation and Higher Education, Regional council of PACA
- M. Dubien, Pays de Haute Provence
- Mrs Manuel, Pays de Sisteron
- M Michalon, European affairs, Regional council of PACA
- M. Bourgois, Cogisys
- M Arpin-Pont, General secretariat for Regional Affairs, SGAR (telephone interview)
- Dumoulin, Mediacteur (telephone interview)

19. France: CyberMassif

Author: Sophie Bussillet

Key words: information society: services and applications for companies, ICT access, e-inclusion; education and training, life long learning

Interviews

- Hélène Ribeau, Project manager, Cybermassif association
- Claire Busine, Manager, PRATIC du Puy de Dôme
- Jacques Baissat, Director, UCCIMAC
- Jacques-Henry Pointeau, UCCIMAC

20. France: Bio-Aquitane

Author: Philippe Larrue

Key words: renewable energies; rural areas

Interviews

- Claire Seres, Project manager, Bio d'Aquitaine
- Jon HARLOUCHET, President, Bio d'Aquitaine

- Alain MESTDAGH, ADEME Aquitaine

21. France: Corsica Information Society White Book

Author: Patrick Eparvier

Key words: information society: ICT access, e-inclusion; territorial dimension of regional development: remote, rural, coastal areas and islands

Interviews

- Eric Ferrari, Mission for Information Technologies in Corsica (MITIC)
- Jacques Pomonti, President of the Department of Economics and Laws of the General Council of Information Technologies (CGTI)
- Jérôme Granados, Mission for Information Technologies in Corsica (MITIC)
- Xavier Doublet, Territorial Collectivity of Corsica, Director General for services
- Gilles Massini, Secretariat General for Corsican Affairs (SGAC)
- Danielle Bernardini, Mairie d'Ajaccio, Director for prospective studies, participant
- Mony Raccah, Chamber of Artisans of South Corsica, Director, participant
- Elisabeth Rossi Sutter, SOLERTIA Ingénierie, participant

22. Germany: Nanotronic

Author: Brigitte Tiefenthaler

Key words: research activities and infrastructure; technological and market innovation

Interviews

- Johannes Averdung, Project manager (organization and funding)
- Ralf Anselmann, Director of the Nanotronics Centre
- Martin Trocha, Project manager (scientific and technical)
- Thomas Lühge, Senior project manager (scientific and technical)

23. Germany: Competence Platform for Artists

Author: Brigitte Tiefenthaler

Key words: education and training, employment and labour market; information society: services and applications for citizens

Interviews

- Angelika Bühler, project manager
- Anita Panknin, head of the Studies Department at the Universität der Künste
- Johannes Werner Erdmann, head of the Arbeitsstelle für Weiterbildung (Unit for Further Education) at the Universität der Künste
- Herbert Nohl, project officer at the Berlin Senate Department for Science, Research and Culture
- Jörg Hafer, Educational Design (service company)
- Frank Hoffmann, Hoffmann & Liebenberg (service company)
- Sven Weikert, Institut für Personalmanagement

24. Germany: Gesamtschule Ückendorf - A School as an Engine of Urban Development

Author: Brigitte Tiefenthaler

Key words: education and training, life long learning; employment and labour market; social inclusion, equal opportunities; urban areas

Interviews

- Uwe Gerwin, director of the Stadtteilbüro, member of the steering group
- Felizitas Reinert, director of the Gesamtschule Ückendorf
- Peter Thommes, didactical director of the Gesamtschule Ückendorf, member of the steering group
- Herbert Peters, president of the Förderverein
- Ingrid Stange, vice president of the Förderverein, member of the steering group
- Michael Voregger, project manager at the Stadtteilbüro
- Stefan Rommelfanger, head of unit for urban planning at the City of Gelsenkirchen, senior of the Stadtteilbüro

25. Germany: MST Factory

Author: Brigitte Tiefenthaler

Key words: start up, spin off, incubators; business advisory services

Interviews

- Heiko Kopf, managing director of the MST-Factory
- Udo Mager, managing director of the Wirtschaftsförderung Dortmund and former head of the "dortmund-project" task force
- Thomas Gebauer, chief financial officer of Innolume (start-up in the MST-Factory)
- Oliver Humbach, managing director of Temicon (start-up in the MST-Factory)

26. Greece: BioGenomica

Author: Nikos Maroulis

Key words: start up, spin off, incubators; innovation financial engineering

Interviews

- George Nounesis, Deputy Director, BioGenomica
- Drakoulis Gianoukakos, Founder, Scientific Manager, BioGenomica
- John Vitsaras, Founder, Managing Director, BioGenomica

27. Greece: Thermi Incubator

Author: Nikos Maroulis

Key words: support for enterprises: start up, spin off, incubators; business advisory services; innovation financial engineering

Interviews

- John Agnantiaris, Investment Consultant, Thermi S.A
- Aris Spiliotis, Chairman of the Investment Committee
- Vasilis Takas, Chairman and Managing director

28. Greece: e-Business Forum

Author: Nikos Maroulis

Key words: governance; information society: ICT access, e-inclusion

Interviews

- Ilias Hatzakis, Manager of Project's Administration, Greek Research and Technology Network S.A. (GRNET S.A.)
- Natasa Konstantelou, Member of the Advisory Committee

29. Hungary: Drava project

Author: Andrea Szalavetz

Key words: tourism; social issues: education and training, employment and labour market

Interviews

- Nórántné Klára Hajós, Project manager, Director of Local Authority's Office for European Development
- Kovácsné Kiss Zita, Project partner, Vice-chief of department
- Gyorfy Miklós, Mayor of Somogybükkösd
- Cserneczky Tamás, Expert, AAM Tanácsadó ZRt
- Trócsányi Balázs, Subproject manager, Duna-Dráva Nemzeti Park

30. Italy: Nanofab

Author: Alessandro Muscio

Key words: research activities and infrastructures, transfer of technology

Interviews

- Raffaele Franco, Marketing Manager NanoFab
- Paolo Rech, Director Civen

31. Italy: Regional Competence Centres - AMRA

Author: Alessandro Muscio

Key words: research activities and infrastructures, technological and market innovation, clusters and business networks, transfer of technology

Interviews

- Rosa Colucciello, Manager "POR Campania 2000-2006-Misura 3.16" Regione Campania
- Roberto Muti, Project Manager, AMRA

32. Italy: Energy'regio

Author: Alessandro Muscio

Key words: renewable energies, energy efficiency; urban areas, regional cooperation

Interviews

- Attilio Raimondi, Manager "Servizio Politiche Energetiche", Regione Emilia-Romagna
- Stefano Valentini, Senior expert, ASTER

33. Italy: LAV laboratory

Author: Alessandro Muscio

Key words: research activities and infrastructures, technology transfer, education and training

Interviews

- Silvano Bertini, Manager "Servizio Politiche di Sviluppo Economico", Regione Emilia-Romagna
- Roberto Pompoli, Dean EnDIF - Università di Ferrara

34. Italy: Bioindustry Park Canavese

Author: Alessandro Muscio

Key words: research activities and infrastructures; clusters and business networks; transfer of technology; start up, spin off, incubators; innovation financial engineering

Interviews

- Fabrizio Conicella, General Manager, Bioindustry Park Canavese
- Franco Russo, Manager "Realizzazione di infra-strutture territoriali per lo sviluppo imprenditoriale", Regione Piemonte

35. Latvia: Venture Capital Fund

Author: Katrin Mannik

Key words: support for enterprises: innovation financial engineering; start up and spin off

Interviews

- Krisjanis Zarins, Head of Risk Financing Unit, Latvian Guarantee Agency
- Martins Jansons, Head of the Structural Funds Programming Unit, Ministry of Economics of Republic of Latvia
- Valdis Avotins, Director of Department, Investment and Development Agency of Latvia

36. Lithuania: Virtual Library

Author: Ruta Rannala

Key words: information society: ICT access, e-inclusion, services and applications for citizens; culture

Interviews

- Regina Varniene, Project Manager, Deputy Director of the National Library of Lithuania
- Inga Petravičiute, Head of Division, Project Manager of the State Archive, the State Archive Department
- Daiva Grigorjeva, Senior Project Manager, responsible for the Virtual Library project, Central Project Management Agency

37. Poland: Aviation Valley

Author: Michal Miedzinski

Key words: clusters and business networks; information society: services and applications for companies; regional cooperation

Interviews

- Andrzej Rybka, Project manager, Director of Aviation Valley Association
- Marek Bujny, Vice President of Aviation Valley Association
- Romana Sliwa, Associate Professor, Centre of Advanced Technology, AERONET – Aviation Valley, Rzeszow University of Technology
- Monika Szymanska, Centre for Investor Relations, Rzeszow Regional Development Agency

38. Poland: STIM

Author: Michal Miedzinski

Key words: business advisory services, transfer of technology

Interviews

- Agnieszka Rozycka, Project manager, STIM Warsaw; University Technology Transfer Centre, Warsaw University (Uniwersytecki Ośrodek Transferu Technologii - UOTT)

- Grzegorz Gromada, Project manager, STIM Wroclaw; Wroclaw Technology Transfer Centre (Wroclawskie Centrum Transferu Technologii, WCTT), Wroclaw Technical University (phone interview)
- Dominik Jankowski, consultant, STIM Warsaw
- Dominik Wasilewski, Office for University Development, Warsaw University
- Aneta Jeziorska, Polish Agency for Entrepreneurship Development
- Malgorzata Denkiewicz, Enterplan (beneficiary)

39. Portugal: Hibridmolde

Author: Augusto Ferreira

Key words: transfer of technology; research activities and infrastructures; technological and market innovation

Interviews

- António Sérgio Pouzada, Professor, Project Director, Department of Polymer Engineering, University of Minho
- Pedro Gago, Director, 3DTECH Ltd
- Rui Tocha, General Director, CENTIMFE - Technological Centre for the Mouldmaking, Special Tooling and Plastic Industries
- Nuno Fidélis, Product Engineer, CENTIMFE - Technological Centre for the Mouldmaking, Special Tooling and Plastic Industries

40. Portugal: Porto Digital

Author: Augusto Ferreira

Key words: information society: ICT access, e-inclusion, services and applications for citizens; social issues: education and training, life long learning, employment and labour market, social inclusion and equal opportunities; tourism

Interviews

- Alexandre Sousa, Project director, Porto Digital Association
- Marta Costa, Staff Member, Porto Digital Association

41. Slovakia: Warhol City

Author: Jan Bucek

Key words: tourism and culture; urban areas

Interviews

- Vladislav Višnovský (local self-government)
- Michal Bycko (AWMMA)
- Valika Madarová (AWMMA)
- Anton Sabo (local self-government)

42. Slovenia: Nanotech Excellence Centre

Author: Maja Bucar

Key words: research activities and infrastructures

Interviews

- Dragan Mihailovic, Head of the Centre of Excellence, Institute Jozef Stefan & Centre of Excellence
- Darja Piciga, Head of the Structural Funds coordination at the Ministry of Higher Education, Science and Technology

- Franc Mali, senior researcher in the area of R&D policy, Faculty of Social Sciences, University of Ljubljana
- Ales Mihelic, Head of Directorate for Technology, Ministry of Higher Education, Science and Technology
- Marija Kosec, senior researcher, Institute Jozef Stefan

43. Spain: PCB, Parc Científic Barcelona

Author: Tommy Jansson

Key words: research activities and infrastructures; support for enterprises: business advisory services, start up, spin off, incubators

Interviews

- Màrius Rubiralta, Rector University of Barcelona
- Fernando Albericio, Executive Director, PCB
- Mercé Colom, Contract & Services Director, PCB
- Moisés Tarté, Financial Director, PCB
- Roser Artal, Managing Director, PCB
- Iolanda Font, Head of Structural Services Ministry of Innovation, Universities and Enterprise, Government of Catalonia
- Jordi Sort, Vice Director, Department of Sectorial Budget Analysis, Government of Catalonia

44. Spain: CENER, Centro Nacional de Energías Renovables

Author: Tommy Jansson

Key words: renewable energies; research activities and infrastructures; transfer of technology

Interviews

- Juan Ormazabal, General Manager, CENER
- Fernando Sánchez, Technical Director, CENER
- Jose Angel Zubiaur, General Director for European Issues, Government of Navarre
- Enrique Díaz, General Director, Industry and Commerce, Government of Navarre
- Begona Urien, General Manager, Cenifer

45. Spain: CTAP, Centro Tecnológico Andaluz de la Piedra

Author: Tommy Jansson

Key words: clusters and business networks; technological and market innovation, innovation awareness-raising, education and training, transfer of technology; support for enterprises: new business process and business advisory services

Interviews

- Gerónimo Sánchez, General Manager, CTAP
- María José Cruz, Managing Director, CTAP
- Jesús Nieto, General Manager, Ministry of Innovation, Science and Enterprise, Government of Andalucía
- Manuel Sánchez, Chairman, Foundation Marca Macael
- José Martínez, Manager, Abselen Mármoles S.A.

46. Sweden: Netport

Author: Karin Eduards

Key words: clusters and business networks; support for enterprises: new business process

Interviews

- Samuel Henningsson, Project manager
- Peter Mattisson, General manager Avalon Enterprise
- Bengt Mattson, Municipality director
- Blekinge Institute of Technology, headmaster of the Karlshamn department

47. Sweden: PUCK

Author: Karin Eduards

Key words: clusters and business networks, technological and market innovation; transfer of technology; support for enterprises: business advisory services; education and training, life long learning

Interviews

- Bertil Andersson, Smålandsplast
- Christer Hedberg, Project Manager, PUCK
- Ingvar Norén, Resinit

48. Sweden: Sonic Studio

Author: Annelie Eriksson and Karin Eduards

Key words: research activities and infrastructures, technological and market innovation; culture

Interviews

- Katarina Delsing, Project manager, the Interactive Institute
- Nina Sjömark, Akustikum
- Stefan Lundmark, Tillväxt Piteå

49. Sweden: Fibre Optic Valley

Author: Karin Eduards

Key words: clusters and business networks, research activities and infrastructures, technological and market innovation; information society: ICT access, e-inclusion

Interviews

- Magnus Burvall, Project manager, Fibre Optic Valley
- Åsa, researcher, Acreo
- Jan Elvelid, World Internet Institute

50. Sweden: STIMENT

Author: Annelie Eriksson and Karin Eduards

Key words:

Interviews

- Mats-Rune Bergström, Project manager, County Administration Board of Västerbotten
- Marie-Louise Rönmark, Umeå Kommun
- Annika Sällström, Luleå Universitet

51. Sweden: Tjarno Centre of Excellence

Author: Annelie Eriksson and Karin Eduards

Key words: regional cooperation; support for enterprises: business advisory services; innovation awareness-raising, education and training; information society: services and applications for companies

Interviews

- Eva Marie Rödström, Project manager, Tjärnö Marine Biology Laboratory
- Lars Hagström, Marecul, Gothenburg University
- Malin Strand, Zool, Gothenburg University
- Kent Berntsson, Ostrea.se

52. UK: Knowledge Dock

Author: Rebecca Allinson

Key words: support for enterprises: start up, spin off, incubators, new business process, business advisory services; social issues: education and training, life long learning; urban areas

Interviews

- Stuart Scott, GOL Objective 2 office, Government Office for London
- Daniel Gilbert, former manager, Knowledge Dock, London
- Chris Andersen, University of East London
- Tony Jeremiah, Project Monitoring Supervisor, Government Office for London

53. UK: Dialogues

Author: Rebecca Allinson

Key words: clusters and business networks; Support for enterprises: start up, spin off, incubators; Innovation awareness-raising, education and training

Interviews

- Elizabeth Gray, Senior Business Development Manager and Team Leader, Research and Enterprise University of Glasgow
- Fraser Rowan, Research and Enterprise Glasgow
- Kevin Cullen, Director of Research and Enterprise
- Laura Smart, ILT project, Glasgow

54. UK: Scottish Proof of Concept

Authors: Alasdair Reid and Miriam Ruiz

Key words: technological and market innovation; transfer of technology, spin-off

Interviews

- Caroline Myles, responsible for the PoCP association of women entrepreneurs and making the financial returns
- Tom Tumilty, Scottish Executive
- David Hamilton, Atteeda
- David Bunton, Biopta
- Tom Higginson, Edinburgh Research and Innovation

55. UK: NWBIS

Author: Judith Eccles

Key words: support for enterprises: innovation financial engineering

Interviews

- Vivienne Upcott-Gill, Head of Business Finance, North West Development Agency

- Doug Stellman, YFM Private Equity Group

56. UK: KEF

Author: Rebecca Allinson

Key words: innovation awareness raising, education and training, technological and market innovation, transfer of technology

Interviews

- Pat Jones, KEF Programme Manager, Department for Enterprise, Innovation & Networks (DEIN), Wales
- Darren Bevan, KEF Marketing Executive, DEIN, Wales
- Terry Stubbs, KEF Innovation Champion, DEIN, Wales
- Jay Jeffreys, KEF Appraisal Officer, DEIN, Wales
- Howell Reese, KEF Validation Manager, DEIN, Wales

57. UK: Actnow

Author: Rebecca Allinson

Key words: information society: ICT access, e-inclusion, services and applications for companies

Interviews

- Nigel Ashcroft, Project Director, Actnow – Cornwall Enterprise
- Claire Morgan, Cornwall County Council, Objective One
- Carleen Kelemen, Director of the Objective One Partnership
- Trish Wells, BT, UK

58. UK: Opportunity Wales

Author: Edward Kitching

Key words: information society: ICT access, e-inclusion, services and applications for companies; support for enterprises: business advisory services

Interviews

- Christine Holvey, Chief Executive, Opportunity Wales
- Susan Geary, Business and Customer Services Director, Opportunity Wales
- Bettina Gilbert, Objective 2 Project Manager, Opportunity Wales
- Philip Lee, Head of Web Services, Opportunity Wales

59. UK: Nstar

Author: Edward Kitching

Key words: innovation financial engineering, start up, spin off, new business process

Interviews

- Andrew Mitchell, Chief Executive, NStar
- Karl Gardiner, Head of Business Development, NStar
- Jonathan Gold, Director, Nstar

60. UK: POWER

Author: Judith Eccles

Key words: renewable energies, regional cooperation

Interviews

- Michael Moll, Project manager, Suffolk County Council
- Ian Pease, CoVE Manager – Offshore Technology & Energy, Lowestoft College
- Richard Best, Policy Manager, Waveney District Council

Appendix D

CD-ROM with 60 project analyses and the report templates