

Impact assessment of the participation of SMEs in the ‘themes’ of FP5 and FP6, 2009



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IMPACT ASSESSMENT OF THE PARTICIPATION OF SMEs IN THE 'THEMES' OF FP5 AND FP6, 2009

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Luxembourg: Publications Office of the European Union, 2010

ISBN 978-92-79-16305-0

ISSN 1018-5593

doi:10.2777/73775

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Printed in Belgium

PRINTED ON WHITE CHLORINE-FREE PAPER

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INTRODUCTION

Small and medium-sized enterprises (SMEs) have long been involved in the EU's research framework programmes. But what role do SMEs play in EU-funded research projects, and what social and economic impacts does project participation have on SMEs? This report sheds new light on these and other questions. Crucially, the report also highlights the need for the creation of an integrated SME strategy for the framework programme. This would enable SMEs to take full advantage of project results and help drive Europe's vibrant and innovative economy.

SMEs – the key to Europe's prosperity

Some 99% of the EU's 20 million businesses meet the EU's definition of an SME, meaning they have fewer than 250 employees. Between them, these companies provide jobs for 65 million people Europe-wide, or two thirds of the private sector workforce. Economically, they account for 65% of the EU's gross domestic product (GDP).

SMEs therefore have a key role to play in helping Europe emerge stronger from the economic crisis and meet the goals of the Europe 2020 Strategy. The Strategy, which was adopted by European leaders in June 2010, sets out the measures needed for the EU to become a smart, sustainable and inclusive economy by 2020. The Strategy recognises that research and innovation are vital for economic growth and the creation of new jobs in the EU.

The 'Innovation Union' initiative is a critical component of the overall strategy and EU leaders are expected to endorse it by the end of 2010. It will aim to re-focus research, development and innovation (R&D&I) policy on the major societal challenges. In addition, it will place a greater emphasis on closing the gap between science and the market to turn inventions into products.

Many SMEs rely on innovation to stay ahead of the competition by developing new products and services or improving existing ones. Yet all too often SMEs struggle to obtain the finance they need for research and innovation activities. The EU's new Innovation Union flagship initiative emphasises the importance of ensuring that SMEs gain access to funding for their innovation projects.

SMEs and the EU's research programmes

The EU is fully aware of the importance of research to SMEs, which have been encouraged to participate in the EU's research framework programmes since their inception in the 1980s. In the mid 1990s, the EU created a research funding scheme specifically for SMEs. What sets these 'SME-specific measures' apart is the fact that they allow SMEs to pick their own research topics to match their business needs. The scheme has proven extremely popular and is now one of the most oversubscribed parts of the EU's research framework programmes (¹).

Meanwhile, SMEs can and do participate in the 'thematic' parts of the framework programmes, i.e. the Thematic Areas of the Sixth Framework Programme (FP6) and the Themes under the Cooperation Programme of the Seventh Framework Programme (FP7). Projects funded under these parts of the framework programmes address specific research priorities in fields such as climate change, health, the environment, materials science, information and communication technologies (ICTs) the socio-economic sciences and humanities, food, agriculture, biotechnology, energy, transport, space and security. Participation is open to all kinds of organisations including universities, research organisations, SMEs and larger companies.

¹ A report on the impacts of the SME-specific measures on participating SMEs can be downloaded at http://ec.europa.eu/research/sme-techweb/pdf/sme_impact_assess_2009-short.pdf.

Throughout successive framework programmes, the EU has taken steps to encourage SMEs to participate in these thematic programmes. For example, the SME TechWeb ⁽²⁾ provides SMEs with information and support on all aspects of EU-funded research. Other useful sources of support for SMEs include the National Contact Points (NCPs), which are able to provide assistance in the SME's own language. In addition, the Enterprise Europe Network (EEN), Europe's largest information and consultancy network, was established at regional level in 2008 to help small businesses become more innovative and provide them with guidance on access to a range of EU funding programmes of relevance to small businesses, including the research framework programmes.

FP6 saw the European Commission introduce a number of calls for proposals dedicated to SMEs, and SMEs were given the opportunity to identify topics they deemed significant. In addition, the European Commission set the target of allocating 15% of the overall budget in the Thematic Areas to SMEs.

Under FP7, the EU continued to earmark 15% of the EUR 32.4 billion budget of the thematic 'Cooperation' specific programme for SMEs. At the same time, the funding rate for SMEs was raised to 75%, the requirement for SMEs to obtain expensive bank guarantees was scrapped, and the audit certificate requirements were reduced.

The intellectual property (IP) rules were also simplified under FP7, giving project partners greater freedom to determine their own IP arrangement. This is hoped to raise the chances for the protection and future commercial exploitation of project results.

SMEs are also the beneficiaries of the 6-year, EUR 400 million Eurostars programme. Eurostars gives research-performing SMEs the opportunity to run short-term projects with a market focus in collaboration with other European SMEs.

About this report

This study focuses on SMEs that participated in projects funded under the Thematic Programmes of FP5 and the Thematic Areas of FP6.

The aims of the study were fivefold:

1. to identify the profile of SMEs participating in the thematic programmes;
2. to assess the role of SMEs in projects and their contribution to the project outcomes;
3. to investigate the economic and social impacts of project participation on SMEs;
4. to uncover new ways of improving the thematic programmes so as to generate greater benefits for SMEs;
5. to develop indicators of SME performance and a system of data collection for monitoring and impact assessment purposes.

The first challenge was to determine the precise number of SMEs involved in these programmes; to do this, a robust data cleaning process was used.

To obtain a more detailed picture of SME involvement in the projects, 120 project case studies were compiled. This entailed carrying out in-depth interviews with SME project partners, project coordinators, other project partners and expert stakeholders. For comparison purposes, a further 21 case studies were conducted featuring SME participants in projects funded under regional and national research programmes that share certain features in common with the EU's framework programmes.

The data cleaning exercise highlighted the difference between the number of 'unique organisations' (i.e. counting each organisation only once, regardless of the number of projects it is involved in) and 'participations' (in which each organisation is re-counted every time it participates in a new

² See http://ec.europa.eu/research/sme-techweb/index_en.cfm.

project). Cleaning the data also entailed verifying that organisations claiming to be SMEs actually fit the definition.

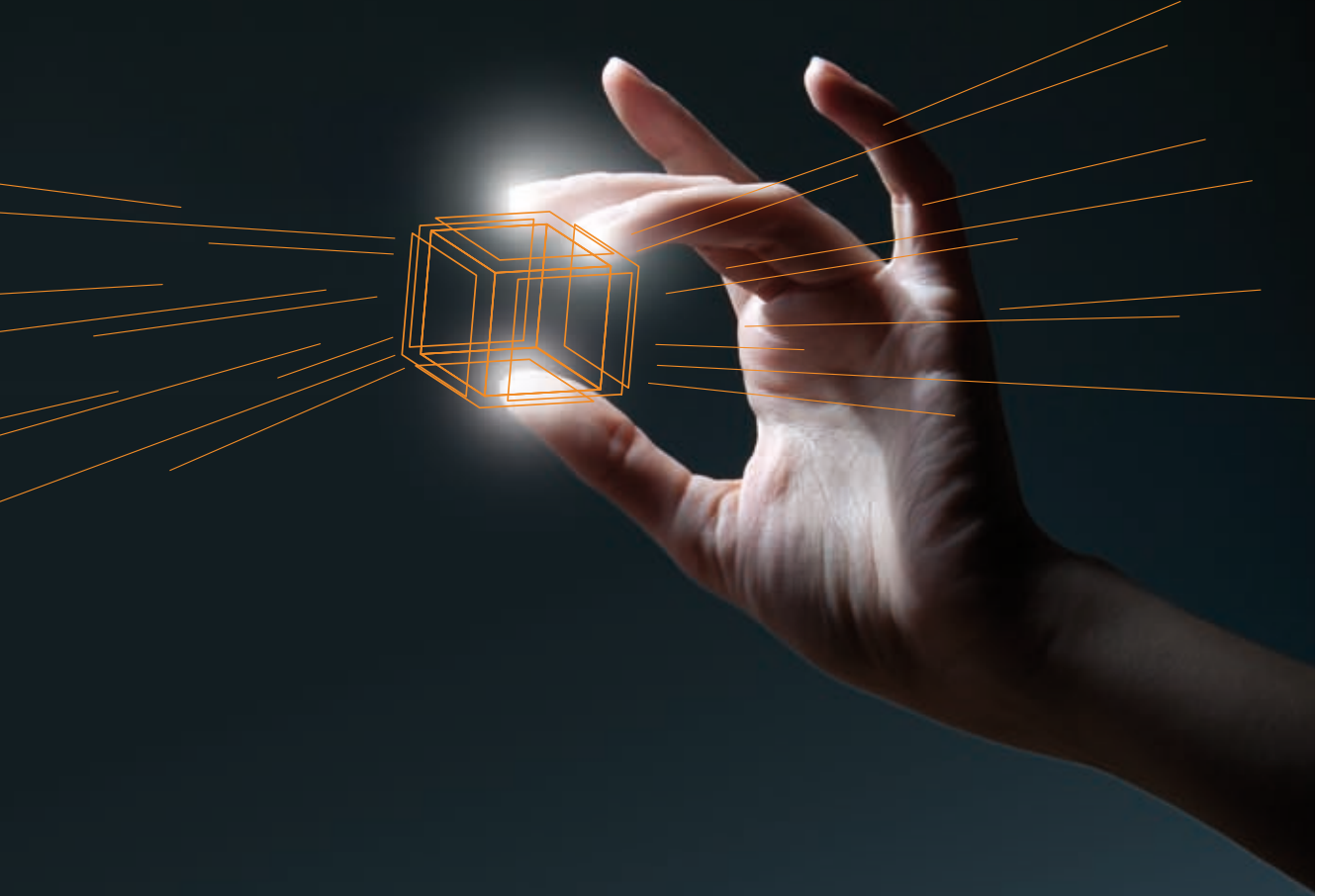
Meanwhile the characterisation of the SME participants revealed that SMEs participating in EU-funded projects can be roughly divided into two main groups, depending on the extent to which their own objectives are aligned with those of the project, and the SME's level of involvement in the project. This is a revelation, as until now the classification of SME participants was done according to size (micro-, small, medium-sized) and R&D intensity (low-, medium-, 'high-tech') in an over-simplified manner. Their intentions and motivation to take part in the framework programme were not considered although this element has far reaching consequences on the level of their involvement, the exploitation of research results and thus the benefits they can gain from participation.

In addition, the study sheds new light on the reasons why SMEs embark on EU-funded projects, the skills they bring to the project and the factors influencing the extent to which SMEs benefit from the projects.

An analysis of national research programmes involving SMEs reveals a number of important lessons, many of which could be borne in mind when future framework programmes are being designed.

Together, the findings highlight the need for a comprehensive SME strategy covering the entire framework programme. This strategy would acknowledge the assets, skills and knowledge SMEs bring to projects, and would take account of the fact that for SMEs, business objectives and impacts are as important as technical objectives and new knowledge development. A list of recommendations that should guide the design of this strategy is provided in Chapter 4.

This report concludes with six in-depth project case studies. These illustrate many of the report's findings and demonstrate the need for an integrated SME strategy for the framework programme.



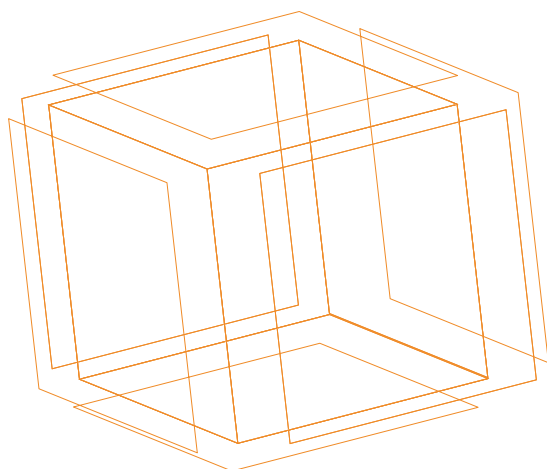
KEY MESSAGES

KEY MESSAGES

Over a third of all organisations participating in the thematic parts of the EU's framework programmes are SMEs

This study examines the number of individual organisations participating in the thematic programmes of FP5 and FP6. The findings reveal that far from being in the minority, SMEs represent the biggest category of organisations in the framework programmes. Some 35.9% of organisations participating in FP5 were classified as SMEs, a figure that rose to 37.8% in FP6.

The EU has invested a lot of effort in encouraging SMEs to participate in projects. These new findings suggest that the EU should also focus on enhancing the benefits of project participation for SMEs.



SMEs participating in the thematic parts of the framework programmes can be loosely grouped into six categories

This study identifies two types of SMEs that get involved in EU-funded projects ('Technology Developers' and 'Technology Networkers'). These categories, which can each be further subdivided into three sub-types, reflect how well the SMEs' objectives match the projects' objectives, and the extent to which the SME is actively involved in the project.

These categories shed new light on the different roles SMEs play in projects and their reasons for getting involved in projects in the first place. The information should be used to guide future efforts to maximise the impacts of projects on SMEs.

SMEs' contribution to projects is highly appreciated and viewed as 'critical' by many project coordinators

More than 75% of project coordinators consider SMEs' contribution to their projects to be either crucial or important. Coordinators appreciate SMEs for their scientific and technical skills, as well as for their market experience. SMEs are also praised for going beyond the call of duty to ensure the success of the project.

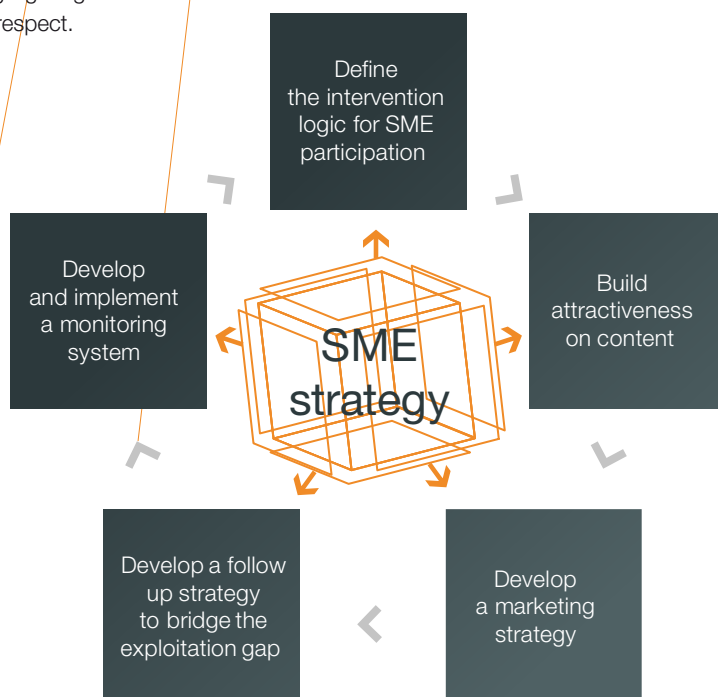
Many SMEs gain a number of long-lasting benefits from project participation, but do not always manage to take full advantage of the project outcomes

Working on an EU-funded project has impacts on many aspects of SMEs' business. From a financial perspective, half of SMEs claim that their turnover has increased thanks to their project involvement. In addition, projects help SMEs develop their range of products and services, gain access to new sectors, boost their technological and scientific skills, and forge new business contacts.

However, while some manage to commercially exploit the results of their projects, many do not, highlighting the need for measures to help SMEs in this respect.

The European Commission should ensure that SMEs are able to benefit fully from project participation

In order for SMEs to optimise their economic benefits through research and innovation, the EU needs to develop an SME Strategy for the entire framework programme. Such a strategy would recognise the value SMEs bring to projects and appreciate the fact that they have business as well as technological objectives. Ideally, the strategy would be built on five inter-related components:



RECOMMENDATIONS

Recommendation 1

Define the intervention logic for SME participation

The SME Strategy should specify precisely the expected impacts of the framework programmes on SMEs. Clear, impact-related targets need to be defined based on the SMEs' own assessment of whether knowledge creation and business objectives have been met and whether or not exploitation activities take place during or immediately after the project.

Recommendation 2

Make the content of the framework programmes more attractive to SMEs

Funding alone will not attract SMEs to the framework programmes — the content of projects must address SMEs' interests. For example, SME-specific calls for proposals should be launched and more experts who understand SMEs' needs should be involved in project evaluations.

Recommendation 3

Design a proactive marketing strategy

Attracting leading SMEs in different fields and sectors to take up key roles in EU-funded projects will demonstrate the attractiveness of the framework programmes to the wider SME community.

Recommendation 4

Develop a strategy to bridge the gap between knowledge creation and exploitation

Many SMEs would benefit from further support to exploit promising research results. Options here include the creation of an Exploitation Fund and the identification of a scheme that could support activities designed to move research results closer to market.

Recommendation 5

Set up a monitoring system

A monitoring system is needed to characterise the impacts of projects on SMEs and determine the effectiveness of policy measures.



KEY FINDINGS

KEY FINDINGS

Moving SMEs to the top of the table!

For many years, the EU was concerned that not enough SMEs were getting involved in EU-funded projects. This study shows that in fact, SMEs make up by far the largest share of organisations participating in the framework programmes. The misconception arose because in the past, organisations were counted every time they participated in a new project. As Table 1 shows, counting individual ‘participations’ in this way results in the impression that research-performing organisations predominate, while SMEs are under-represented.

Table 1 – The numbers of participations in FP5 and FP6 by organisation type

For the first time, this study took a different approach and counted the number of individual organisations participating in FP5 and FP6 projects; in other words, each organisation was counted only once, regardless of the number of projects it was involved in. Innovative data cleaning techniques were used to remove duplicate entries and ensure that organisations had classified themselves correctly.

As the results highlighted in Table 2 show, this turns the table upside down. Far from languishing near the bottom of the rankings, SMEs come out as the biggest users of the framework programme, accounting for well over a third of individual organisations involved. Large companies also rise up in the rankings to take second place, while research organisations and higher education institutions fall into third and fourth place respectively.

Rank	Organisation type	FP5	FP6
1	Higher education institutions	12 250 32.9%	11 312 33.4%
2	Research organisations	8 186 22.0%	7 458 22.1%
3	Large companies	7 532 20.3%	6 931 20.5%
4	SMEs	6 115 16.4%	5 706 16.9%
5	Hospitals	390 1.0%	320 0.9%

Note: Organisations classified as ‘other’ or ‘not available’ are not listed in this table.

Table 2 - The numbers of *individual organisations* participating in FP5 and FP6 by organisation type

Rank	Organisation type	FP5	FP6
1	SMEs	4 288 35.9%	4 262 37.8
2	Large companies	2 790 23.4%	2 765 24.5
3	Research organisations	1 611 13.5%	1 414 12.5
4	Higher education institutions	1 152 9.6%	1 236 11.0
5	Hospitals	215 1.8%	122 1.1

Note: Organisations classified as ‘other’ or ‘not available’ are not listed in this table.

Follow the money!

The reason for the differences between the two tables is quite simple: while research-performing organisations tend to participate in several projects, few SMEs take part in more than one or two. This is because the ‘thematic’ programmes do not meet all the technical and business needs of SMEs.

Another interesting finding is that two thirds of the participating SMEs have fewer than 50 employees and are well-established; just a quarter of them have been operating for less than a decade.

In FP5, SMEs received 13.2% of the total budget, a figure which fell to 12.4% in FP6, in spite of the introduction of the 15% target. That downward trend appears to have been reversed in the current framework programme; 13.4% of the budget allocated in the first 3 years of FP7 went to SMEs.

Meanwhile, the average level of funding per project received by each SME has risen substantially, from EUR 170 000 under FP5 to EUR 220 000 in FP6 and EUR 268 000 in the first 3 years of FP7.

A new way of looking at SMEs

Previous surveys of SMEs classified them as high- or low-tech on the basis of their research and development capabilities. However, this provides little information on SMEs' approach to and expectations from EU-funded projects. This study identifies two major groups of SMEs that get involved in the framework programmes: Technology Developers and Technology Networkers.

Technology Developers

As the term implies, these SMEs join EU-funded projects with the aim of developing a specific technology. In most cases, the project goals are firmly in line with the SMEs' strategic business objectives. The company benefits from access to funds, physical and human resources, and markets. Crucially, working in an EU-funded project reduces the risks of investing in the development of a new technology.

Technology Networkers

For these SMEs, the project is of secondary importance to the company's business objectives. For them, the project represents a significant networking tool with

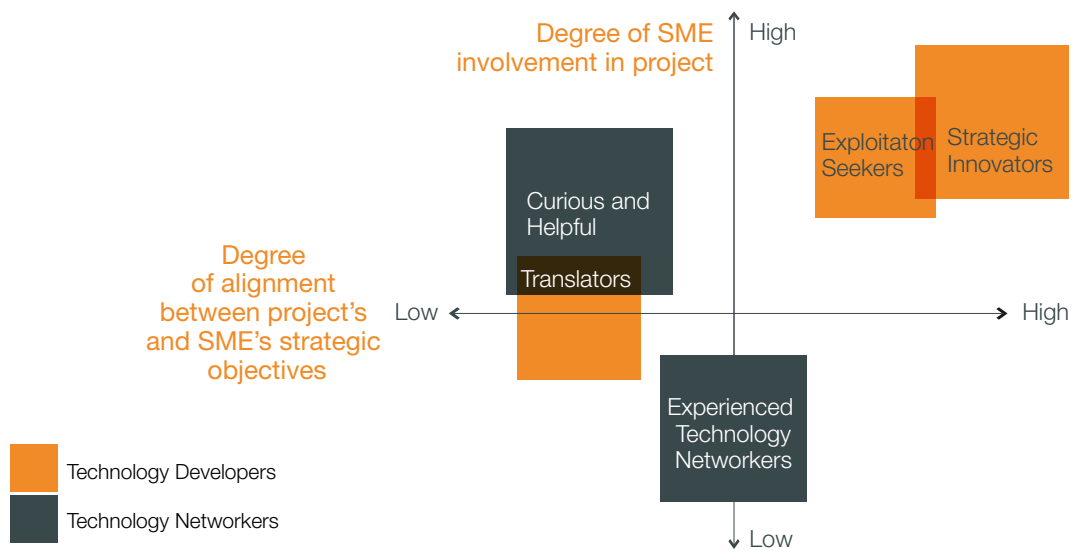
more long-term objectives and provides opportunities to enhance the company's reputation. Technology Networkers are also keen to learn about the latest technological developments in their field.

Further analysis allows both groups to be further divided into three sub-groups on the basis of two factors: the extent to which the SME's objectives are aligned with those of the project; and the level of involvement in the project.

The sub-groups resulting from this analysis are:

- **Technology Developers**
 - Strategic Innovators
 - Exploitation Seekers
 - Translators
- **Technology Networkers**
 - Experienced Technology Networkers
 - Curious and Helpful
 - Free Riders

▼ Diagram illustrating where the different SME sub-groups lie on the basis of two characteristics — degree of alignment between the project and SME objectives (x axis) and the level of SME involvement in the project (y axis)



Technology Developers

Strategic Innovators make up 22% of SMEs in the case studies. These SMEs view the project as being essential or important, and there is a strong correlation between the project objectives and the SMEs' own strategic goals. Strategic Innovators tend to be well-established SMEs, and their extensive experience allows them to make a significant contribution to the project's work. The technology arising from these projects is likely to be close to the market, and the chances of it being exploited are high. The projects therefore have a major impact on the Strategic Innovators' economic performance.

Exploitation Seekers account for 13% of SMEs studied. They join projects with the hope of exploiting the results and often have a significant impact on the projects. However, the other project partners are often less interested in exploitation, and the resulting technologies tend to require further work (and funding) before they can be exploited commercially. As a result, these projects do not have a major economic impact on Exploitation Seekers. Further support would allow these projects to turn promising results into marketable products or services, and boost the impact of the project on the SME.

Translators form 18% of the SMEs in the sample and are usually asked to join projects to form a link between researchers and the market. Adept at bringing new technologies to market, they have a fairly high impact on the project. However, there are some discrepancies between the SME's own goals and the project objectives, and the impact of projects on Translators varies widely.

Technology Networkers

Experienced Technology Networkers make up 20% of the SMEs surveyed. Small in size and with only limited resources, it is hard for these SMEs to forge and maintain relationships beyond their everyday activities and outside their local region. Experienced Technology Networkers therefore join EU-funded projects to develop their network of contacts and gather technology intelligence. These SMEs tend not to be central to the project, and their impact on the project outcomes varies. While the project has little impact on these SMEs economically, their network benefits greatly.

Curious and Helpful SMEs make up 23% of those involved in the case studies. Although the project does not fully match their goals, these SMEs get involved anyway out of curiosity and their willingness to help out. EU-funded projects represent an opportunity for Curious and Helpful SMEs to broaden their horizons. The impacts of the project on the SME and the SME on the project are generally in the low to moderate range. Nevertheless, the projects provide the SMEs with new insights, expanded networks and enhanced research capabilities.

Free Riders make up a small minority (5%) of the SMEs studied. They are generally invited to join projects so that the project can fulfil its 'SME quota'. Free Riders tend to be relatively large SMEs, so it is fairly easy for them to allocate resources to a project that is not central to their core business. Their impact on the project is minimal, as is the impact of the project on these SMEs. This begs the question of why Free Riders join these projects in the first place. One reason may be the funding they bring. Free Riders may also use these projects as a tool to maintain links with their partners.

Impacts of project participation on SMEs

The impacts on SMEs of participating in EU-funded projects are many and varied, ranging from economic impacts (e.g. increased turnover, the introduction of new products and services) to enhanced skills (both research and project management) and enlarged networks. Many of these benefits are long lasting and may even grow over time.

Economic impacts

Many SMEs report positive impacts on economic measures of performance immediately after the project; 49% report a rise in turnover, 19% cite an increase in income and 13% state that profits are up. Furthermore, far from dwindling, these effects appear to grow stronger over time. A few years after the end of the project, the proportion of SMEs enjoying increases in turnover, income and profit had risen to 55%, 28% and 24% respectively.

The growth is due to the time it often takes to turn project outcomes into commercially viable products and services. In addition, projects help SMEs enhance their research and other skills, and this in turn allows many of them to expand or diversify their operations.

Micro and small enterprises that played the role of 'technology developer' are most likely to benefit economically from projects. These companies tend to be more willing to fund the further development of the project outcomes to bring them to market.

Elsewhere, 45% of SMEs claim that participating in the project helped their marketing capability. Approximately half of the SMEs surveyed had succeeded in breaking into new sectors, and just under a third had entered new geographical markets as a result of the project.

New products and services

Some 60% of SMEs expand the range of products and services they offer following the project. Just over a third report that the project has helped them cut the time to market their products and services.

A large proportion (70%) of SMEs note that working on the project has had a positive impact on their operations, processes, methods, tools or techniques, as well as on the quality and reliability of their products. Indeed, when interviewed, many SMEs stressed that this was one of the most important benefits of participating in the project.

Research and innovation

An overwhelming majority of SMEs report that the project had positive impacts on different aspects of their research and innovation work, although these impacts diminish gradually in the years following the end of the project.

For example, for the period immediately after the end of the project, 91% say that the project bolstered their technological or scientific competitiveness, while 85% benefit from enhanced R&D skills. However, over the subsequent years these figures fall to just below 65%.

Generally speaking, the SMEs that benefit most in terms of research and innovation are those that started from a relatively low base. In interviews, SMEs that had little or no in-house research capacity at the start of the project explain that they had since adopted a fresh approach to R&D, with some launching new R&D activities and even setting up new R&D departments.

Other skills

Taking part in an EU-funded project requires SMEs to develop a wide skill set. Two thirds claim that the project gave their project management skills a boost, while over half feel that the project improved their ability to deal with technological change. Over three quarters report that the project left them better able to work in cross-cultural and cross-border collaborations.

In general, the impact of the project on these skills decreases over time. This is usually because the people involved in the project who acquired the skills switch jobs, or because the company itself changes direction and these skills become less important.

New networks

Many SMEs cite networking, and specifically working closely with the 'big players' as well as potential customers, as one of their main reasons for joining an EU-funded project. In many cases, the contacts made during the project led directly to new, often long-lasting business ventures. This meant that even if the project outcomes were not exploited commercially, the project still had a positive economic impact on the SME.

Another major benefit of project participation is its impact on the reputation of the SMEs. Some 85% of SMEs report that their reputations were enhanced as a result of their involvement in the project.

The exploitation of project results

An analysis of the data uncovers three factors that affect the chances of an SME exploiting the project results successfully: the project's focus; the SME's own R&D intensity; and the project's alignment with the SME's objectives.

Projects driven from the start by clear commercial goals have a good chance of generating results that can be commercially exploited, as do projects that build on earlier R&D activities.

In contrast, projects whose goals are primarily scientific in nature or that have a strong networking focus are generally less successful at developing new products or services. Many SMEs in these kinds of projects state that the levels of exploitation would have been greater had they received additional funding, possibly via a follow-up project with a clear focus on the further development of the technology.

R&D-intensive SMEs seem to be particularly adept at aligning their role in the project with their own strategic objectives and finding ways of bringing project results to market.

Meanwhile, too many SMEs struggle to find the resources needed to develop technologies further, and all too often, the work is dropped. In some cases, where the project was critical to the SME, failure to exploit the project findings may threaten the very survival of the company. Another challenge for SMEs is maintaining the network of contacts developed through the project. The smaller SMEs are also vulnerable to wider economic downturns; these may force the SME to play a lesser role in the project, and this in turn will diminish any positive impacts of the project on the SME.

Impacts of SMEs on the projects

Interviews with the project coordinators reveal that SMEs make a strong contribution to the project at all stages, and more than 75% of coordinators describe the SMEs' contribution as 'critical' or 'important'. In fact coordinators tend to rate the SMEs' contribution more highly than the SMEs themselves.

Around a quarter of projects are initiated by SMEs, with the rest based on ideas from academia or large industrial partners. During the proposal writing period, SMEs may contribute commercial knowledge and market experience.

Once the project is underway, SMEs prove themselves to be active partners that will go beyond the call of duty to ensure the success of the project. In addition to taking on extra responsibilities, they willingly share their product development expertise with other partners and are highly respected for their field-based expertise and end-user knowledge.

Other SME contributions cited by project coordinators include: expertise in scaling up laboratory results; the supply of special tool components; the provision of product specification; and the independent validation of research outcomes. SMEs also form an important link between research and industry.

Due to their size and lack of resources SMEs rarely take on the role of project coordinator; the job usually falls to an academic or large industrial partner, even in cases where the SME came up with the project concept. However, as work package leaders in key areas of strategic importance to the SME they can have a stronger role in the project and its outcome.

In general, SMEs that are technology developers had a greater impact on the work compared with the technology networkers that joined up for networking purposes primarily.

During the compilation of the case studies, interviewees were asked their opinions about the success (or otherwise) of the project. The answers highlighted some discrepancies between the SMEs' understanding of a successful project and that of the academic partners.

Academic partners were more likely than SME partners to rate the project's technical outcomes highly. Meanwhile, only 7% of coordinators felt that the project had not achieved its exploitation objectives at all compared with 23% of SMEs.

Researchers and SMEs have different perspectives which emphasise the need for key indicators to be set from the outset of the project, ensuring that both the technical and business needs are met.

In spite of these differences, SMEs that have an important role in the project often prove skilful at ensuring that the project meets their needs. In larger projects, or cases where the SME is not able to wield greater influence in the consortium, smaller companies may nevertheless succeed in identifying and exploiting areas of the project that are well aligned with their own business strategies.

Lessons from national R&D programmes

As well as investigating case studies drawn from the EU's own framework programmes, the study entailed an analysis of projects funded by national research programmes in seven EU Member States ⁽³⁾. The aim here was to identify successful practices that could be applied in future EU research programmes.

All national programmes studied form part of wider efforts to promote private sector competitiveness. The evaluation criteria reflect this, placing a lot of weight on the extent to which the project will benefit participating companies including SMEs. Exploitation plans are drawn up early on in these projects; in contrast, most EU-funded projects only consider the exploitation of the results relatively late in the day.

3 Germany, Greece, France, Ireland, Hungary, Sweden and the UK.



**TOWARDS AN SME STRATEGY
FOR THE FRAMEWORK PROGRAMMES**

TOWARDS AN SME STRATEGY FOR THE FRAMEWORK PROGRAMMES

As this study demonstrates, SMEs make up the largest group of organisations participating in the thematic programmes of FP5 and FP6. Furthermore, the vast majority of SMEs reap at least some kind of reward for participating in these projects, reporting growth in the company's economic performance, improved procedures, enhanced research skills or new business contacts, for example. In fact, almost 80% of SMEs describe their experience of working in an EU-funded project as either very or moderately positive and would consider participating in more projects.

Meanwhile, the interviews with the project coordinators highlight the fact that SMEs bring a unique set of skills, knowledge and experience to their projects and these are greatly appreciated by the coordinators and other project partners. SMEs are clearly valued members of project consortia and many are instrumental in delivering the fruitful results obtained by the project.

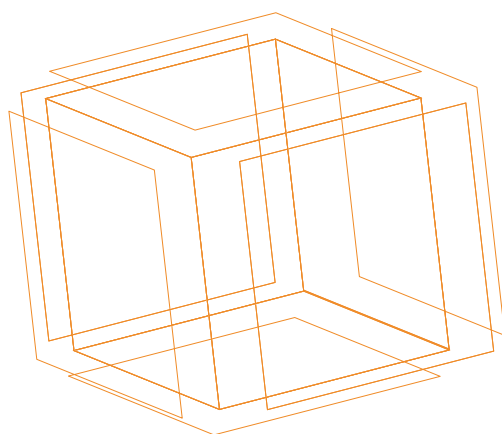
Although the main goal for the thematic programmes is scientific and technological development, SMEs would be interested in exploiting those research results. And it becomes clear from the case studies that many projects result in technologies which could potentially be exploited. However, SMEs state that more funding to support the extra work needed to bring these technologies to market would be needed. As such opportunities are scarce under the current framework programmes, it is often the case that the technology is dropped and an opportunity is lost.

Only a handful of SMEs have successfully taken the project results and turned them into commercially viable products or services thus far; most have not.

Until mechanisms are in place to help SMEs benefit fully from EU-funded research results and enable them to exploit the framework programmes, they will not achieve their wider objective of contributing to the competitiveness of the European economy.

As SMEs are recognised for being key innovation players and contribute to the growth of the European economy, the EU needs to draw up and implement an SME Strategy for any future framework programme.

This strategy would take into account the different needs and motivations of the six groups of SMEs in EU-funded projects that were identified in this study. It would also recognise the important role SMEs play in many projects. The strategy should understand that SMEs have business as well as technical or scientific objectives, and that with the right support and measures, these can be combined. Finally, the strategy should require the European Commission to set clear goals regarding the impacts of project participation on SMEs. The Strategy comprises five interlinked components:



Recommendation 1

Define the intervention logic for SME participation

Currently, there is no intervention logic defining precisely the impacts the framework programmes should have on SMEs. In fact, the main objective regarding SME participation in the framework programmes is the target to allocate 15% of the budget to SMEs. However, this is an input indicator and says nothing about the impact of a project on participating SMEs.

An SME Strategy should therefore set out new, impact-related targets for the framework programmes. The targets should be based on a clear intervention logic that recognises the different SME groups identified in this study.

Possible targets could look at:

- SMEs' own assessment of the extent to which their scientific and business objectives have been met;
- whether exploitation activities have taken place, either during the project or immediately afterwards.

An impact assessment could also be considered.

Recommendation 2

Make the content of the framework programmes more attractive to SMEs and develop calls for proposals that reflect SMEs' roles in their respective sectors

Funding alone will not render the framework programmes attractive to SMEs; they must address SMEs' specific needs and the roles they play in their respective sectors. Two approaches are required here:

- The intervention logic should be translated into specific measures for each thematic area.
- The proposal and project management procedures of the framework programmes should be revised to decrease costs for SMEs.

Developing measures at the thematic level

The thematic areas covered by the framework programme are extremely diverse, ranging from the health and social sciences sectors to aerospace and nanotechnologies. The respective industries are equally diverse. An SME Strategy could therefore set certain minimum requirements regarding SME participation, but should leave it up to the teams working on each thematic area to translate these requirements into actions that fit their sector.

For example, SME-targeted themes could be developed for topics which are particularly relevant or suitable for SMEs. SME-specific calls could also be launched, essentially funding projects with a shorter research horizon (one to two years), a smaller budget and fewer partners.

The proposal-writing, administrative and management efforts relating to these calls should be significantly reduced. Finally, evaluation groups should always include experts who are sensitive to the specific needs of SMEs.

Simple procedures

Cutting the costs of participation would make the framework programmes much more attractive to SMEs and also save the European Commission money.

- 'Lean management' techniques should be applied to all administrative and management processes.
- A two-stage proposal process could be introduced. The first stage should be light enough to encourage SMEs to get involved, but contain enough detail for experts to decide whether it merits further development in a second, longer proposal.
- A particularly swift selection process should be applied for SME-specific calls.
- The financial management of projects should be simple, for example by accepting electronic claims and allowing payments to individual partners. This would help prevent SMEs from experiencing cash-flow difficulties caused by long payment delays.
- Finally, the time to contract and time to payment should be short.

Recommendation 3

Raise awareness of the framework programmes through a new marketing strategy designed not only to attract more SMEs but to encourage the right kind of SMEs to take on important roles within projects

The attractiveness of the framework programmes would be significantly enhanced if the most prominent, highly respected SMEs in different sectors took on key roles in EU-funded projects. The SME Strategy should therefore include a strong, targeted marketing strategy focusing on these high-flying SMEs.

In addition, existing SME support networks such as the National Contact Points (NCPs) and the Enterprise Europe Network (EEN) should be used more for proactive marketing.

Recommendation 4

Develop a follow-up strategy to bridge the gap between knowledge creation and exploitation

As this study shows, the gap between pre-competitive research and the market is too wide for many SMEs to bridge. Furthermore, different kinds of SMEs embark on EU-funded projects with varied objectives and expectations. The European Commission therefore should develop a follow-up strategy that addresses the needs of these diverse groups. Recommendations regarding this strategy include:

- **Open up new routes to exploitation at the end of projects**

The study demonstrates that if exploitation does not take place during the project, the chances of the SME successfully exploiting the results later on are slim. This exploitation gap is particularly pronounced among the 'Exploitation Seekers'.

Technologies developed by Exploitation Seekers' projects are often technically and economically competitive but require demonstration and validation work before they can reach the market.

Further support would enable Exploitation Seekers to carry out this work and reap greater benefits from the project. Specific funding for exploitation could be one option or an industry-dedicated scheme, bringing research results closer to market. Strategic Innovators would also benefit from efforts in this area, although they are currently relatively successful at exploiting project results commercially.

■ **Run awareness campaigns**

Currently, many SMEs join EU-funded projects mainly for networking purposes. Targeted awareness campaigns would inform these groups ('Translators', the 'Curious and Helpful' and 'Technology Networkers') of the framework programme's new focus on exploitation.

■ **Set up a retention scheme for the 'Curious and Helpful'**

Almost 25% of the SMEs in the framework programme fall into the 'Curious and Helpful' group. The fact that they joined a project demonstrates their interest in R&D, and they contribute to the success of their projects. However, they are often left disappointed with the impacts the projects have on their own business.

A retention scheme would inform these SMEs of (for example) the new SME-specific calls, and help them find projects that are more closely aligned with their own business strategies. A close alignment between the project goals and the SME's business strategy raises the likelihood of the project having a large and positive impact on the SME.

■ **Focus on exploitation**

The framework programme would benefit from a stronger focus on the business relevance of the research it funds and on the needs of industrial participants including SMEs.

However, attention should be paid to the links between the research framework programmes and other European initiatives (such as CIP, the Competitiveness and Innovation Programme) and national programmes. Specifically, the strategic objectives of the framework programmes concerning exploitation need to be clarified, as does their alignment with the objectives of other, related programmes.

Recommendation 5

Develop and implement a monitoring system

A monitoring system is vital if the EU is to track progress on its efforts to enhance the impacts of projects on SMEs. Monitoring activities should start by investigating application levels to verify the effectiveness of measures designed to promote the framework programmes to SMEs. Meanwhile, project selection procedures should include the monitoring of the motivations, objectives and expectations of SMEs as they enter projects. While the project is underway, the nature and extent of SME involvement in the work needs to be measured.

Once the project has drawn to a close, the impacts of project participation on SMEs as well as SME involvement in exploitation activities should be analysed, both in the short term and two to three years after the end of the project.

The gathered data will feed into a broader impact assessment that will allow the Commission to continually refine its approach to the involvement of SMEs in the framework programmes.

METHODOLOGY

A number of challenges emerged during the course of this study; even counting and identifying the SMEs involved in FP5 and FP6 projects proved difficult.

The starting point for the work was the eCORDA database ⁽⁴⁾ which, among other things, contains information on framework programme project participants. The data extracted from eCORDA had a high error rate. For example, many organisations were listed more than once as a result of spelling mistakes, different language versions of the organisation's name, and differences in word order within a name.

Furthermore, participants select their organisation type themselves, meaning that some participants who tick the SME box may not actually fit the official EU definition of an SME ⁽⁵⁾.

Innovative data-cleaning tools were used to weed out cases where organisations were registered multiple times. Comparisons of the eCORDA data with databases comprising business information, such as turnover and number of employees, helped determine which organisations genuinely qualified as SMEs.

Having identified the SMEs involved in the framework programmes, the next step was to classify them according to various criteria such as location, thematic area, role in the project (i.e. coordinator or participant) and company size (micro, small or medium).

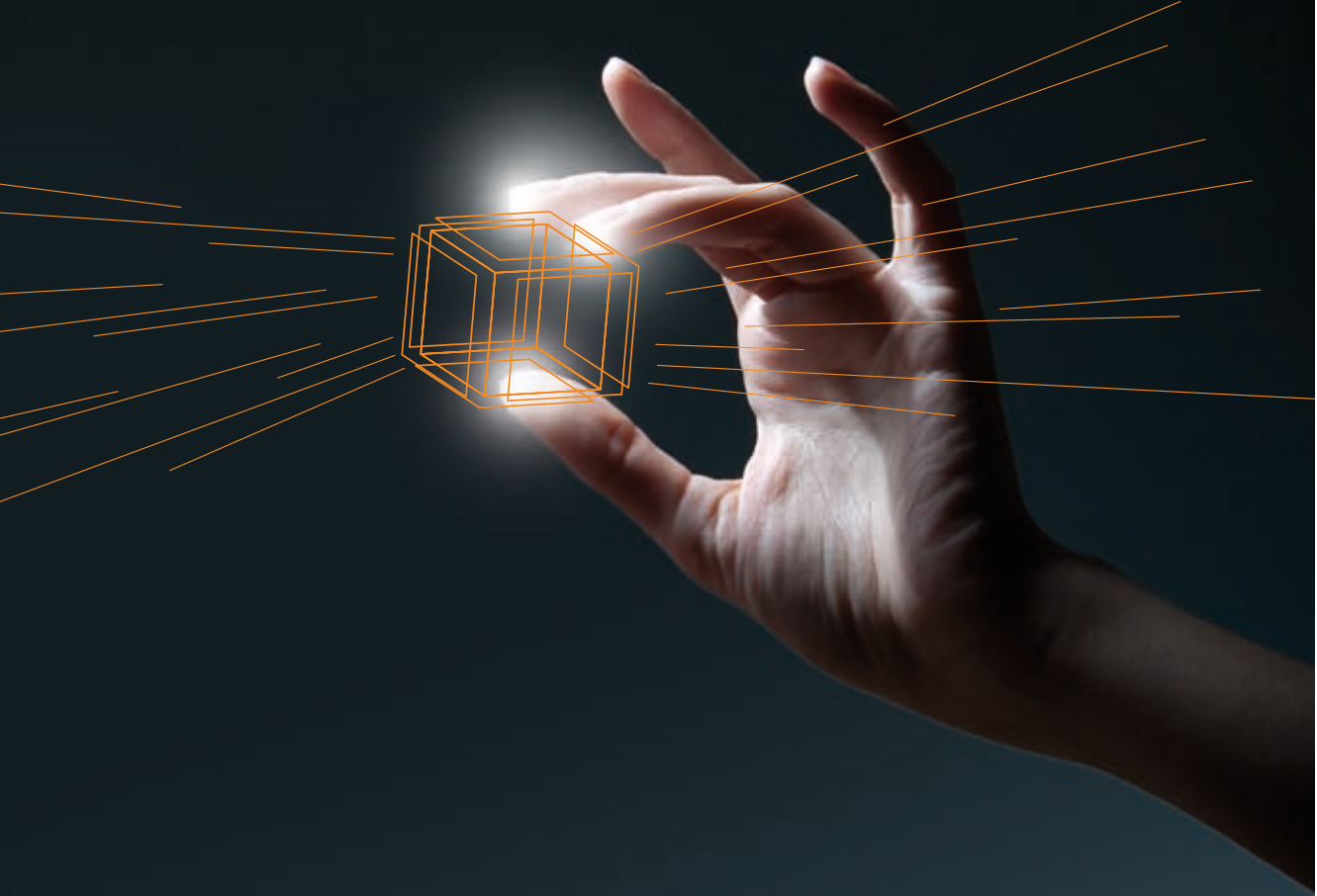
This ensured that the 120 project case studies featured a balanced, representative sample of SMEs that engage in EU-funded projects. In addition, 21 project case studies drawn from national research programmes in 7 EU Member States made it possible to compare SMEs participating in FP5 and FP6 with SMEs participating in national programmes.

Case studies were analysed on the basis of questionnaires as well as interviews with the project coordinator, a representative of the SME and other stakeholders qualified to comment on that SME's participation in the project.

Finally, data gathered for the case studies was subjected to a rigorous statistical analysis.

4 See <https://webgate.ec.europa.eu/e-corda/>.

5 See http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/sme-definition/index_en.htm.



CASE STUDIES

Very high resolution, real-time graphic interaction for the media industries

Framework Programme and Thematic area	FP5 / User-friendly information society
Project duration	May 2002 – April 2004
Total project budget	EUR 3.5 million
EC Contribution	EUR 2.1 million
Project coordinator	Universitat Pompeu Fabra (Spain)
Project page on CORDIS	http://cordis.europa.eu/search/index.cfm?fuseaction=proj.document&PJ_LANG=EN&PJ_RCN=5568717



The SPEED FX project provides an excellent example of a 'Strategic Innovator'. UK SME FilmLight initiated and drove forward the project with the aim of developing an innovative system for the film post-production sector. Today, SPEED FX technology is setting new standards in the industry and has already been used in a number of feature films. Meanwhile, FilmLight has grown in size and stature to become the market leader in the cinema post-production field.

The project

Before the SPEED-FX project came along, film post-production work involved the use of products requiring the purchase of proprietary hardware. These systems are costly and, when a company wishes to upgrade, it has to buy an entire new system. SPEED FX set out to develop a more efficient and, crucially, cheaper system architecture for cinema post-production. They came up with the innovative

idea of using specialised software applications to link ordinary computers into a seamless system. This way, anyone wanting to obtain the latest version of the system would just have to upgrade their PC.

The project was the brainchild of a group of employees at a large cinema production company. They formed the SME FilmLight in 2001 with the express goal of developing their idea further. A consultancy helped FilmLight to refine their project idea and was instrumental in bringing the coordinator, the Spanish Universitat Pompeu Fabra (UPF), into the project.

The SME

FilmLight was founded with the aim of becoming a technology leader in the post-production market. It therefore has a strong focus on R&D, where its experience as a user of post-production technologies allows it to focus its work on the industry's needs.

Its business strategy is based on ensuring that it is the first to bring products to the market; it then licenses the product to users, while continuing to carry out research to ensure that it stays ahead of the competition technologically.

At the start of SPEED FX, FilmLight employed just a handful of people at its London office; it has since grown to become a medium-sized business with regional service centres in the US, Australia, New Zealand and Asia. It has customers worldwide and its products are used in the production of films, commercials and other products.

During the project

Throughout the project, FilmLight proved itself to be a classic example of the 'Strategic Innovator' variety of SME. Having initiated the project, the FilmLight team drove the work of the project forward, never losing sight of their goal of emerging with technologies that would represent practical solutions to real-life problems. In addition to its R&D skills, FilmLight

brought to the project the company's detailed knowledge of the technological state of the art in the industry and an in-depth understanding of user needs.

For its part, UPF did an excellent job of coordinating the project. Research-wise, the university worked on the new applications required for the integrated SPEED FX system and undertook studies to guarantee the reliability of the open architecture. UPF clearly recognised the importance of delivering a technology that could be quickly exploited commercially. Regular project meetings strengthened the links between the fundamental academic work taking place at UPF and the product development work carried out by FilmLight.

The project outcomes and their impact on the SME

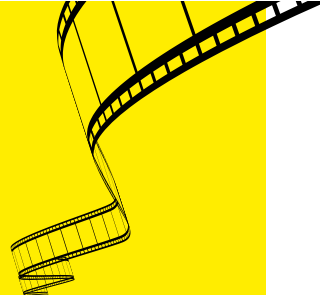
According to the FilmLight interviewees, the company owes its very existence to the SPEED FX project. The innovative technology developed in the project allowed FilmLight to out-compete many larger companies that had been in the industry for years and become the market leader in cinema post-production. Furthermore, as the system can be easily adapted and upgraded, it is unlikely to become obsolete as fast as a purely hardware solution would.

So far, FilmLight has licensed its technology to over 100 users worldwide and it expects another 200 licences to be sold in the next few years. Since 2002, SPEED FX technology has generated around EUR 14 million for the company, and it generates over 80% of FilmLight's income. The company also won the 2006 Queen's Award for Enterprise in International Trade.

FilmLight continues to refine and improve the SPEED FX technology and has a reputation as a standard setter in its sector. At present, it is working on another project which, if successful, will result in even better technologies for the post-production business. Recruitment-wise, FilmLight's reputation allows it to employ the very best people in the industry.



Key lessons and recommendations



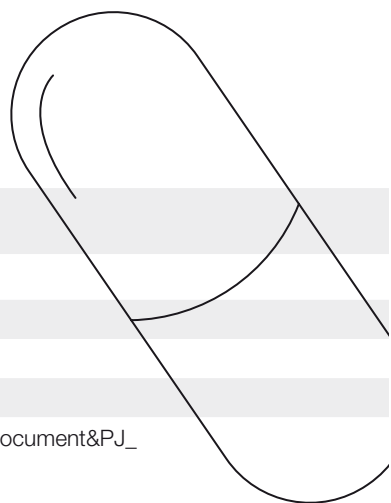
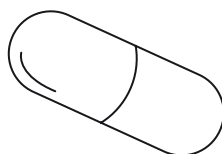
- The SPEED FX project had a strong focus on product development from the start, and academic and SME partners alike remained committed to this throughout the project. This was instrumental to the project's success.
- The project did not attempt to develop entirely new products; rather it took existing ones and integrated them in an innovative way.
- The Project Officer at the European Commission understood the importance of adapting the project in line with ongoing market developments and provided hands-on support in the project's early stages.
- UPF's experience of project management was a major asset for the project.
- However, FilmLight's start-up status meant it struggled to fulfil certain financial stability requirements at the start of the project.
- FilmLight also experienced some problems as a result of late payments on the part of the European Commission.
- The FilmLight interviewees question the rationale of combining academic research and advanced product development. In their eyes, performing both tasks well is very difficult and academic/ industry cooperative projects may be less productive than is generally assumed.
- The difficulties of integrating academic research and product development should be addressed in the development of SME policies for the framework programmes.

GELATIN PROCESS

A new lease of life
for the gelatin sector

Evaluation of the inactivation / removal effect of the gelatin manufacturing process on TSE infectivity

Framework Programme and Thematic area	FP5 / Quality of life and management of living resources
Project duration	February 2001 – January 2003
Total project budget	EUR 782 000
EC Contribution	EUR 278 000
Project coordinator	Delft Gelatin BV (the Netherlands)
Project page on CORDIS	http://cordis.europa.eu/search/index.cfm?fuseaction=proj.document&PJ_LANG=EN&PJ_RCN=4966515



In the mid 1990s, Europe's large gelatin industry was under threat, as regulators responded to worries that gelatin could be infected with BSE (bovine spongiform encephalopathy). The GELATIN PROCESS project laid those concerns to rest and saved thousands of jobs across Europe in the process. Thanks to the project, Dutch SME Delft Gelatin has enjoyed increased profits and an enhanced reputation among the scientific and regulatory communities.

The project

Gelatin is used in over 500 types of food and around 80% of pharmaceuticals. Despite over a century of research, no truly effective replacement for gelatin has been found. Europe produces up to 60% of the world's gelatin, and the European industry employs some 3 000 people and boasts a turnover between EUR 700 million and EUR 850 million.



GELATIN PROCESS

In the mid 1990s, concerns were raised that bone gelatin could be infected with BSE and thus pose a risk to public health. The situation came to a head in 1997, when the US, a major buyer of bone gelatin, banned the import of European gelatin that had been made with the heads or vertebral columns of cattle.

Meanwhile, the gelatin producers' trade association, Gelatin Manufacturers of Europe (GME), started to seek ways of ensuring the safety of their product. As initial experiments did not fully resolve the problem, the decision was taken to launch a major European study on the subject and thus the GELATIN PROCESS project was born.

Its goal was simple: to develop tools to monitor BSE levels in gelatin and come up with new ways of producing safe gelatin.

The SME

Delft Gelatin was founded in 1880 and at the start of the project it employed 85 people and had an annual turnover of around EUR 25 million. With its long history, it had an intimate knowledge of the processes behind the industrial production of gelatin. Like all European gelatin makers, Delft Gelatin would have suffered enormous economic losses had the public and regulators lost confidence in the safety of products made from gelatin.

The SME had a number of goals coming into the project. As well as gaining skills in a new technology, they were keen to enhance their networking and obtain feedback from end-users in the consortium on their technologies.

After the end of the project in 2003, Delft Gelatin was taken over by the large French gelatin manufacturer Rousellot.

During the project

In addition to taking on the job of Project Coordinator, Delft Gelatin adopted the role of 'Strategic Innovator'; with its industry's survival at stake, it was highly motivated to ensure that the project outcomes addressed its needs and those of its fellow gelatin producers.

The academic partners contributed their expertise on BSE and animal testing, while Delft Gelatin brought to the project its knowledge of gelatin manufacture. It also developed laboratory-scale models of the industrial processes used in gelatin production. Delft Gelatin's efforts were highly appreciated by the other project partners.

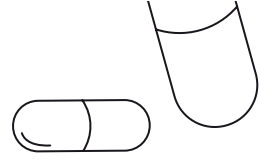
The project outcomes and their impact on the SME

GELATIN PROCESS was an all-round success and can be credited with helping to restore public confidence in the European gelatin-manufacturing industry, as well as the industries that use gelatin in their products.

The project demonstrated that gelatin-manufacturing processes cut BSE infectivity to undetectable levels; in other words, as long as the industry uses raw materials that already pose a very low BSE risk, gelatin can be considered BSE safe.

Furthermore, the project developed innovative ways of improving and speeding up the gelatin manufacture process and reducing the amounts of water and energy it uses.

Delft Gelatin benefited immensely from the project. Economically, the proof that the product was safe secured the future of the company. Shortly after the end of the project, Delft Gelatin was taken over by Rousellot, a leading gelatin producer. This has resulted in large rises in income, profits and personnel, among other things.

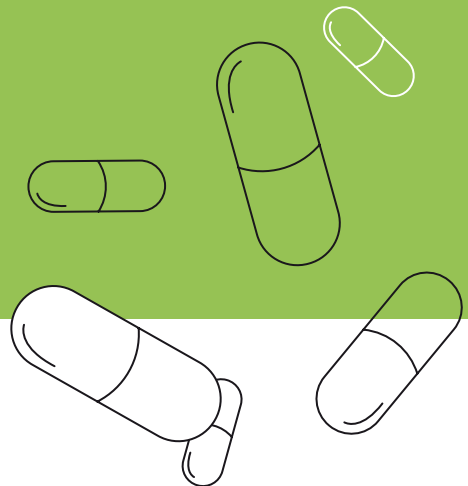


The company's reputation also grew as a result of its work on GELATIN PROCESS. It was invited by EFSA (the European Food Safety Authority) to join its working groups in the analysis of BSE risk in other food products derived from raw cattle. Crucially, it attended meetings of the US' TSE (transmissible spongiform encephalopathy) advisory committee; this resulted in the US FDA (Food and Drug Administration) accepting that gelatin is indeed BSE safe.



Key lessons and recommendations

- The industry urgently needed the project results; this drove the project to develop results that could be rapidly applied by the end-users (i.e. the GME).
- The project was well coordinated and communication and collaboration among the partners was good throughout.
- Looking back on the experience, the Delft Gelatin interviewee feels that it would have been a good idea to employ a project administrator to take care of financial and administrative issues. This would have freed him up to work on the scientific aspects of the project.
- Reducing the number of reports that projects have to submit to the European Commission would encourage more small companies to get involved in the framework programmes.
- A simplified proposal submission procedure, in which a brief initial proposal, if successful, is followed by a more detailed procedure, would also help.
- Finally, more attention should be paid to the other obstacles faced by SMEs, such as the cost of participating in expensive project meetings.



P-MARK

New tools in the fight against prostate cancer

Validation of recently developed diagnostic and prognostic markers and identification of novel markers for prostate cancer using European databases

<http://www.p-mark.org>

Framework Programme and Thematic area	FP6 / Life sciences, genomics and biotechnology for health
Project duration	November 2004 – October 2008
Total project budget	EUR 3.6 million
EC Contribution	EUR 3.5 million
Project coordinator	Erasmus MC, University Medical Center Rotterdam (the Netherlands)



The P-MARK project set out to evaluate molecular markers that would aid in the early diagnosis of prostate cancer and help doctors determine which treatments, if any, should be used to treat different cases of prostate cancer. Although the project achieved its technical goals, it was less successful on the exploitation front. This can be attributed at least in part to the fact that the SME involved was taken over by another company during the project and its interest in prostate cancer dwindled as a result.

The project

The aim of the P-MARK project was to evaluate and validate molecular markers that could help doctors diagnose cases of prostate cancer while the disease is in its earlier stages. Furthermore, it was hoped that these markers would allow clinicians to determine whether a disease is curable, life-threatening, resistant to treatment or whether it requires no treatment at all.



Initiated by the University Center Rotterdam in the Netherlands, P-MARK built on earlier research involving many of the P-MARK partners.

The SME

Created in 1988, Swedish SME CanAg diagnostics quickly established a reputation as a leader in the production of markers for various cancers. This is a highly competitive field and CanAg had a strong R&D arm which focused on the discovery and development of new cancer markers.

CanAg joined P-MARK with the goal of strengthening its business networking, enhancing its reputation and, of course, exploiting the project results. In addition, it hoped to learn about new markers and boost its R&D networking.

However, two years into the project CanAg was bought by a large US company called Fujirtebio Diagnostics. This triggered a change of direction for CanAg; the company moved away from prostate cancer markers and started to focus instead on gynaecological cancers. This move had a major impact on the long-term outcomes of the project.

During the project

Generally speaking, the project went well, although a one-year extension was needed for the partners to achieve their technological objectives. Collaboration between the partners was good, and many of them continued to work together to refine and further develop the project results after P-MARK had drawn to a close.

For its part, the SME played the role of 'Exploitation Seeker', something that was recognised by the other partners who stated that 'the role of SMEs is to have a direct link from discovery to implementation of new biomarkers'. During the project, CanAg validated the results of the research performed by one of the academic partners and provided useful scientific, technological and end-user advice.

However, when it was bought out by Fujirtebio Diagnostics, CanAg's interest in the project waned.

The project outcomes and their impact on the SME

The project's technological goals were met, and many of the partners are still working together with the aim of further refining the project outcomes. The partners are optimistic that the results will reach the market in the next few years, although they stress that clinical studies are inherently slow and it takes a long time before new medical technologies can be tested in patients.

By the end of the project, prostate cancer was no longer a priority for CanAg (now part of Fujirtebio Diagnostics) and it is not involved in any project-related exploitation work. The other partners are clearly disappointed by this development and are of the opinion that the results would have been exploited much more rapidly had CanAg remained involved in the work.

Meanwhile, the CanAg representative pointed out that the patent filed during the project appears to conflict with earlier patents. This means that it would be hard to protect and exploit the P-MARK results.

Nevertheless, CanAg/Fujirtebio Diagnostics reaped some benefits from the project. Some of the work carried out in P-MARK led to the development of two industrial prototypes in other areas. In addition, it credits P-MARK with boosting its scientific and technological skills and enhancing its reputation.

Key lessons and recommendations

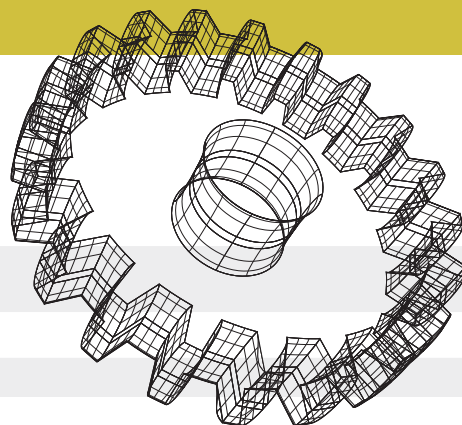
- SMEs' market experience and industrial knowledge are essential for the exploitation of research results. If, for whatever reason, a major industrial partner loses interest in the project, the chances of the results being exploited drop significantly.
- If the commitment of a vital end-user partner dwindles, the project coordinator should consider looking for a replacement.
- Meanwhile, in the absence of a committed SME, exploitation levels will remain low if the other partners do not feel obliged to exploit the project results themselves.
- The chances of exploitation could be increased by running longer projects, or by almost automatically launching follow-up projects if the technical achievements appear to be promising. Specifically, funding could be provided for prototyping, viability testing, market surveys and intellectual property protection, for example.
- The European Commission should issue more SME-exclusive calls as early trials of these have proven effective at encouraging SMEs to get involved in the framework programmes.
- Finally, project procedures must be made less bureaucratic; compiling numerous reports, attending meetings and carrying out financial administration procedures are all extremely time consuming.



COLT

A new lease of life for the cold forging industry

Improvement of service life and reliability of cold forging tools with respect to fatigue damage due to cyclic plasticity



Framework Programme and Thematic area	FP5 / Competitive and sustainable growth
Project duration	February 2000 – January 2003
Total project budget	EUR 3.4 million
EC Contribution	EUR 1.9 million
Project coordinator	Krupp Presta AG (Liechtenstein)
Project page on CORDIS	http://cordis.europa.eu/search/index.cfm?fuseaction=proj.document&PJ_LANG=EN&PJ_RCN=4674955



The COLT project was launched with the aim of improving the lifetime of tools produced by cold forging. The project was highly successful; as well as boosting the competitiveness of the cold forging industry, COLT delivered substantial economic benefits for Danish SME Strecon.

The project

Cold forging is one of a number of methods used to work metals. Compared to hot forging, cold forging consumes less energy and uses the material being forged more efficiently. On the down side, cold forging is technically much more complex than hot forging and the resulting tools have a shorter lifetime than those produced by hot forging.

The COLT project was the brainchild of the International Cold Forging Group (ICFG). The aim of the project was to make cold forging more competitive by extending the lifetime of the tools produced and improving the process' material efficiency.

The SME

Strecon started life in 2001 as a spin-off from a larger company. It specialises in the pre-stressing of pressuring tools called dies which are used in metal forming and synthetic diamond forming. As well as selling these tools, Strecon offers consultancy services to enhance the lifetime of customers' hardware parts. Its customer portfolio spans the globe and includes leading car manufacturers such as Toyota and Volkswagen.

Up to 30% of Strecon's employees work in R&D, developing customised tooling solutions as well as novel testing methods and production layouts.

Strecon's main motivation for joining COLT was its interest in the technical results. Other reasons for getting involved include the opportunity to increase its R&D and business networking, improve its R&D capabilities, enhance its reputation and enter new technological fields.

During the project

The project partners brought complementary skills, knowledge and technologies to the project. In addition to a steel alloy producer and a producer of cold forging components, the consortium included experts in computational modelling, material forming, surface treatment and statistical predictions as well as a laboratory capable of performing advanced tests and micro-structural investigations.

Strecon's role was to develop methods for improving the fatigue resistance of tools. For this, it applied the pre-stressing methods that form the backbone of its operations. In addition, the SME created a software simulator for the static behaviour of materials.

The coordinator rates Strecon's contribution as crucial to the project's success as the SME made it possible to apply the academic results. This fits with Strecon's categorisation as a **Translator**, i.e. it is adept at introducing new technologies to the market.

Strecon is also credited with putting forward ideas for new ways to make the tools more stress-resistant.

Strecon's original role in COLT was simply to develop and test methodologies. However, its proactive and creative approach to the project allowed it to take centre stage in the project and open up new research directions regarding the materials used and the structure of the tool.

The project outcomes and their impact on the SME

The project was a resounding success, delivering a greater understanding of the properties needed for new alloys and new design concepts for tooling systems. In some applications, the average service life of tooling systems was increased by up to 50%. The project also designed a software simulator which picks up the influence of material structure in the resistance of tools. Crucially, COLT achieved its main goal, which was to contribute to the competitiveness of the cold forging sector.

Strecon did extremely well as a result of its involvement in the project. The software it developed has been integrated into the services it provides. Furthermore, the software provided Strecon with new insights into damage analysis regarding alloys. As a result, damage analysis has become an important part of Strecon's business activity. The software has also aided Strecon's work on diamond forging.

In addition, Strecon has developed new tool components based on the results of the COLT project and established a new product line for polishing equipment which was inspired in part by COLT.

All of this has had a dramatic impact on Strecon's bottom line; its turnover rose from under EUR 2 million at the time of the project to EUR 3 million in 2008. Strecon attributes much of this increase to the COLT project and is optimistic that this trend will continue over the coming years.

Elsewhere, Strecon reports that the project spurred the company to improve its R&D structure and improve its project management skills. It also cites new contacts as a benefit of project participation.

Finally, thanks to the high quality of its contributions to the project, Strecon's reputation has enjoyed a major boost.

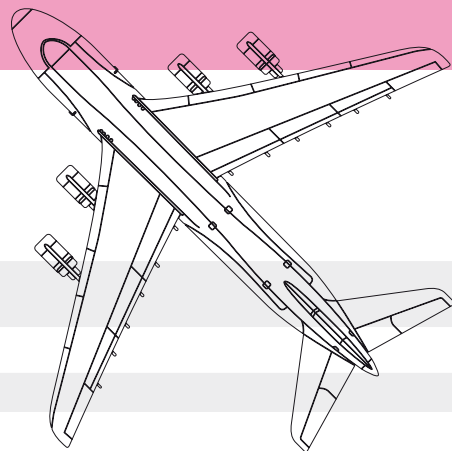


Key lessons and recommendations

- The application process for EU-funded projects is too long and the chances of success are too low for many SMEs to invest the time required to complete the lengthy procedures involved.
- For an SME to join a project there needs to be a good chance that it will result in clear outcomes that will have an impact on that SME.
- If a project does not include a path towards exploitation, it is likely to be less interesting to an SME.
- SMEs should have a clear vision of what they want to get out of the project.
- When evaluating the participation of an SME in a project, attention should be paid to whether or not the SME's goals fit with the project's goals.



Improving airport efficiency, security and passenger flow by enhanced passenger monitoring



Framework Programme and Thematic area	FP6 / Aeronautics and space
Project duration	February 2004 – January 2007
Total project budget	EUR 2.2 million
EC Contribution	EUR 1.6 million
Project coordinator	Innovision Research and Technology plc (UK)
Project page on CORDIS	http://cordis.europa.eu/search/index.cfm?fuseaction=proj.document&PJ_LANG=EN&PJ_RCN=7465485

The OPTAG project was launched with the goal of boosting airport security and efficiency through passenger monitoring technologies. The resulting technology was not advanced enough for rapid commercialisation. Although the project did not have a direct economic impact on Hungarian SME Slot Consulting, indirect benefits include improvements in the company's operations, new contacts and a greater knowledge of security issues.



The project

Airports are constantly seeking new ways to improve both security and efficiency. The OPTAG project set out to address these issues through the use of advanced radio frequency identification (RFID) and surveillance technologies. In the OPTAG system, passengers would carry an RFID tag; this could be attached to the boarding pass, for example, while a network of cameras linked to RFID readers would monitor the movement of people within the airport.

This would allow airlines to rapidly find passengers who are late for boarding; tardy passengers delay take-off and cost the airline industry a lot of money. Furthermore, the system could pick up on suspicious movements.

A UK company called Innovision was behind the project and it brought a number of partners into the consortium. During the project evaluation process, the European Commission asked the team to pay greater attention to exploitation and dissemination. Slot Consulting was brought into the project to address these needs; in addition to its own expertise, it brought a potential end-user of the technology, Hungary's Debrecen Airport, into the project.

The SME

Slot Consulting was founded in 2001 and boasts expertise in aeronautics and air transport research. While R&D make up the bulk of its activities, the company also provides a range of services, including catering, transport and accommodation, to Hungarian airlines.

The SME joined OPTAG with a view to improving its airport research capabilities. It also saw in the project an opportunity to improve its R&D networking. Overall, its approach to the project and the degree to which its strategy matches that of the project mark Slot Consulting out as a 'Curious and Helpful' SME.

Today, Slot Consulting is heavily involved in numerous projects at both European and national level and is actively involved in efforts to promote the integration of Europe's aeronautics industry.

During the project

By all accounts, the project partners worked well together and all were committed to the project goals. Slot Consulting played an important role in the project. As leader of that part of the project devoted to exploitation and dissemination, it was responsible

for exploring how the OPTAG system could be used in airports. Among other things, it carried out market surveys of existing systems, prepared a briefing document for use in discussions with potential customers and assessed the legal and institutional issues relating to passenger tracking.

Crucially, it organised the trial of the system at Debrecen Airport and defined what the OPTAG system would look like and how it could fit into the airport environment. This work was highly appreciated by the other project partners.

The project outcomes and their impact on the SME

From a purely technical point of view, OPTAG was a success; thanks to the trial at Debrecen Airport, the project demonstrated the feasibility of the combined RFID/video surveillance system. However, the technology was still at the proof-of-concept stage and many issues needed to be addressed before it could be brought to market.

During the project, Innovision's business strategy had moved away from far-field communications in favour of other, more commercially promising areas. This meant that it was less motivated to push for the further development and eventual exploitation of the results after the project. Nevertheless, Innovision has taken some of the findings of OPTAG into another project.

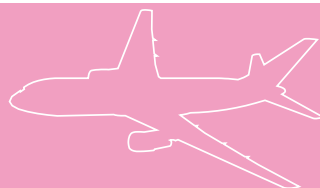
Although OPTAG did not deliver any direct economic impacts for Slot Consulting, the SME rates its participation in the project positively. Indirect economic impacts include improved operations, greater technical and economic competitiveness and new business contacts.

Other benefits cited by Slot Consulting include a greater understanding of capacity management and security issues and the opportunity to learn about new methods, models and technologies.

Importantly, taking part in OPTAG raised Slot Consulting's profile and it was subsequently invited to join other EU-funded projects.

These experiences have given Slot Consulting the skills and confidence to initiate and coordinate its own EU-funded projects.

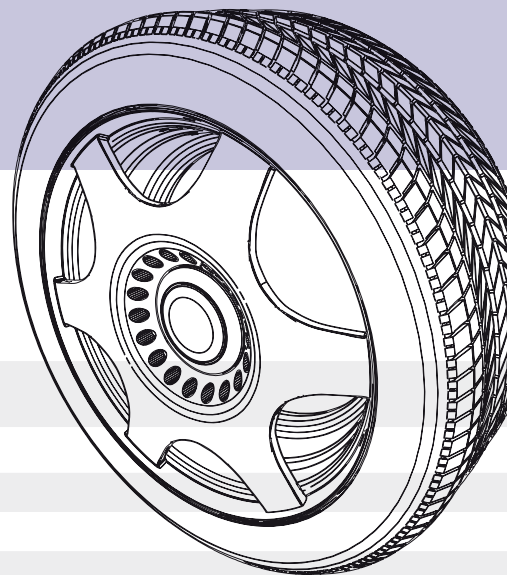
Key lessons and recommendations



- The project coordinator recognises the importance of working on projects that are closely linked to a company's core business. While RFID initially represented a core technology for the company, that changed while the project was underway. This lowered the chances of the technology being exploited either during the project or afterwards.
- Long delays in payments were a major problem in this project, particularly regarding the final payment.
- Innovision underestimated the time required for project administration. Allowing the electronic submission of reports and financial statements could cut the administrative workload.
- Slot Consulting believes that smaller projects should be made available for SMEs.
- Finally, extra funding should be allocated to the exploitation of project results. These exploitation projects would involve a smaller number of partners who share a strong commercial focus.



Road and Tyre Interaction Noise



Framework Programme and Thematic area	FP5 / Competitive and sustainable growth
Project duration	July 2000 – December 2003
Total project budget	EUR 1.7 million
EC Contribution	EUR 1.2 million
Project coordinator	Chalmers University of Technology (Sweden)
Project page on CORDIS	http://cordis.europa.eu/search/index.cfm?fuseaction=proj.document&PJ_LANG=EN&PJ_RCN=4862709



Cutting noise pollution from traffic by contributing to the development of quieter tyres was the goal of the RATIN project. Although the project as a whole lacked a shared vision for the exploitation of the results, Belgian SME Free Fields Technologies proved adept at commercialising the outcomes of the project and as a result it expanded its product range and penetrated new markets.

The project

Traffic causes noise pollution in towns and along major roads worldwide. Much of the noise can be attributed to the interaction of the tyre with the road. For a long time, efforts to develop a quieter tyre were thwarted by a lack of theoretical models that could accurately predict and optimise tyre/road noise. The RATIN project was set up by Chalmers University of Technology in Sweden with the goal of developing an acoustic rolling model that could accurately predict sound levels.

The RATIN consortium comprised universities with expertise in the theoretical aspects of tyre/road noise interactions as well as tyre and car manufacturers with practical experience in the subject and test facilities. Finally, Free Fields Technologies and another consultancy brought to the project their expertise in numerical tools.

The SME

Founded in 1998, Free Fields Technologies boasts a leading position in the computational acoustics sector, while its clients include car manufacturers and their suppliers, aircraft and aircraft engine manufacturers and the producers of loudspeakers and audio equipment, as well as consultancies, universities and research centres.

In its early years, the SME had two main strands of activity: the development of customised simulation tools for specific customers and the development of commercial computational vibro-acoustic products.

Free Fields Technologies was brought into the project by tyre manufacturer Goodyear. It accepted the invitation to participate in RATIN because it immediately saw that the project goals matched its business interests.

Going into the project, the SME's main goal was to improve its R&D networking; this, coupled with its small size, makes it a good example of an Experienced Technology Networker. In addition, the team hoped to enhance its own software product (called ACTRAN), obtain funding for R&D and enter a new technological field, among other things.

During the project

According to the interviewees, cooperation between the academic and industrial partners could have been better. While the academic partners concentrated their efforts on developing acoustic models, the business representatives were more interested

in generating industrial applications. Instead of working in an integrated way, the partners worked in small sub-groups made up of teams with shared interests. In spite of this fragmentation, the project's technical goals were reached. Nevertheless, improved collaboration could have helped the project to achieve more than it did. The lack of cooperation between the partners also meant that no joint exploitation plan was drawn up.

Free Fields Technologies worked chiefly in a group that also included Goodyear and the University of Southampton in the UK. Its job was to use its software to simulate industrial tests of sound radiation configurations and calculate the noise reduction. The software was successfully tested and the SME's contribution to the wider project was recognised and valued by the other partners.

The project outcomes and their impact on the SME

As noted above, although the project achieved its technical objectives, a shared exploitation plan was not produced. However, Free Fields Technologies was quick to capture the RATIN project outcomes and incorporate them into its own products. The SME regularly updates this software, which is used in a range of sectors where acoustic simulation work is needed.

Thanks at least in part to RATIN, Free Fields Technologies was able to expand the range of products and services it provides. This has helped the company to expand into new market areas, enlarge its customer base and increase its turnover. Its networking, marketing and scientific and technical skills have benefited from the project. The SME has also grown from under 10 employees at the start of the project to 35 today.

The RATIN experience also enhanced Free Fields Technologies' reputation and inspired it to embark on further international research projects.

Key lessons and recommendations

- The project goals and the SME's business objectives were well matched. This allowed the SME to rapidly commercialise the software it had developed at the end of the project.
- The SME was not alone in pushing for the commercialisation of the results; Goodyear and Renault were also keen to move towards exploitation.
- Some partners (including Free Fields Technologies and Goodyear) had worked together in the past; this generated a high level of trust between them.
- There was some conflict between the academic and industrial partners. While the academic partners were keen to publish the project results as soon as they were available, the industrial partners wanted to ensure that their intellectual property was protected before the results were made public. The balance of the consortium should give greater weight to industrial partners.
- Consortia should be paid in more frequent instalments as SMEs face financial hardship while waiting for the next input of funds.
- Simpler project proposal procedures would make life easier for extremely small companies with only a few members of staff.



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EUR 24448 — Impact assessment of the participation of SMEs in the ‘themes’ of FP5 and FP6, 2009

Luxembourg: Office for Official Publications of the European Communities

2010 — 48 pp. — 17.6 x 25.0 cm

ISBN 978-92-79-16305-0

doi:10.2777/73775

The EU is fully aware of the importance of research to small and medium-sized enterprises (SMEs) and since the 1980's have encouraged them to participate in the "thematic" part of the EU's research framework programmes, offering them an excellent way to participate in research projects that lead to the development of new products or services. Projects funded under these parts of the programme address specific research priorities in fields such as health, environment and information and communications technology (ICT) for example. SMEs can take part in such "themes" if relevant to their area of expertise. This study focuses on SMEs that participate under the "thematic" programmes of FP5 and the "thematic" areas of FP6. It sheds new light on the role SMEs play in such projects and what social and economic impacts project participation has on the SMEs themselves. It reveals the reasons why SMEs embark on EU-funded projects, the skills they bring and the factors influencing the extent to which SMEs benefit from the projects. Crucially it highlights the need for the creation of an integrated SME strategy covering the entire framework programme.

