

Participation survey and assessment of the impact of the actions completed under the 6th Framework Programme

Final report

Request for services in the context of DG BUDG
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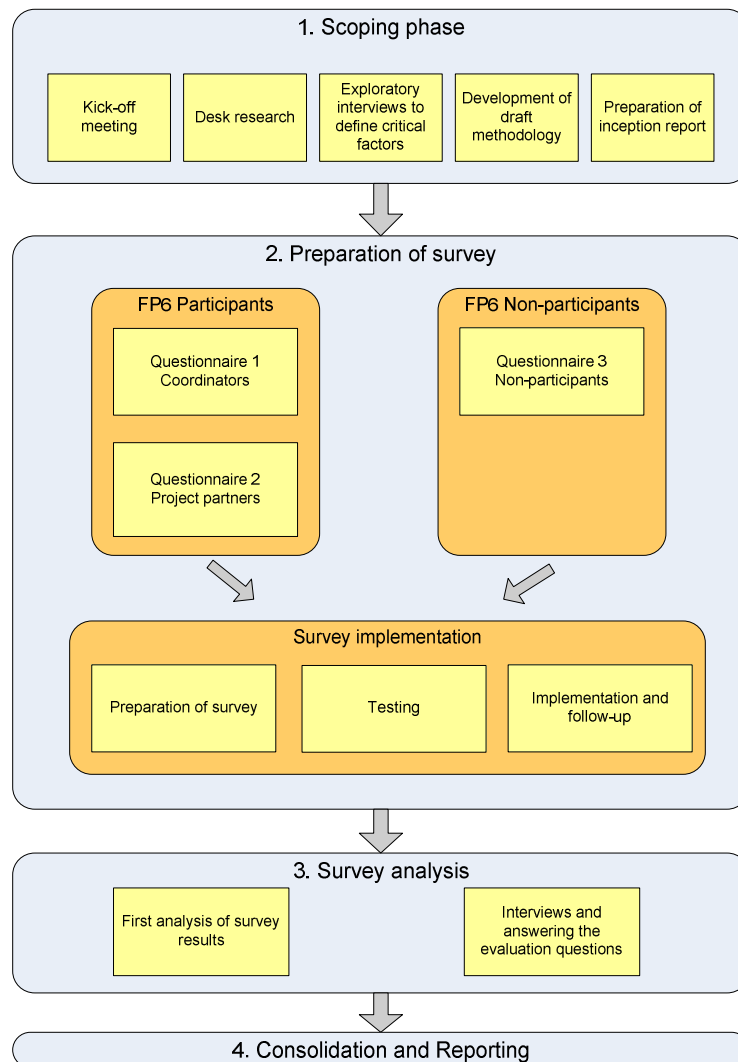
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1 INTRODUCTION

The objective of the proposed evaluation study was to analyse the implementation and impacts of indirect research activities completed under the 6th Community Framework Programme.

The following figure provides an overview of the approach we followed to conduct this participation survey.

Figure 1: Approach of the study



Source: IDEA Consult

For the inception report (*phase 1* and beginning *phase 2 – deliverable 1*) we

- Developed an appropriate frame of reference for the investigation and analysis of the implementation and impacts of indirect research activities carried out under FP6.
- Presented the participation to FP6 by means of analysis of the database
- Presented a first version of the survey for the FP6 participants.

During the scoping phase we also performed two exploratory interviews in order to shed light on the broader context of the evaluation and the objectives, operation and results of FP6.

The first interim report (end *phase 2 – deliverable 2*) presented

- The final version of the survey to participants that was implemented.
- A draft version of the control group survey.
- The description of the implementation process of the survey for participants and control group.
- A planning and update on the implementation for the control group.
- A proposed structure for further analysis.

The second interim report (beginning *phase 3 – deliverable 3*):

- First analysis of the results of the survey to participants

Together with the two interim reports, we delivered a short management report describing the activities of the research team (*deliverable 4*).

The draft final report (end *phase 3* and *phase 4 – deliverable 5*) provided a summary of the implementation of the study¹, the main results of the survey analysis and a draft conclusions and recommendations. Together with this final draft report we provided a PowerPoint presentation and presented the results of the evaluation study to the Steering Committee (*deliverable 6*).

This final report (*deliverable 7*) is a consolidation of the draft final report. Together with final report we provide a short management report summarising the activities of the research team during the project (*deliverable 8*); an executive summary recapitulating the purpose, method used, key findings and conclusions and recommendations (*deliverable 9*); and finally the data collected during this study (*deliverable 10*).

¹ More details on the implementation of the study can be found in the previous deliverables (particularly deliverable 1 and deliverable 2).

2 HIERARCHY OF OBJECTIVES AND EFFECTS

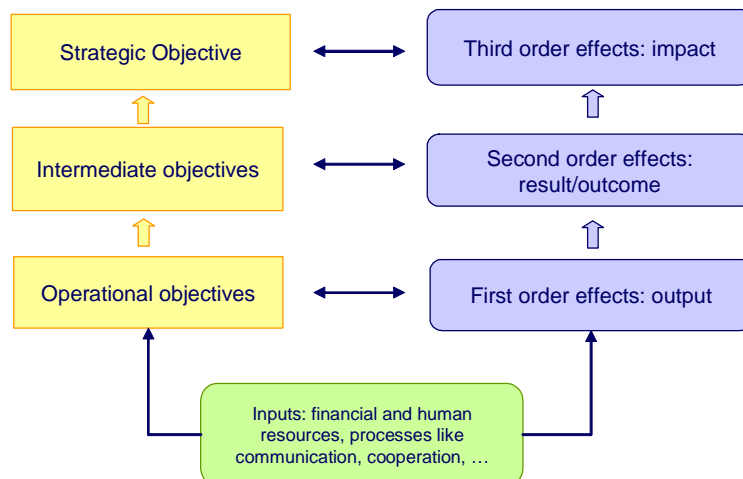
In this section we present the hierarchy of objectives and effects for FP6. This hierarchy has been developed based on screening of existing documents and desk research.

Starting from the stated objectives in FP6 we tried to build a hierarchy of objectives, consisting of strategic objectives (highest level), intermediate objectives and operational objectives (lowest level)².

In parallel with the Hierarchy of Objectives we can construct a hierarchy of effects (HOE). The link between the two hierarchies is fully described in Table 21 (Annex 2).

The following figures summarises the link between objectives and effects.

Figure 2: Effects and objectives of FP6



Source: IDEA Consult

We can interpret this hierarchy of objectives and effects by exploring Figure 2 "bottom-up":

- Starting at the bottom of the figure, the column **output effects** reflects the direct actions and activities that fall under the **operational** objectives of FP6. This lowest level of analysis refers to a specific FP6 *project*. We identify and examine the specific output effects mentioned in the table by means of the FP6 survey.
- The output effects at project level contribute to the **outcome effects** at programme level. These outcome effects tell us whether the **intermediate** programme objectives (e.g. improved research conditions, networking) have been achieved.

² Table 20 (Annex 1) provides a full overview of the hierarchy of objectives of FP6.

- The outcome effects contribute to determine the **impact** of FP6. The impact effects are directly linked to the **strategic** objectives of FP6, which are established at *policy* level.
- Finally, the **mission** statement of FP6 constitutes the **umbrella** of the hierarchy of objectives and effects.

This cascade of effects is also clearly visualised in Figure 3, which clarifies (1) how output effects at project level feed into outcome effects at programme level and (2) how these outcome effects determine the impact effects at policy level. The mission statement of FP6 governs this hierarchy of effects.

Figure 3: Hierarchy of effects



Source: IDEA Consult

This hierarchy of objectives is a reference point for the rest of the evaluation. It provided the framework for the set up of the surveys.

3 EXPERIMENTAL GROUP SURVEY

3.1 Introduction

In this chapter we simply repeat in bullet points the set up of the experimental group survey. The extensive description with all details on these issues can be found in the first interim report (*deliverable 2*) on pages 5 to 10.

3.2 Selection of the sample

The following steps were applied to select the sample.

- (i) Selection criteria;
 - No empty email fields
 - Contracts finished before 01/01/2009 or ongoing for at least one year
 - No SMEs specific instrument (CLR and CFRAT)
 - No Marie Curie Actions
 - No Third Country Participants

The characteristics of the resulting sample are in line with the ones present in the distribution of these characteristics in the database (see inception report).

- (ii) Separation of the sample;

In order to avoid over-surveying we split the selected samples into two equal sub-samples, one for this participation survey, the other for the behavioural additionality study. Annex 3 shows the distribution of the e-mail addresses of the two samples (PS and BA) over different characteristics which is the same distribution as in the database.

- (iii) Screening of the email addresses;
- (iv) Attribution of one project to each potential respondent.

3.3 Structuring the participation survey and timing

The following steps were applied to structure the participation survey process:

- (i) Programming of the online survey using software of CheckMarket;
- (ii) Several testing procedures;
- (iii) Launch of the survey: The experimental group survey ran three weeks, from Wednesday October 29th until Thursday November 18th;
- (iv) Implementation: with personal treatment of individual respondents when necessary.

3.4 Response and non-response

The experimental group survey was sent to 16.414 potential respondents.

Overall 3.809 FP6 participants answered to the experimental participation survey.

The survey was sent to 16.414 email addresses / potential respondents (*gross sample size*) of which 915 were considered as bounced or refused.

Overall 3.809 respondents (*net sample*) answered the survey of which 89% reached the end.

The response rate is thus 23,2% (or 24,5% without the bounced). The average response time was approximately 31 minutes.

We conducted response and non-response analysis. The response analysis was performed on the distribution over all subgroups outlined in Annex 3. The non-response analysis can be found in Annex 5.

3.5 Quality of the database

Some responses from the participants allowed us to correct some project / participant's information included in the original database³.

- Role in the project: less than 1% of the respondents corrected the information included into the database.
- Nature of the organization: 5,9% of the respondents corrected the information included into the database.
- Legal status is a field that is relatively problematic field as 10% of the respondents corrected this information. It might be the case that similar institutions have different legal status in different Member States. It seems that this category needs to be redefined for a better monitoring.

Nature of organization and legal status both included an "other" and an "undefined"⁴ category. These "others" were partially specified (170 nature of organization and 179 legal status).

³ These corrections will be provided to the European Commission.

⁴ Legal status only.

4 CONTROL GROUP SURVEY

4.1 Introduction

In this chapter we provide a brief overview of the selection of the samples for the control group survey and shortly describe the set up and implementation of the online survey.

4.2 Selection of the sample

Overall the general methodology developed for the experimental group was re-applied for the definition of the control group sample.

- Selection process and criteria

We composed the control group with rejected coordinators, i.e. organizations that were involved in FP6 project proposals submitted for funding which were rejected. This relies on the assumption that coordinating organizations are in any case more intensively involved in the proposal stage of the projects and are therefore the best persons to answer the control group survey.

In order to have a sample comparable to the one for the experimental group, we subsequently applied the following criteria:

- Instruments: we eliminated from the selection the coordinators of proposals submitted for the SME specific instruments and Marie Curie Mobility Actions.
- Countries: we eliminated coordinators from Third Countries.
- The resulting group was split in two equal samples, one for this study and the other for the behavioural additionality survey⁵.
- Email addresses were screened and a number of the invalid addresses were manually corrected in order to increase the size of the sample.
- To each respondent (email address) that participated more than once in a rejected FP6 proposal we assigned one project to which he/she had to refer when completing the survey⁶.

⁵ Other participants to the projects were also added in the sample for the behavioural additionality survey.

⁶ This was done following the same procedure as for the experimental group.

4.3 Structuring the participation survey and timing

4.3.1 *Programming and testing of the online survey*

The programming and testing phases of the control group survey are similar to the one of the experimental group.

During the testing phase we implemented a slight redirection of strategy. The final check of the control group was done sending the survey to a sub-group of 139 emails addresses. Noticing that many of these respondents stated participating into a rejected FP6 proposal but also into funded FP6 projects, we decided to include this latest category in our survey⁷. Subsequently, our control group respondents were thus divided into two subgroups:

- Control group 1 (CG1): respondents who only participated in rejected FP6 proposals
- Control group 2 (CG2): respondents who participated in rejected and approved FP6 proposals but who answered the questionnaire referring to a rejected FP6 proposal.

Respondents that did not fit into one of these two groups were eliminated⁸.

4.3.2 *Launch and implementation of the survey*

The experimental group survey ran three weeks, from Thursday January 8th (soft launch on Tuesday January 6th) until Friday January 23th.

Similarly as for the experimental group survey, reminders were sent and we personally answered to the requests of the different persons who contacted us.

⁷ The control group survey included a "double-check" question where the respondents were asked if they already participated into a funded FP6 project. In the first version of the survey respondents who stated participating in a funded FP6 project were excluded from the survey via a specific routing. We changed this routing after the test phase and they were allowed to continue answering the different questions.

⁸ These are respondents that were only involved in successful FP6 proposals and respondents that did not provide enough information in order to be classified.

4.4 Response

The total size of the control group sample is 4.138 email addresses.

Overall 870 persons answered to the control group participation survey.

The control group survey was sent to 4.138 email addresses / potential respondents of which 311 were considered as bounced or refused.

Overall 870 respondents answered the survey of which 90% reached the end.

The response rate is thus 21% (or 23% without the bounced). The average response time was approximately 15 minutes.

Following the classification defined under point 4.3.1 we state that:

- 500 respondents (57%) belong to CG1 and only participated in rejected FP6 proposals
- 332 respondents (38%) belong to CG2 and participated in rejected and approved FP6 proposals
- 38 respondents did not fit into one of these two groups and were eliminated.

4.5 Respondents' characteristics

Not being allowed to exploit the proposal database to perform descriptive statistics we did not conduct a response analysis for the control group survey.

However, we analysed the profile characteristics of the respondents to the control group survey.

- The second control group (CG2) including participants in both rejected and approved FP6 proposals has the same distribution over nature of organization as the experimental group. It seems to include less large organization (57%) but 10% of the respondents did not answer to this questions.
- The first control group (CG1) including respondents who only participated in rejected FP6 proposal shows the following characteristics:
 - Over representation of higher education organizations (56%) and to a lesser extend "others" (19%).
 - Under-representation of industrial (7%) and research organizations (18%).

Table 1 gives an overview of the distribution of the respondents over the nature of organization.

Table 1: Nature of the control group organizations

Nature of organization	HES	IND	RES	OTH
CG1	56%	7%	18%	19%
CG2	37%	15%	30%	17%
Exp. Group	36%	16%	32%	16%

Source: IDEA Consult (FP6 participation survey)

The distribution of the country types shows an under-representation of EU10⁹ countries in both control groups as well as a slightly more important overrepresentation of EU15¹⁰ countries within control group 2 (see Table 2).

Table 2: Nature of the control group organizations

Country type	Associated candidate	Associated states	EU10	EU15
CG1	4%	7%	7%	82%
CG2	3%	4%	6%	86%
Exp group	4%	7%	11%	79%
Total	4%	6%	7%	84%

Source: IDEA Consult (FP6 participation survey)

⁹ Adhesion to EU 1st May 2004.

¹⁰ Adhesion before 2004.

5 INTERVIEWS

5.1 Selection of the interviewees and topics

In a second round of information collection, we used telephone interviews to go more in depth and collect information of a more qualitative nature about the impacts of the work done under FP6.

The interviews were held exclusively with representatives of industry, and focused on specific topics: the motivation for industrial organizations to get involved in the Framework Programme and what FP6 finally had to offer them in terms of concrete results and commercial benefits.

We selected 15 interviewees (experimental group exclusively) coming from industrial organizations. We chose respondents that mentioned explicitly in the survey not to object to provide further information if necessary. We interviewed mainly respondents presenting "High or very high R&D capabilities" (question 12) as more than 80% of the industrial respondents report such capabilities. Overview of other "selection criteria" and the distribution of our interviewees over these characteristics can be found in the table below (Table 3).

The guidelines and questions that we used for the interview can be found in Annex 6. These questions were sent to the participants beforehand.

Table 3: Profile characteristics – Comparison of distribution

	Net industrial respondents experimental group (n = 610)	sample for interview (n = 167)	agreed (n = 15)	Number interviewees (%) (n = 15)
Role in the project				
Participant	89%	89%		14
Coordinator	11%	11%		1
Geographic region				
West (NL, DE, UK, FR, IE, AT, LU, BE)	56%	53%		7
South (ES, EL, PT, IT)	20%	22%		3
Nordic (DK, FI, SE)	11%	10%		2
Associated states and candidates	8%	11%		1
EU10	5%	4%		2
Priorities				
2. Information society technologies	25%	32%		4
3. Nanotechnologies and nanosciences, knowledge-based multifunctional materials and new production processes and devices	21%	22%		4
6. Sustainable development, global change and ecosystems	18%	15%		3
4. Aeronautics and space	15%	12%		2
1. Life sciences, genomics and biotechnology for health	11%	8%		2
Instruments				
Coordination Action	6%	7%		0
Integrated infrastructure initiatives	0%	1%		0
Integrated projects	41%	34%		8
Networks of Excellence	3%	3%		0
Strategic support actions	6%	10%		0
Specific Targeted Research Projects	44%	46%		7

Source: IDEA Consult

5.2 Preparation, implementation and processing of the interviews

The interviews took place from February 13th to 26th, were conducted by telephone and lasted on average 50 to 60 minutes. Each interview was well-prepared by screening the answers on the online survey, supplemented with some project and organization information from the internet.

We used the score of the respondents to some questions mainly related to commercial outputs and results:

- Answer on survey question 35 (realisation of commercial returns as a result of participation in the project).
- Composite score of the answers on the sub questions with respect to commercial outputs in survey question 33.
- These composite scores are calculated by summing up the answers on the different sub questions (q33_9 = patent application, q33_10 = copyrights, etc., q33_11 = licence incomes, q33_12 = creation of spin-off companies), divided by the number of questions with an answer (the number of unanswered questions and the 'not relevant'-answers are excluded from the denominator).
- Composite score of the answers on the question with respect to commercial outputs in survey question 34.
- These composite scores are calculated by summing up the answers on the different sub questions (increased turnover, increased profitability, improved market share, access to new markets, reorientation of the organization's commercial strategy), divided by the number of questions with an answer (the number of unanswered questions and the 'not relevant'-answers are excluded from the denominator).
- Answers to survey question 67 related to comparison between costs and benefits from FP6 participation.

The notes taken during the interview were concisely reported in an interview template which facilitated cross-comparison afterwards. We then consolidated the results to draw over-arching conclusions from the interviews. These conclusions are reported in the sections on results and findings where relevant.

6 RESULTS AND FINDINGS

6.1 Introduction

This chapter provides the interpretation of the results from the surveys (experimental and control group). Furthermore, the 15 interviews with industrial organizations are used to illustrate and deepen the insights of the survey results.

The response analysis in this report has already demonstrated that the experimental group respondents' characteristics largely match those of the participants' database (Annex 4). We start this section with a brief extension of the respondents' profile based on information that is not in the database. Subsequently the profiles of the projects are derived from the survey results. This chapter then continues to discuss the following themes:

- History of participation in FP6
- Additionality of FP6 funding
- What did the participants get out of it?
 - o Achievement of operational (project) and intermediate (programme) objectives
 - o Overall goal importance and attainment
 - o Cost versus benefits of participation
- How does European society benefit?
 - o + Impact on FP6 strategic objectives
- Sustainability of the outcomes
- Success factors & satisfaction (EU administration)

Each section examines the results of the surveys for both the experimental group of actual FP6 participants and for the control group of rejected FP6 applicants. In reviewing the results for the experimental group, the results often differ for nature of organization (in particular between higher education and industry) and sometimes for the two different control groups. Where necessary the distinction will be made.

We will use the following abbreviations:

CG1: "pure" control group consisting of applicants with only rejected proposals

CG2: control group consisting of applicants with rejected and accepted proposals

When, in what follows, we refer to "the" control group and no distinction is made, then we refer to CG1 + CG2.

EU15 refers to member states joining the EU before 2004.

EU10 refers to member states joining the EU in 2004.

Candidate countries include Romania and Bulgaria that joined the EU in 2007.

Findings from the interviews are highlighted in boxes.

6.2 Respondents' profile

6.2.1 *Gender*

The first additional finding to the response analysis, complementing the participants' database, emerges from our gender analysis. As both the database and the experimental survey do not provide information on gender, we examined the first name of all survey respondents to derive their gender. From this we can make the estimation that approximately 80% of the respondents are male.

Comparing this - statistically unsure - figure with the results of the gender question in the control group survey grants it more validity. These results show that 77% of the control group respondents are male. The percentage for the control group having only rejected proposals is 78% and for the control group having rejected proposals and also projects is 76%. This indicates that the dominance of male participants in FP6 is mainly caused by their dominance within the group of applicants and not by a biased selection.

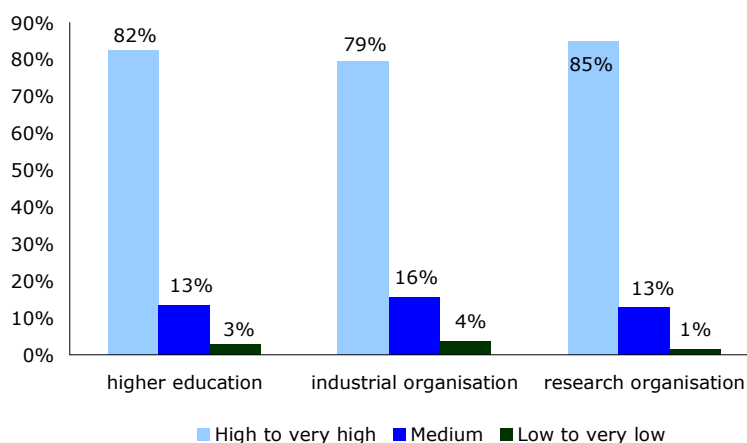
6.2.2 *Size and R&D capabilities*

Other characteristics indicative of the respondents' profile are their size and the assessment of their R&D capacities. The usual FP6 participant is a large academic organization, mostly higher education with high to very high R&D capabilities. The group of industrial organizations contains less large organizations than other groups, but this share is still above 50%. Industry also rates its R&D capabilities slightly lower, but a majority of 63% has a separate R&D department (84% of large enterprises; 44% of SMEs).

The control group shows comparable results. Control Group 1, only rejected FP6 applicants, rates its R&D capabilities somewhat lower than the experimental group and Control Group 2 (applicants both rejected and accepted). However, three quarters of the organizations (74%) in CG1 still indicate they have high to very high R&D capabilities.

It is remarkable that the Framework Programmes appear to increasingly attract (and approve proposals by) organizations with high or very high R&D capabilities. Participants with high/very high R&D capabilities represent around 80% of all survey respondents, an increase of 20 percentage points (an increase from 60% to 79%) from FP5. The rest of the FP6 participants' profile characteristics remained largely the same with those of FP5. It is mostly academic organizations (higher education and research organizations) that held the role of project coordinator and it is also these organizations that presented on average the highest R&D capabilities (Figure 4).

Figure 4: R&D capabilities per nature of organization



Source: IDEA Consult (FP6 participation survey)

6.3 Projects' profile

The average research project funded under FP6 is **long term, strategically highly important, technically highly complex** R&D in a **core technological area** of the organization. On the other hand it is of **low cost**, relatively **low commercial** and **technical risk** and more **applied** than basic research. Although it is **tightly linked with other in-house projects**, it is mainly considered **only feasible with external collaborators**.

It is interesting to see that throughout the years and across FPs with evolving strategic orientations and aims, the funded research projects have been similar in terms of nature of research dimensions. The FP6 projects largely mirror the characteristics of projects under FP5, which are in turn comparable with FP3 and 4 projects. One noticeable difference is that the share of project which are perceived by the participants as strategically important decreased between FP5 and FP6 (from 73% to 61%). Other small differences are that FP6 projects have somewhat fewer links with in-house projects, and are less in a technological area.

We have applied a factor analysis on the results on the project characteristics, which discerned three underlying project characteristics. We have labelled these factors 'embeddedness', 'applied internal' and 'challenging' (see Table 4).

Table 4: Project characteristics and profiles

Factor analysis	Characteristics	Scores
Embeddedness	Strategic importance	3,74
	In a core technology area for your organization	3,42
	Links with other in-house projects	3,37
Applied internal	Only feasible with external collaborators	3,74
	Fundamental - applied research	3,27
Challenging	Scientific and technical complexity	3,72
	Short - long term R&D	3,57
	Scientific and technical risk	2,95
	Height of the budget	2,72
	Commercial risk	2,29

Source: IDEA Consult (FP6 participation survey)

The main differences over nature of organization is that industrial organizations assess their projects more applied, but also more risky (technically and commercially) than other organizations. Performing R&D is always a risk for industry, as the commercial revenues are unclear. Therefore, they are more interested in applied research, producing marketable outcomes.

Other interesting aspects are, first, that projects where benefits exceed the costs are generally more strategically important, more complex and more expensive.

Second, participants with high R&D capabilities assess virtually all aspects higher than those with low R&D capabilities. However, they certainly perform more 'embedded projects' of relatively high complexity and risk

Compared to the experimental group, the control group assesses the commercial risk of its projects somewhat higher, but the technical risk and complexity equal or lower. Moreover, the control group is in more need of external partners.

We have also looked at differences in sources of additional funding for FP6 projects across the different natures of organizations. Internal financing is the dominant single additional funding for industrial organizations. For higher education and research organizations, this is complemented by national/regional subsidies as second important source of additional funds.

6.4 History of FP participation

This section aims to provide insight into the flow of FP participants, presenting results on previous and future participation in the FP in Table 5. We consider the group of participants in both FP5 and 6 'experienced', and those that did not participate in FP5 (even if they might have participated in FP3 or FP4) as 'less experienced'. The respondents consist of 56% 'FP experienced' participants, against 44% 'less experienced'. This demonstrates that the FP is able to maintain a steady group of participants, but that this group or the programme is not an exclusive member club. This finding is along the same lines as the FP5 participation.

Table 5: Participations in FP6

FP experienced		Less FP experienced		
FP 5-6-7	FP5-6	FP6-7	FP6	Total
33%	23%	12%	32%	100%

Source: IDEA Consult (FP6 participation survey)

Furthermore, we examined the participation patterns according to nature of organization. Nearly 50% of industrial organizations (48%) have only participated in FP6, and are thus less experienced. Higher education organizations have usually participated in more FPs, as only 28% of them has been involved in just 1 FP. Higher education organizations thus form a group of more "regular clients". Also, coordinators are more often FP experienced than participants; almost half (46%) of the coordinators has participated in three FPs.

Subsequently we checked if experienced FP participants are more successful in applying for FP7 funding.

Table 6 indicates that the FP experienced participants are more likely to apply for FP7 funding (88%) than the less experienced group (45%-50%). Furthermore, only 4% of the FP5 participants did not or is unsure to apply for FP7, against around 35% of less experienced respondents. On the other hand, a relatively large group of less experienced respondents is still planning an application. The threshold for experienced participants to apply for FP7 certainly seems lower than for less experienced participants.

Moreover, the subdivision of this group displayed in italics in the row underneath demonstrates that this experience pays off, as a very large share of experienced respondents has successfully applied (84%). Unsuccessful FP5 appliers are the least successful FP7 appliers (35%). Experienced participants are thus generally better applicants than less experienced participants.

Table 6: Relation experience and success

	FP experienced		Less FP experienced	
	FP5 participants	Unsuccessful FP5 application	No FP5 application	
FP7 application	88%	46%	49%	
<i>Successful FP7 application</i>	84%	41%	61%	
<i>Unsuccessful FP7 application</i>	8%	35%	18%	
<i>No decision on the application yet</i>	8%	24%	21%	
Planned application for FP7	8%	18%	17%	
Did not/unsure to apply for FP7	4%	36%	34%	

Source: IDEA Consult (FP6 participation survey)

The concerns expressed in FP5 about these differences between experienced and less experienced participants are still valid for FP6. In this respect the overall decreasing proposal success rate from FP5 to FP6 also has to be taken into consideration (18% successful FP6 proposals vs. 26% under FP5, 19% successful FP6 applicants vs. 24% under FP5)¹¹.

Compiling the same table for the control group generates interesting results as well, supporting the conclusion of non-exclusiveness of FPs. In this case, we have only looked at control group 1, as this group has not participated in FP6 at all. First of all, almost half of this group rejected for FP6 (47%) has participated in FP5, while 26% does not know about this. These FP5 participants (and not FP6) have applied for funding under FP7 more often and more successfully than the less experienced respondents, making their rejection in FP6 seem 'accidental' (Table 7).

Table 7: Relation experience and success (control group)

	FP experienced	Less FP experienced (no FP5 and 6)	
	FP5 participants (not FP6)	Unsuccessful FP5 application	No FP5 application
FP7 application	86%	51%	36%
<i>Successful FP7 application</i>	67%	22%	39%
<i>Unsuccessful FP7 application</i>	21%	65%	39%
<i>No decision on the application yet</i>	12%	13%	22%
Planned application for FP7	7%	15%	17%
Did not/unsure to apply for FP7	7%	34%	47%

Source: IDEA Consult (FP6 participation survey)

Of the rejected FP6 applicants that did not apply under FP5, 53% now did apply or plans to under FP7. For the (small) group (6%) that was rejected for both FP5

¹¹ FP6 Final Review, <http://ec.europa.eu/research/reports/2008/pdf/fp6-final-review.pdf>

and FP6 this is even 66%. Overall, more than half of control group 1 (at least 54%) has applied for FP7 funding or has plans to; at least 32% of control group 1 will receive funding under FP7. All this justifies the statement that rejection does not mean exclusion.

Both the experimental and the control group also quite regularly perform R&D projects fully financed with other external funds. Almost 90% of both higher education and research organizations use national/regional funds, 38% of them use other international funds. For industrial organizations this is much less (48% national/regional; 9% international).

The interviews showed that at least for industry the FP funded projects are incomparable with national/regional funded projects, as their objectives and characteristics are very different. Nevertheless, the national/regional subsidies are mostly viewed as equally important as the FP funding. The FP funding appears to have most added value for the respondents compared to other international funds as 52% considers FP funding more important, and only 6% considers FP funding less important than other international funding.

The in-depth interviews with industrial organizations highlighted that the consideration of relative (dis)advantages of the FP programmes against national funding programmes has many dimensions and the opinions about this matter diverge.

Participation in FP programmes has the following advantages:

- (i) The biggest added value lays in the (international) partnership*
- (ii) Availability of a larger range of skills (not comparable with national)*
- (iii) Availability of pre-financing*
- (iv) Higher funding possibilities (in areas where national funding was limited or not available)*
- (v) Strict organization, quite result oriented*

But the following disadvantages are mentioned as well:

- (i) Limited co-funding structure of 50%*
- (ii) Impressive applications/proposals ("like books")*
- (iii) Complicated schemes of reporting*
- (iv) English language*

Participation in national programmes is thought to have the following advantages:

- (i) Less paper work and bureaucracy to obtain the financial resources*
- (ii) The funding is higher than in FP-programmes*
- (iii) Flexibility (shorter time frame for decision making)*

6.5 Additionality

This section assesses whether or not projects (would) have been continued without FP funding. The experimental group has answered this question hypothetically. For the control group this question can be answered with facts from reality. The responses of the control group are thus more valuable to assess the additionality Table 8 gives an overview of the results for all groups. These results are completely consistent with FP5 results.

Following our definition, full additionality occurs when the project rejected for FP funding was cancelled, and partial additionality occurs when the project was changed. When we speak about additionality we mean the combination of both (project either continued in a changed setting or abandoned).

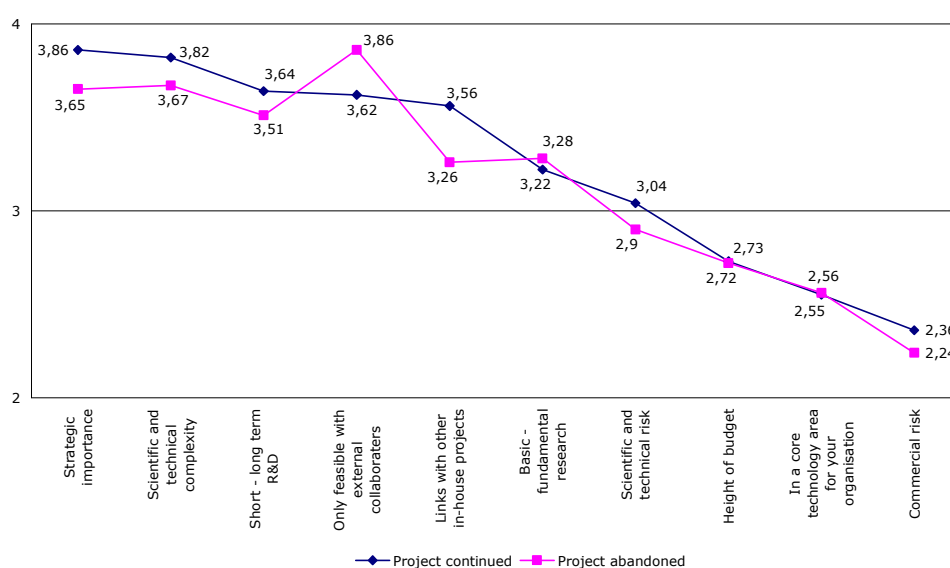
Table 8: Additionality: what has happened to the not funded projects?

		CG1	CG2	Exp. group
Project cancelled	Full additionality	59%	63%	57%
Project changed	Partial additionality	35%	33%	39%
Project continued	No additionality	6%	4%	4%

Source: IDEA Consult (FP6 participation survey)

Additionality was combined with the project characteristics. The characteristics with the strongest positive influence on the continuation of the project were 'the number of links with in house projects', 'the strategic importance' and 'the feasibility without external collaborators'. The influence of this last characteristic emerged much less evident from the FP5 survey.

Figure 5: Project characteristics influencing additionality



Source: IDEA Consult (FP6 participation survey)

The above demonstrates the degree to which participation in FP6 was additional according to the participants' perspective and interest. However, there is a second aspect of additionality. When project additionality is combined with the strategic importance of projects to the participants, we obtain more insight into the programme's additionality and the degree to which public sector support is well-justified. This is based on the grounds that public policies, either national or EU, do not aim to support projects that are considered of marginal or of low strategic importance to the participants, irrespective of the degree to which they would have been carried out in any way in the absence of public funding.

Combining additionality with the projects' strategic importance first confirms that strategically important projects were more often continued (no additionality) than projects of medium and low strategic importance. This is in line with the findings from Figure 5.

Looking at the FP6 *control group*, 54% of strategically important projects were abandoned or changed in the absence of FP funding. Subsequently, comparing the experimental groups of FP5 and FP6 reveals that in both groups just over 50% of strategically important projects were cancelled, and around 5% continued. We therefore conclude that the overall programme additionally remains stable (Table 9).

However, we do notice shifts for projects of medium and low strategic importance under FP6. Part of projects of low strategic importance has moved from no additionality (project continued without changes) in FP5 to behavioural additionality (project continued with changes) in FP6. Moreover, for medium strategic projects the share of behavioural additionality has increased at the cost of pure additionality (project abandoned). The results for the control groups are somewhere intermediate of FP5 and FP6 (experimental groups).

Table 9: FP additionality and strategic importance

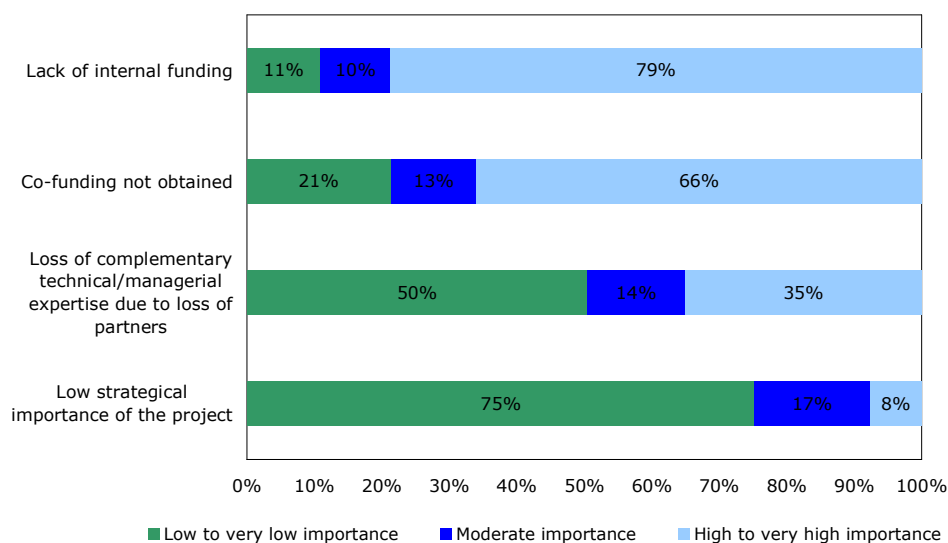
	Low to very low strategic importance	Medium strategic importance	High to very high strategic importance	Weighted average
FP5 additionality and strategic importance				
No additionality	14%	5%	5,5%	6%
Behavioural additionality	14%	25%	42,5%	37%
Pure additionality	72%	70%	52%	57%
Total	7%	20%	73%	100%
FP6 additionality and strategic importance (Exp group)				
No additionality	0%	4%	5%	4%
Behavioural additionality	27%	37%	42%	39%
Pure additionality	73%	59%	53%	57%
Total	11%	27%	62%	100%
FP6 additionality and strategic importance (Control Group)				
No additionality	7%	4%	7%	6%
Behavioural additionality	21%	29%	38%	33%
Pure additionality	72%	68%	55%	61%
Total	14%	28%	58%	100%

Source: IDEA Consult (FP6 participation survey)

Overall, the control group indicates somewhat less (real) change than the experimental group hypothetically. Nevertheless, results from both groups confirm results from previous surveys concluding that FP funding usually enables projects to be carried out with more partners (especially international ones), more ambitious objectives, longer time scales and extra - mainly international - funds, in the absence of which participants mainly turned to national/regional programme sources.

Furthermore, the lack of funding appears to be the most important reason why control group projects are abandoned. The loss of complementary expertise is an important motivation for abandoning for 35% of the control group. For industrial organizations this is even 46%, indicating that these organizations are apparently more dependent on the expertise of partners. These results certainly confirm the added value of the FP.

Figure 6: Reasons for abandoning the project rejected for FP funding (control group)



Source: IDEA Consult (FP6 participation survey)

6.6 What did the participants get out of it?

6.6.1 Introduction

In section 2 we presented the hierarchy of objectives and effects we built in order to evaluate the outputs (project level), outcomes (programme level) and impacts (policy level) of the 6th Framework Programme.

This section aims at presenting results for the five outcomes areas at a programme level. These outcomes are the following:

- Knowledge sharing
- Networking
- Use or research results
- Research conditions
- Contribution to society

In order to determine to what extent these intermediate objectives were reached, we aggregate the scores the respondents gave to the different outputs at operational level into an outcome score.

Box 1: Hierarchy of effects – methodology

For each of the outcomes at programme level mentioned above, we defined several outputs to be achieved at project level. For each output the respondents indicated its importance for the research team and its significance for the organization as a whole on a 1-5 scale.

In order to evaluate the scores of the five outcomes area we computed weighted averages from the output components. We constructed a weighted average of these different output scores and assessed their statistical significance (for the research team and organization as a whole) in each of the five outcomes areas.

Where relevant, we also calculated separated weighted averages per 'nature of organization', 'country type' and 'role in the project'¹².

Most of the outcomes were composed of several individual output components. In order to facilitate interpretation and to diminish the number of components we applied a factor analysis to identify common factors driving the results for each outcome.

Overall we noticed that the 'nature of organization' has important effects on the scores as there is apparently a clear difference between higher education and industry in the perception of what was achieved.

We also established that coordinators score significantly higher than participants for all aspects.

Additionally we found that candidate countries often score higher than other types particularly for 'knowledge sharing' and for 'networking'. However there is no noticeable difference between the other groups (especially EU10 and EU15)¹³.

We present the results for 'research team' and 'organization'. We questioned the respondents on these two categories separately, but the response showed no great differences. Therefore, we describe most of the results only once. Table 10 confirms that scores for both categories were largely the same.

6.6.2 Knowledge sharing

The knowledge sharing outcome is driven by two common factors:

- Academic results that include 'Publications', 'PhDs and other qualifications' and 'Grant/awards schemes';
- Expanding and exchange of knowledge (all other outputs)

Overall outputs related to the expansion and the exchange of knowledge seem to dominate in term of effects. An 'enhanced knowledge base' and the 'development

¹² As explained below, the country type and role in the project are characteristics that did not really affect the results. We will therefore mainly discuss the nature of the organizations.

¹³ Score is largely determined by the large group EU15, other categories (EU10), Associated candidates and countries) have little weight.

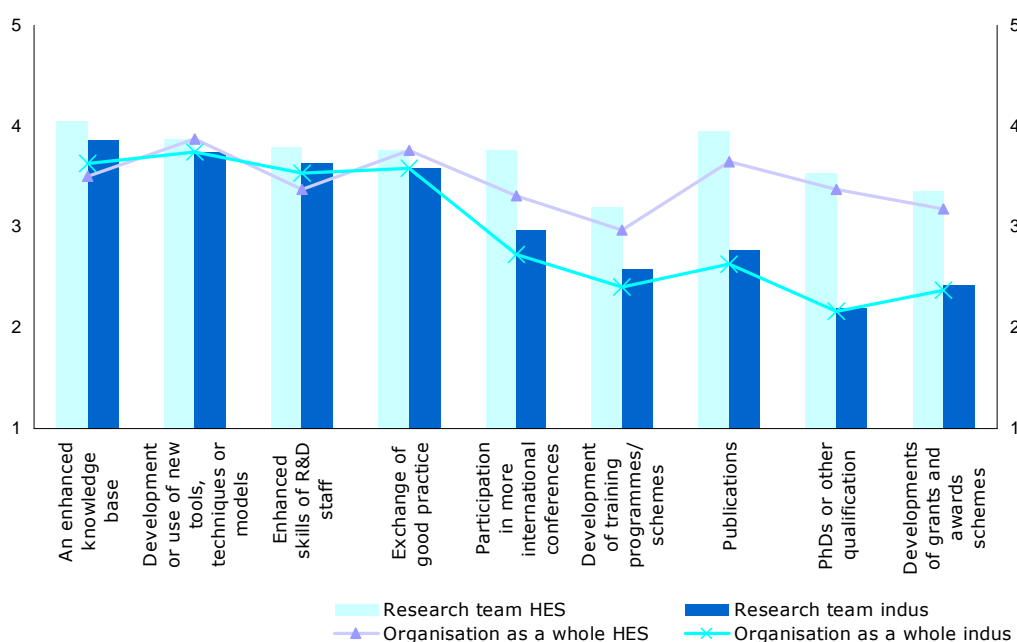
or use of new tools, techniques or models' are relatively important to research teams and organizations. This was also valid for the FP5 research teams.

On the contrary, the development of grant and award schemes are not at all important for research teams and organizations as output of the FP6 project.

The nature of the organization has important effects on the scores. Academic results as defined above are of less importance and significance for industry than for higher education. This was also valid in FP5 for research teams either in academic institutions or industrial organizations with the academics also ranking 'publications' quite higher than industry.

However, 'Development of new tools', 'Enhanced skills of staff' and 'Exchange of good practice' are of higher significance for the industrial organizations.

Figure 7: Knowledge sharing in FP6



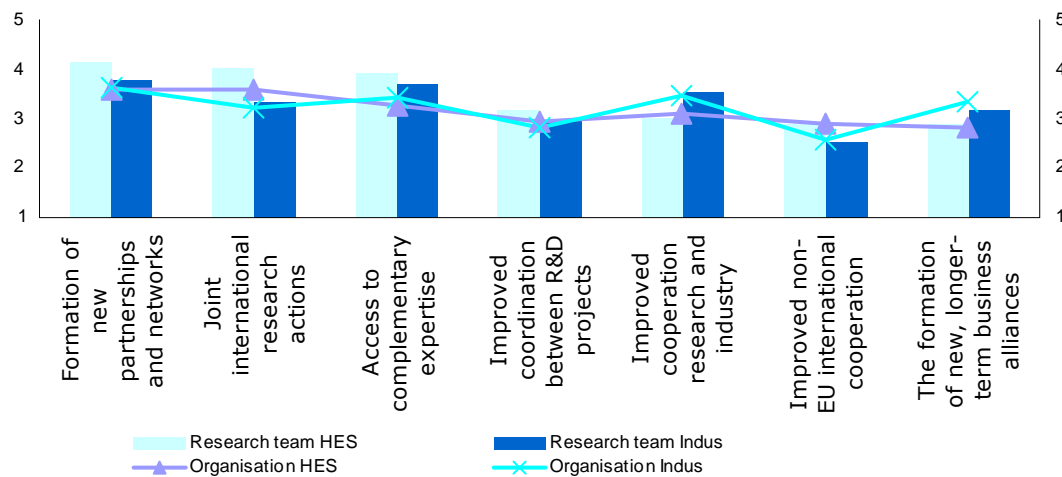
Source: IDEA Consult (FP6 participation survey)

6.6.3 Networking

Two factors influence the score given to networking by respondents:

- Project-based networking ('Access to complementary expertise', 'Formation of new partnerships and networks' and 'Joint international research project')
- Structural networking having long term effects

Figure 8: Networking in FP6



Source: IDEA Consult (FP6 participation survey)

Respondents perceive the project based networking as an important effect from the project. They perceive the structural networking components as being only a moderately important effect of the projects.

In FP6 and in FP5 the most important outputs were the 'Formation of new partnerships and networks' as well as an 'Access to complementary expertise'.

There is a marked difference between industrial organizations and higher education. Industry perceives the 'Improved cooperation between research and industry' and the 'formation of new, longer-term business alliances' clearer as a more important effect than higher education organizations.

The interviewees from industrial organizations also mentioned several concrete outcomes related to these areas.

Knowledge sharing: Knowledge spill-over effect between partners is recognized by many interviewees. Working with several partners allows to share insights and to achieve better solutions.

Networking: The generation of new partners is seen as an important effect of the project. New partners in terms of variety of types of partners (e.g. manufacturers, universities, SMEs, marketing partners) as well as in terms of geographical spread. The new partners allow for external validation of technology developed, for using, and for testing the materials/products

The following direct project outputs are regularly mentioned:

- (i) Fully automated or uniform production of systems*
- (ii) Development of products*
- (iii) Development of prototypes*
- (iv) Development of software*
- (v) Industrial partner participating in several academic papers*

6.6.4 Use of research results

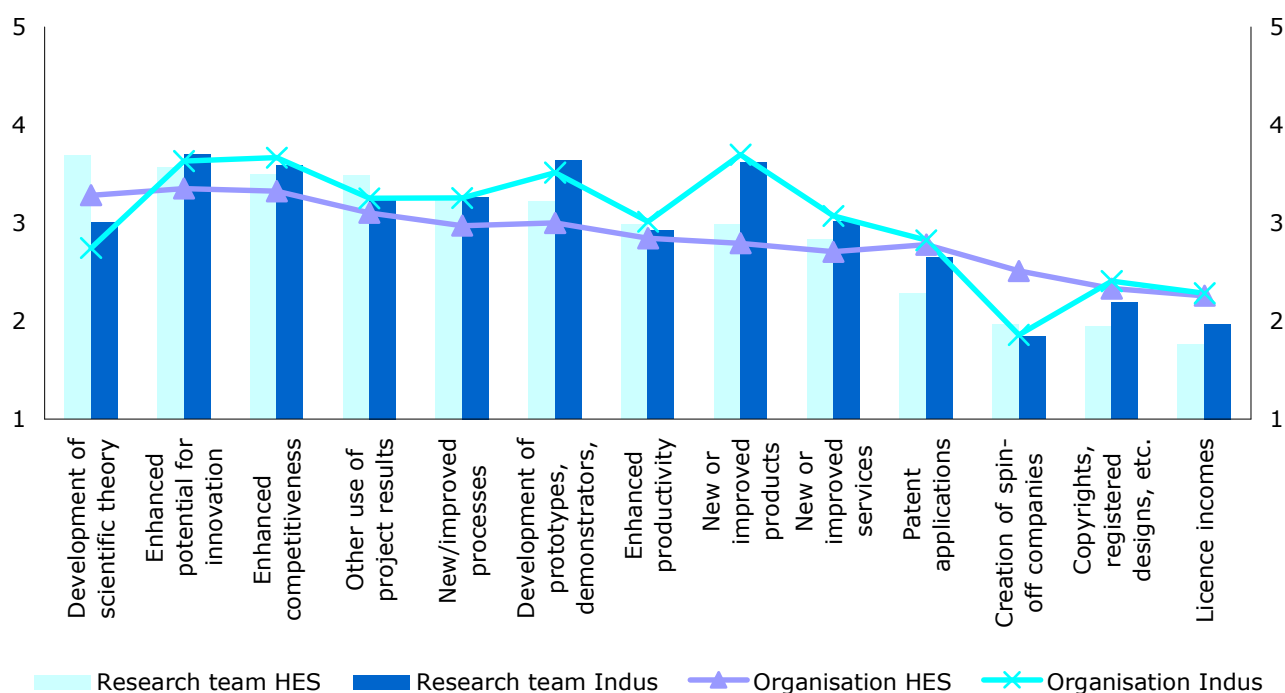
Outputs related the use of research results are clearly separated into two main factors:

- Outputs directly influencing revenues (i.e. patents applications, copyrights, licence incomes, creation of spin-offs)
- Outputs indirectly influencing revenues (all other outputs)

The results of this section show a striking separation between these two factors. Although respondents report a moderate importance of outputs indirectly leading to incomes, outputs directly influencing revenues seem to be almost irrelevant (i.e. patents etc.). The outputs directly influencing revenues are the least preferred options in terms of importance but they gained a higher average in FP6 than FP5 across both the academic and industrial cohorts.

In general, the use of research results is more important for almost all outputs for industrial organizations than for higher education institutions. Only the "development of scientific theory" and the "creation of spin-off company" (and the more vague "other use of research results") are more important outputs to the higher education institutions.

Figure 9: The use of research results in FP6



Source: IDEA Consult (FP6 participation survey)

Furthermore, industrial organizations clearly do expect commercial returns. Almost half of them (47%) state they are likely to very likely, and 60% of this group expects these returns within 2 years (90% within 5 years). The other types of organizations do not expect as much commercial returns; less than 20% consider it likely/very likely, and around 65% unlikely/very unlikely. Commercial returns are obviously not a prime objective especially for academic institutions (higher education and research organizations) that appear to become more

pessimistic as the share of those that think commercial returns are unlikely rose from around 48% in FP5 to 65% in FP6.

A specific set of questions was dedicated to private and public commercial organizations. All the elements¹⁴ scored below 3 showing a reinforced low importance of the direct commercial outputs for private organizations. This finding mirrors the results of the FP5 participation survey.

During the interviews with industrial participants we looked more closely into the questions: (i) what exactly is important for the industrial organization in terms of use of research results and (ii) why are the outputs defined above, that are directly influencing the revenue, of so little importance?

For many industrial organizations, the development of marketable products or better products, the exploration of new markets and an increased market share (i.e. more customers) are key objectives. Patents on the other hand are, generally speaking, not at all an objective at the start of the projects but tend to be (welcomed) by-products.

There are several problems with the objective of patenting during the course of the project:

(i) Competition between the partners for the patent

(ii) Conflict between interest of the academic/research partner who wants to make results public (publish) as soon as possible and the industrial organization who wants to keep it secret for a while

(iii) Patent applications (and obtaining them) is a very long process

(iv) Patent applications and achievement is very expensive and with unknown return

(v) Intellectual property rights are expensive and ex post very difficult to defend

The innovation achieved is in itself considered to bring enough advantages.

6.6.5 Research conditions

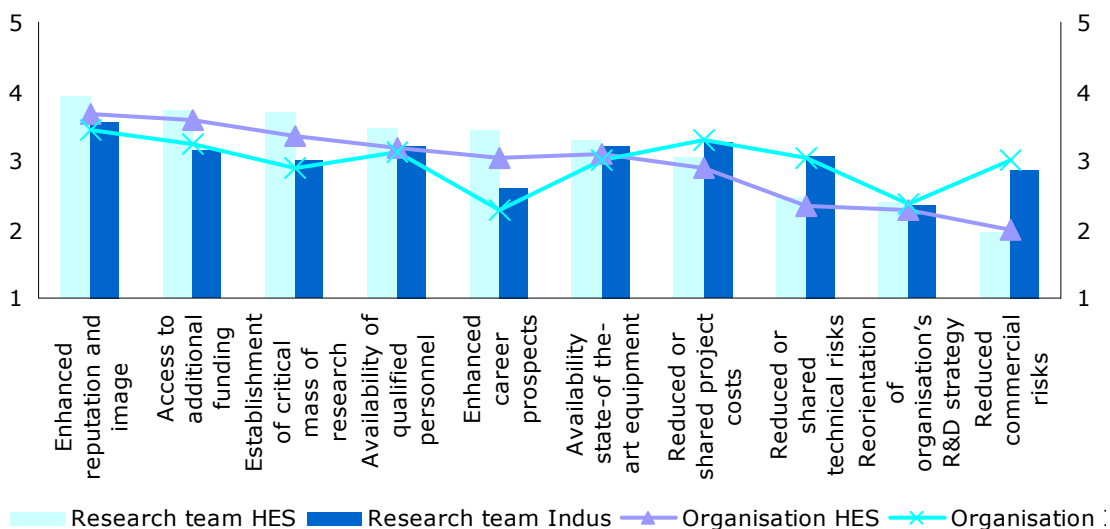
We identified two underlying factors for the research conditions outputs:

- Improvement of reputation, image and status ('Enhanced career prospects', 'Enhanced reputation and image', 'Access to additional funding', 'critical mass of research' and 'qualified personnel').
- Reduction of research barriers (risks and costs)

We noticed that reputation and image are factors that are more important for higher education respondents than for industrial participants. Additionally reduced risks and costs are more important for industrial respondents.

¹⁴ 'Access to new markets', 'Increased turnover', 'Improved market share', 'Increased profitability' and 'Reorientation of the organization's commercial strategy'.

Figure 10: Research conditions in FP6



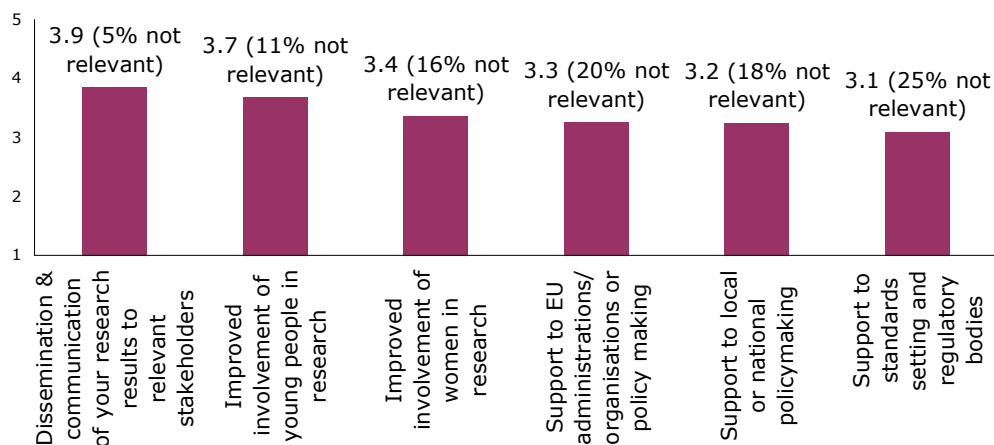
Source: IDEA Consult (FP6 participation survey)

6.6.6 Contribution to society

Using factor analysis we identified two different factors underlying the respondents' contribution to society:

- A contribution via a support to policy making
- A specific support to individuals/targets groups (young people, women and research stakeholders)

Figure 11: Contribution to society



Source: IDEA Consult (FP6 participation survey)

Higher education organizations report a significantly higher contribution to these societal elements than industrial organizations¹⁵.

FP6 projects offer a very moderate contribution to policy making including a high share of 'not relevant'. It seems however that elements of policy making targeting specific groups (relevant stakeholders, young people and women) receive a better score. We learn from this that in order to reach an objective (such as contribution to society/policy making) the objective must be specific enough to be of relevance and to become an objective towards which you can work. Defining target groups is one way of specifying the objective.

Societal outputs do not feature in the primary positions of significances in either FP. The underlying conclusion that emerges in terms of comparison of FP5 and FP6 is that the results in terms of importance of goals remain similar to a large extent.

6.6.7 *Overall contribution to intermediate objectives*

Table 10 presents the outcome score computed in order to estimate the contribution to the FP6 intermediate objectives (at a programme level).

Overall there is no significant difference between the importance for the research team and the significance for the organization as a whole. Most of the components score above 3 (moderate importance) but none exceeds 3,5.

We established that higher education institutions report higher outcomes on knowledge sharing, research conditions and contribution to society than industrial organizations. But that industry, compared to higher education, considers the use of research result to be of greater importance.

Table 10: Contribution to intermediate and strategic objectives

Intermediate objective	Research team	Organization as a whole
Knowledge sharing	3,5	3,2
Networking	3,4	3,2
Research conditions	3,1	3,0
Use of research results	3,0	3,0
Contribution to society	3,4	3,4

Source: IDEA Consult (FP6 participation survey)

We also found that each intermediate objective received a higher score from coordinators than from participants.

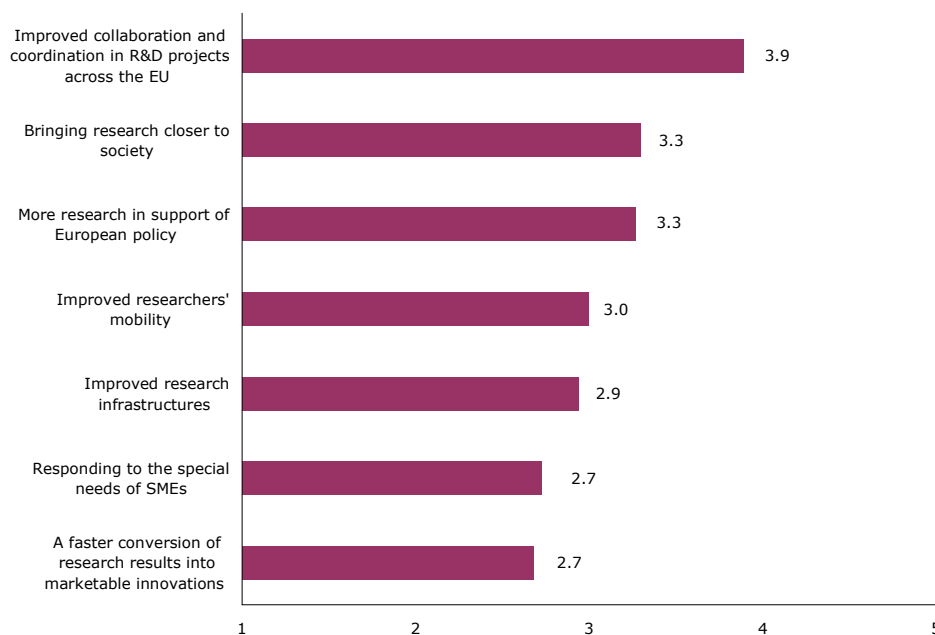
As already mentioned in the introduction, candidate countries report higher scores as other country types for networking, knowledge sharing and contribution to society.

Subsequently, the coordinators were questioned on the impact of FP6 on its own strategic objectives (Figure 12).

¹⁵ Except for the support to standard settings and regulatory bodies where this difference not significant is.

These results confirm the “bottom-up” approach we followed questioning the participants on their project outputs.

Figure 12: Impact on FP6 strategic objectives



Source: IDEA Consult (FP6 participation survey)

On the one hand coordinators report a high contribution on improved collaboration and coordination in R&D projects across the EU (*knowledge sharing* and *networking*). They also highlight the contribution to society via *more research in support of European policy* and *bringing research closer to society*. On the other hand *researchers' mobility* and *marketable innovation (use of research results)* are elements that score relatively low. SME related impacts should be carefully interpreted considering that SME specific instruments were excluded from this survey.

6.7 Goal attainment

Goal attainment consists of a combination of two questioned aspects

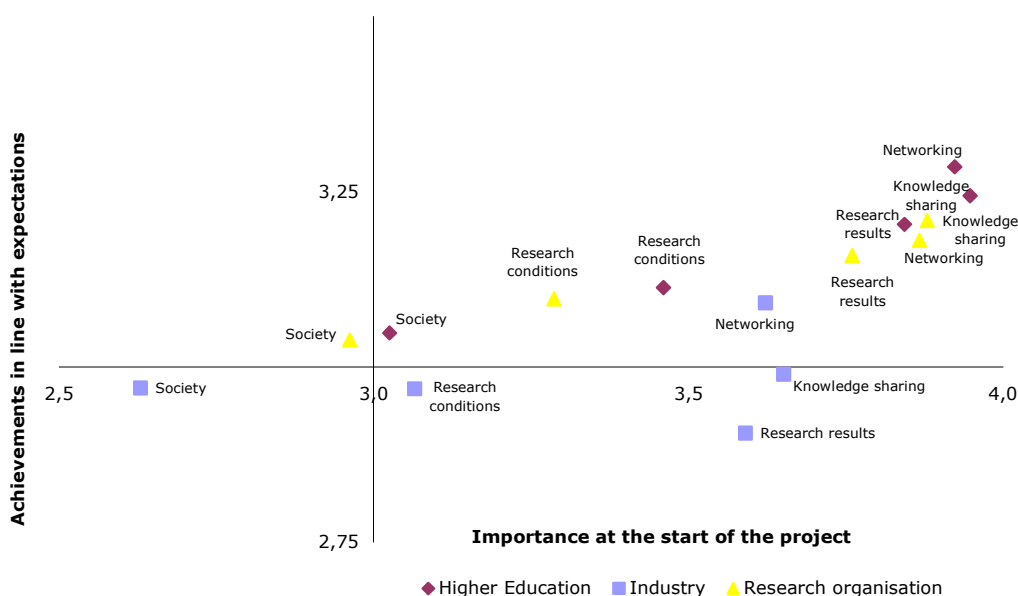
- The importance of a certain outcome/objective area before the project
- The extent the achievements on this outcome area were in line with the expectations

In general, 50% or more of FP6 participants stated that 'knowledge sharing', 'networking' and 'use of research results' were of high importance and were achieved at least as expected. The answers to both questions were more moderate for 'improvement of research conditions', and particularly lower for the 'contribution to society', suggesting a positive correlation between importance and relative achievements. For FP5 as well, the highest achievements were recorded in terms of knowledge-related goals and network-related goals.

This result of positive correlation between perceived importance and perceived achievement should be nuanced considerably when examining them more in detail per nature of organization. Industrial FP6 participants clearly present a more pessimistic view than the other organization types for all outcome areas (Figure 13). Predominantly the importance of 'use of research results' and 'knowledge sharing' was considered high before the project, while the achievements were considered equal to or less than expected.

This was true even for those industrial organizations that considered the importance of 'use of research results' and 'knowledge sharing' high/very high. For instance, a significant 23% thought the importance of 'use of research results' high while at the same time rating achievements less than expectations, and only 16% thought achievements exceeded expectations.

Figure 13: Goal attainment

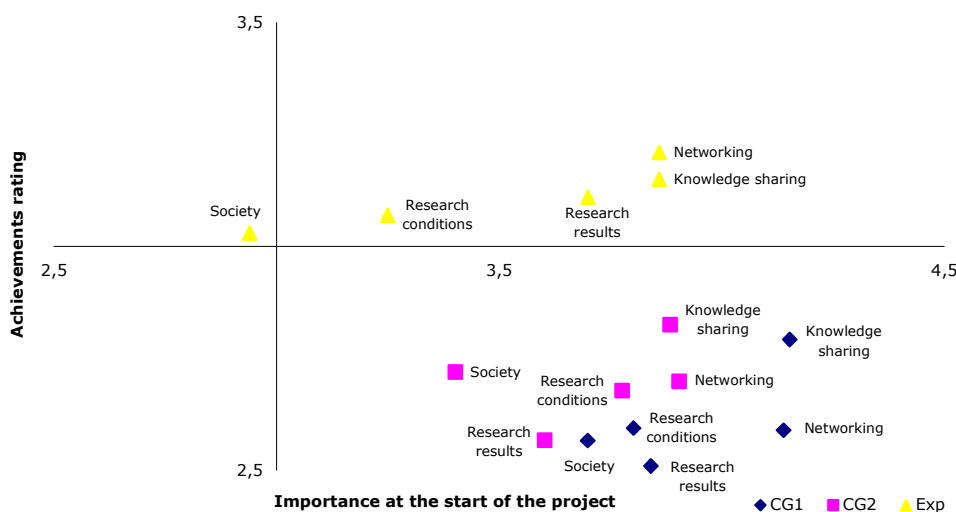


Source: IDEA Consult (FP6 participation survey)

The apparent correlation between importance and relative achievements is therefore not present for industrial organizations. The actual achievements for industrial organizations related to exploitation of research results seem to be deteriorating from FP5 to FP6, as industrial participants turn out to be more critical about their achievements.

The results from the control group survey also provide some issues to discuss, as Figure 14 shows, comparing the control and experimental groups. All the different outcome areas were more important at the start of the project for the control group than for the experimental group. This importance was even higher for control group 1 (rejected projects only) than for control group 2.

Figure 14: Goal attainment (control group)



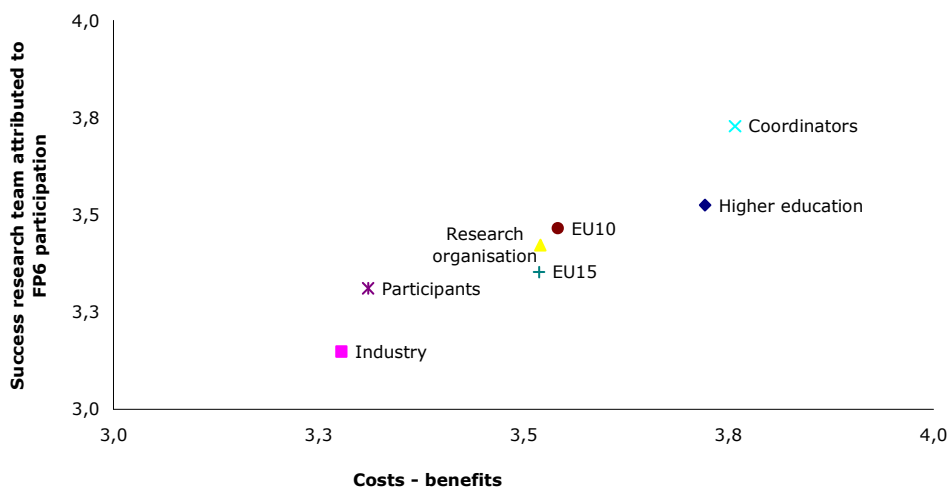
Source: IDEA Consult (FP6 participation survey)

On the other hand, the rating of the relative achievements by the control group is always below 3, and is thus lower than the experimental group. For control group 1 the discrepancy with importance at the start of the project is larger than for the other groups. In fact, comparing the groups shows that *the higher the importance at the start, the lower the achievements in comparison with the expectations*. This indicates that missing the FP funds leads to less relative achievement for all outcome areas, again supporting the additionality of FP funds.

6.7.1 Costs versus benefits

Generally, benefits exceeded costs for all groups of respondents. Moreover, the current success of the research team is attributable to the FP6 participation from moderate to high extent (see Figure 15, where 3.0 is costs = benefits). The overall results are exactly the same as for FP5.

Figure 15: Costs vs. benefits



Source: IDEA Consult (FP6 participation survey)

Higher education scores highest, but most noteworthy is the low place of industry on both dimensions (see box below). A marked difference is also noticeable for role in the project, as coordinators score considerably higher than participants. FP6, and certainly coordination of an FP6 projects, seems to add considerably to the prestige of an academic research team. Additionally, EU10 scores slightly higher than EU15 on both dimensions, but not significant.

The interviews gave us the opportunity to delve deeper into the results for 'use of research results' and 'costs versus benefits' for industry. We checked the answer the individual interviewee had given on the costs versus benefits question, and asked them about the reasons behind their answer.

It appeared that industrial participants interpret this question very literally, and answer it in a factual and quantitative way.

Mostly, considering the large spectrum of profitability over the years considering the intangible benefits as well, benefits are considered to exceed costs. There are new products, new partners, shared costs & risks, and commercial return is expected "shortly" after the project.

Industrial participants thus recognise and appreciate the 'immaterial' benefits from participating in the FP, but in strict monetary terms, during the course of the projects, the financial costs exceed the financial benefits and the industrial organizations invest quite some resources into the projects.

6.8 How does European society benefit?

Besides the contribution that the various projects have for society in terms of support to policy making, we examined the benefits of the 6th Framework Programme in general on the broader European society. In first instance we examined the impact of the projects on five wide-ranging themes

- Employment
- Environment
- Health care
- Sustainable use or production of energy
- Quality of life

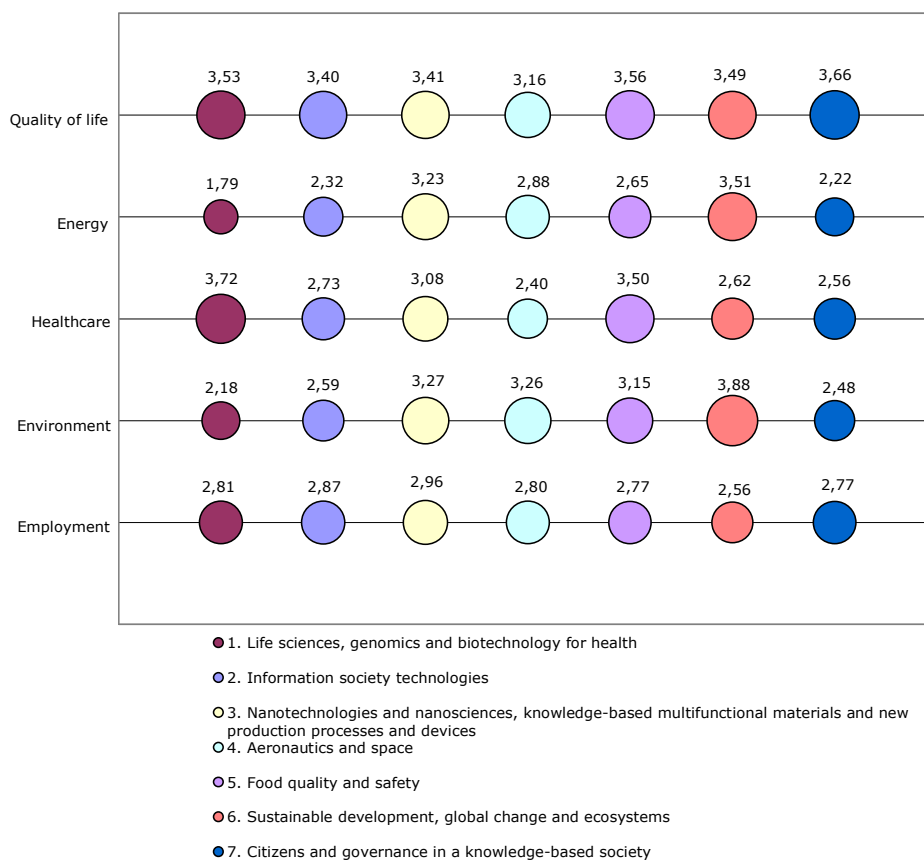
Respondents do not estimate the impact of their projects on each of these themes more than moderate. 'Quality of life' is the only one tending towards considerable impact, but this a very broad theme, and that answer category can thus be regarded as "container" category.

More remarkable are the very high percentages of respondents that regarded these impacts 'not relevant', ranging from 25% to 40%. Broad societal impacts of one single project are obviously small, but the high 'non-relevancy' also indicates that many projects did not work towards any of those themes.

As the programme is itself divided into different themes through the priorities, we also combined the impact on these themes with the different FP6 priorities (Figure 16).

This figure shows that 'quality of life' was considered of more than moderate importance across all priorities, whereas 'employment' was less than moderate for each priority. Most remarkable results emerge for 'Sustainable use and production of energy', which under no priority it is the main impact, while it is an explicit focus in the FP. Also, it is the only theme where industry estimates a higher impact than academia.

Figure 16: Impact on European society per priority



Source: IDEA Consult (FP6 participation survey)

From this we could learn that if progress on a certain area is desirable (such as sustainable use and production of energy), formulating an explicit priority/objective could be favourable. Working towards a well-defined objective determines part of the impact of the project for the objective. General objectives such as quality of life or employment reach very uneven results.

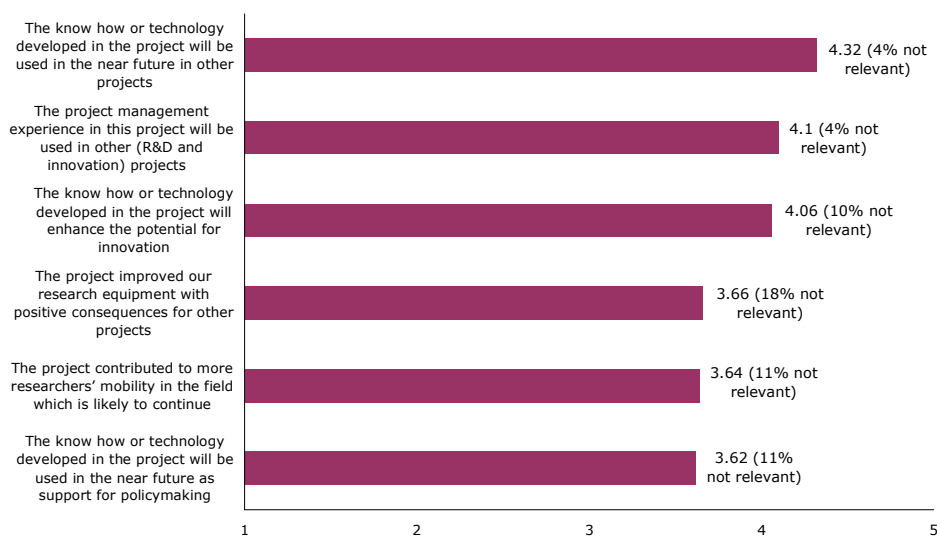
6.9 Sustainability

Sustainability of the project outcomes covers a number of areas, i.e. 'learning effects', 'partnerships', 'project chains' and 'employment/human resources'.

6.9.1 Learning effects

The learning effects of participating in a project under FP6 appear to be high for individual organizations. Much of the experience gained, both technological and managerial, can and will be used again in future R&D projects. Furthermore, the projects have stimulated innovation and researchers mobility. Here again, it is important to take the 'not-relevant' percentages into account, although they are not as high as previously.

Figure 17: Learning effects



Source: IDEA Consult (FP6 participation survey)

6.9.2 Partnerships

This section describes contribution of FP6 to strengthening existing and establishing new linkages with different kinds of partners.

Project partners were mostly universities from abroad, as they were involved in circa 93% of the respondents' projects (Table 11). Less than one third of the respondents collaborated with domestic firms (31%), and 61% with foreign firms. However, industrial organizations have cooperated more often with firms than this average (53% with domestic, 88% with foreign firms).

Regarding existing linkages, considerable shares of FP6 participants declared that they had already worked with some or all of their partners before the FP6 project. Clearly, domestic partners were known before most projects, i.e. the universities/research institutes in 85% and the firms in 73% of the projects. However, the involved universities/research institutes from abroad were often part of the respondents' network before the project as well (76%) (Table 11). These figures are comparable to the overall percentage of FP5 participants who worked with some/all of their partners before the project is (83%). Thus FP6 strengthened existing linkages between organizations to a similar extent as FP5.

Table 11: Partnerships

	Partners (% Yes)	All new partners	Some new partners	All known partners
Universities/ Research institute from abroad	93%	23%	71%	5%
Firms from abroad	61%	48%	43%	5%
Domestic universities/ Research institute	57%	13%	61%	24%
Domestic firms	31%	25%	54%	19%
Other	29%	33%	53%	6%

Source: IDEA Consult (FP6 participation survey)

However, FP6 encouraged new partnerships more than FP5, especially with foreign industry. The majority of the FP6 projects involved some or only new partners, most of which were firms and universities from abroad.

While in FP5 only 17% of the participants had not worked with any of their partners before, in FP6 this share ranges from 13% referring to domestic academic institutions to around 25% for domestic firms and foreign academic institutions up to even 48% for partnerships with foreign firms. Higher education (89%) more often established **new** partnerships than industry (77%).

As the FP6 Final Review showed, FP6 enabled 50% more collaborative links between participants (from EU-27, associated and candidate countries) than FP5, i.e. 582,000 collaborative links in FP6 projects against 384,000 in FP5 projects.¹⁶ Finally, as in FP5 the great majority of FP6 participants (95%) expected to continue to collaborate with all or some of their FP6 partners after the project, and 81% will do so with at least one **new** partner.

Table 12: Partnerships control group

	CG1	CG2	Exp
Universities/ Research institute from abroad	87%	88%	93%
Firms from abroad	53%	67%	61%
Domestic universities/ Research institute	67%	68%	57%
Domestic firms	39%	46%	31%

Source: IDEA Consult (FP6 participation survey)

The control group projects generally more often involved domestic partners, and less often foreign partners than experimental group projects. An exception to this is that more projects in control group 2 are partnerships with foreign firms than in the experimental group. Also, a larger share of control group respondents had already collaborated with their partners before the project than (20-35%) of the experimental group (5-25%).

Similarly to the experimental group, a large majority of control group respondents continues to collaborate with at least one of their partners after the proposal phase. Continued collaboration mostly takes place with domestic universities/research institutes (87%), and least with foreign firms (50-55%). Around 65% expects to collaborate with at least one **new** partner in the future. However, 70-75% of the continued collaboration is less intensive, against 44% for the experimental group.

¹⁶ FP6 Final Review, <http://ec.europa.eu/research/reports/2008/pdf/fp6-final-review.pdf>

For most projects the coordinator took the explicit lead in the proposal phase and solicited the other partners to provide contributions. This way of working was perceived as a very effective way to get involved right from the start. The coordinators also mention valuable active help and input from other project partners.

Workload is divided into work packages which tend to be led by different partners over the course of the project.

Too many project partners was considered to be less efficient (number of about 8 to 10 was mentioned as optimal by one of the interviewees).

6.9.3 Project chains

The FP6 survey strengthens the evidence of what the FP5 survey already demonstrated, namely that work conducted under the FPs is integrated into a continuous stream of R&D. Just as in FP5, the large majority (86%) of FP6 projects partially (52%) or to a large extent (34%) built on past research conducted in-house (78% in FP5). 92% of the projects is likely to continue in the same line (84% in FP5), and thus lead to further in-house R&D projects.

Compared to FP5, the importance of the national/regional programmes as the basis of projects and as their continuation vehicle is more pronounced in FP6 (62% in FP6 vs. 34% in FP5). Projects both originating and continuing in a Framework Programme and especially other international funds remain less obvious in FP6. Furthermore, a considerable amount of projects started in a new research area, a large share of which will be continued.

In general, the great majority of FP6 projects built on past research either in-house or under national/regional programmes, and are most likely to continue in-house, under the FP or national/regional programmes.

The control group survey results largely follow the same pattern, although the emphasis is even stronger on in-house research. Around 45% of control group projects built to a large extent on in-house research, against 34% for the experimental group. On average, equal shares built to a large extent on nationally/regionally funded research (24%), but this was 29% for control group 1 (only proposal rejections) and 17% for control group 2. Almost 25% of the projects were in a new area, compared to 15% for the experimental group.

Table 13: Project chains

R&D in this area is (likely) continuing	In house	Framework project	National/regional programme	International funding (other than FP6)	Total
FP6 project built (partially /to a large extend) on ...					
In house	82%	75%	72%	56%	86%
Framework project	49%	48%	44%	36%	53%
National/regional programme	65%	61%	62%	48%	70%
International funding (other than FP6)	36%	33%	32%	30%	38%
New area	38%	37%	34%	27%	42%
Total	92%	87%	83%	66%	

Source: IDEA Consult (FP6 participation survey)

Furthermore, continuation of control group projects (not funded by FP6) is less likely than for the experimental group. Only 62% of the projects is likely to continue in-house; 56% under an FP (92% and 87% for the experimental group). Continuation under regional/national (35%) or international programmes (30%) other than FP is even less likely. FP funding appears to serve as a sort of diving board for more research activities.

6.9.4 *Employment/Human resources*

The percentage of those who took on new staff to conduct their research project rose from 48% in FP5 to 59% in FP6. Higher education (76%) has employed additional staff more often than industry (24%), and also coordinating organizations have hired more often (71%) than basic participants (56%).

In both FPs this extra staff mostly came from own countries; yet, the shares of those drawing upon other EU or non-EU countries fell from 41% and 17% in FP5 to 20% and 7% respectively in FP6. The difference for non-EU countries might be explained by the inclusion of 10 Member States into the European Union in the meantime, but the figures do point towards a more national employment orientation of participating organizations.

In general, results about the staff levels before and after FP6 projects are largely comparable to those in the FP5 survey. The majority of participants in both FP5 and FP6 that had taken on additional staff stated that their staff levels remained the same after the project. Nevertheless, a share of circa 27% in both programmes stated that staff levels decreased after the project.

This decrease was most acute in the academic world. In fact, while a lower proportion of industry employed new staff than academics, a large majority of those industrial organizations (>90%) managed to keep staff levels the same or even increased them after the projects. In the academic world and especially higher education institutes, as FP6 showed, the share of those who could not keep their extra staff rose to 55% (Table 14).

However, it is essential to note that staff levels also often decreased (44%) in the group of higher education institutes not having taken on new staff. Thus, this is rather an indication of more general turnover problems faced by universities' staffing.

Research organizations also experience difficulties to keep their additionally hired staff. Almost 40% of research organizations that employed extra staff to carry out the project decreased staff afterwards. However, only 5% of those that did not take on extra staff experienced a decrease after the project.

All in all, the net employment 'effect' of the projects appears higher for industry than for higher education.

Table 14: Staff evolution before and after the project

Additional staff to carry out FP6 project?		Staff evolution after the project			
		Decrease	Remain the same	Increase	Total
Higher education	Yes	55%	38%	7%	76%
	No	44%	48%	8%	
Industry	Yes	7%	63%	29%	42%
	No	4%	84%	12%	
Research organization	Yes	39%	49%	12%	54%
	No	5%	83%	12%	
Other	Yes	37%	51%	11%	44%
	No	3%	87%	10%	

Source: IDEA Consult (FP6 participation survey)

6.10 EC Administration

This last section contains some remarks concerning the administrative part of FP6. It deals with success factors for project execution and outcome, improvements areas for proposal writing for the control group, and the participants' satisfaction with the programme.

Respondents were asked to consider 21 potential factors on a scale from 1-5 (very low to very high importance): first, they judge it as a general success factor for the execution of a FP6 project, and second, how this factor affected the outcome of the project.

Table 15: Success factors

Factor analysis	Factor	General importance	Effect on project outcome
Partnership coherence and ambition	Communication between partners	4,37	4,07
	Goal specification	4,11	4,02
	Complementarity partners' goals	4,06	3,94
	Ambition of goals	3,93	3,85
Interest levels	Partners' interest level	3,73	3,68
	Own interest level	3,56	3,61
	User communities' interest levels	3,53	3,66
Capabilities	Partners' technical capabilities	3,88	3,89
	Own technical capabilities	3,84	3,92
	Own managerial capabilities	3,68	3,72
	Partners' managerial capabilities	3,65	3,56
	Partners' exploitation capabilities	3,43	3,52
	Own exploitation capabilities	3,36	3,54
EU non-financial support	Technical understanding of EU officials and reviewers	3,88	3,71
	Administrative capabilities of EU officials	3,72	3,51
	Adequacy of complementary EU support measures	3,45	3,40
Resources	Availability of suitably qualified personnel	4,07	3,89
	Knowledge of partners before the start of the project	3,87	3,94
	Availability of state-of-the-art technological equipment	3,78	3,85
	Availability of additional sources of finance	3,60	3,63
	Process of agreeing Intellectual Property right arrangements	3,18	3,33
Isolated factor	Restructuring or strategic shifts within one the project partners	3,21	2,98

Source: IDEA Consult (FP6 participation survey)

Table 15 gives an overview of these scores, showing that all scores but one are above 3.

Comparing these results with those of FP5 some differences can be observed. Technical capabilities of own organization and partners, or own interest levels and own management capabilities seemed to be more important success factors in FP5 than FP6. On the other hand, availability of suitably qualified personnel, the ambition level of project goals and the technical understanding of EU officials seem to matter more in FP6 than FP5.

Table 15 also shows the outline of the factor analysis that was performed on basis of the scores for all factors. The factor analysis discerns 5 underlying factors, labelled by the evaluator. For these 5 factors, weighted averages were calculated as well. These averages provide a better overview of the importance of the factors. The weighted average for instance show that the 'coherence and ambition of the partnership and the project goals' are more important than 'capabilities' and 'resources' (Table 16)

Table 16: Factor analysis success factors

	General importance (weighted average)	Effect on project outcome (weighted average)
Partnership coherence and ambition	4,12	3,97
Resources	3,72	3,75
EU non-financial support	3,69	3,55
Capabilities	3,64	3,69
Interest levels	3,61	3,65
Isolated factor	3,21	2,98

Source: IDEA Consult (FP6 participation survey)

Main technical learning points can be classified as knowledge acquisition and access to technology

Management learning points are:

(i) balance in partnerships is needed along different dimensions: (i) size e.g., do not combine a giant (partly national) company with an SME from another country, (ii) total number of partners, (iii) complementary expertise

(ii) international communication with partners

We questioned the industrial interviewees specifically on the flexibility of FP6. The opinions were divergent. The flexibility depends on the responsible project officer. Most of the interviewees thought that the process to induce some changes to the project was quite effective. Others mentioned the delay in the decision making which makes it rather difficult to react to emerging needs.

Overall, around 50% of the control group indicates it has actually learnt from the rejection on how to improve their next project proposals. This group had to indicate to what extent they would be able to improve a number of areas in the next proposal. However, none of these are important improvement areas, and only 'project goal', 'proposal approach' and 'proposal organization' scored significantly above 3 (Table 17).

Table 17: Improvements areas

	CG1	CG2	comparison with success factors in experimental group
Project goal specification	3,24	3,24	4,11
Proposal approach	3,17	3,18	N/A
Organization of the work in the proposal stage	3,13	2,89	N/A
Complementarity of partners' goals	3,08	2,91	4,06
Interest level within user communities	3,06	2,98	3,53
Managerial setting of the proposal	3,06	2,94	N/A
Technical quality of the proposal	3,03	2,97	N/A
Content of the proposal	2,99	3,01	N/A
Ambition level of project goals	2,95	3,03	3,93
Interest levels within partner organizations	2,86	2,81	3,73
Effective communication between partners	2,81	2,78	4,37
Financial quality of the proposal	2,79	2,88	N/A
Interest levels within own organization	2,68	2,62	3,57

Source: IDEA Consult (FP6 participation survey)

Last, the coordinators from both the experimental and the control group were asked for their satisfaction with various administrative aspects on a 1-5 scale (Table 18). The scores for *the experimental group* were all around 3 or above with the top positions taken by 'dissemination of FP6 information', 'support and advice for applicants', and 'transparency of the call process'. Limited satisfaction was recorded for certain administration elements like 'speed of payment', 'speed and efficiency of contract procedures', and 'financial reporting requirements, repeating the FP5 results.

FP6 participants were also asked whether satisfaction levels with each element changed since FP5. While the majority of them stated that they remained the same across all elements there were certain cases where significant shares concentrated in the 'edges' ('more satisfied' and 'less satisfied'). FP6 clearly gained ground against FP5 in terms of 'dissemination of information', 'support to applicants' and 'range of instruments available'. Satisfaction with all the other elements increased for around 25% of the respondents, while the less appealing elements ('speed of payment', 'speed and efficiency of contract procedures', and 'financial reporting requirements) attracted a share >10% that was *less satisfied* in FP6.

This comparison indicates that improvements have been made regarding certain elements related to support and dissemination services, the range of instruments available and flexibility in project composition, as well as to the call and evaluation processes. However, some issues related to payment and contract procedures still need attention.

As expected, the control group of rejected proposals is generally less satisfied, but this does not mean that their low(est) satisfaction rates for 'transparency of the project evaluation and selection' and 'feedback from the EU on the reasons for not accepting your proposal' can simply be disregarded. Also in these areas some steps forward can be made.

Table 18: Satisfaction levels

Satisfaction with the following aspects		Evolution compared to FP5		Control group	
		% Less satisfied	% More satisfied	CG1	CG2
Dissemination of information about FP6	3,77	1%	39%	3,22	3,47
Support and advice for FP6 applicants	3,68	2%	42%	2,93	3,28
Transparency of the call process	3,58	5%	26%	2,90	3,09
The range of instruments available	3,51	6%	42%	2,95	3,18
Transparency of the project evaluation and selection	3,42	6%	25%	2,34	2,67
Scientific reporting requirements	3,40	8%	25%	N/A	N/A
Speed of the project evaluation and selection	3,36	4%	25%	3,00	2,97
Value added of project negotiation	3,27	7%	20%	N/A	N/A
Speed of the call process	3,25	4%	27%	3,11	2,93
Speed of payment	3,10	11%	24%	N/A	N/A
Speed and efficiency of contract procedures	3,01	10%	25%	N/A	N/A
Financial reporting requirements	2,94	18%	25%	N/A	N/A
Feedback from the EU on the reasons for not accepting your proposal	N/A	N/A	N/A	2,27	2,51

Source: IDEA Consult (FP6 participation survey)

7 CONCLUSIONS

This concluding chapter contains three sections. First, the main findings of the study based on the survey answers. These findings are classified by themes. The overall conclusion of the study, the impact of the research activities, is described in section 7.2. Recommendations are included in section 3.

7.1 Main findings

Respondents' profile

- Like in FP5, the average FP6 participant is working in a large academic organization, mostly higher education with high to very high R&D capabilities.
- Participation of industry in FP6 is relatively limited (16% of respondents).
- FP seems to increasingly attract organizations reporting high to very high R&D capabilities as the share of participants with high R&D capabilities has increased from 60% in FP5 to 80% in FP6.
- There is a clear male dominance in FP6 as 80% of the participants are male but there is no proof of biased selection as this percentage is similar in the group of rejected applicants.

Projects' profile

- The average research project funded under FP6 can be characterized as *long term, strategically highly important, about technically highly complex R&D in a core technological area* of the organization. On the other hand it is of *low cost, relatively low commercial and technical risk and more applied* than basic research. Although it is *tightly linked with other in-house projects*, it is mainly considered *only feasible with external collaborators*. These characteristics appear to be similar to FP5.
- Compared to FP5 projects, FP6 projects are more long-term (long-term nature of research), in line with FP6 orientation, but less in the core technology area of organizations, and thus of relatively lower strategic importance and with fewer links with other in-house projects.
- Industrial organizations assess their projects as being more applied, but also more risky (technically and commercially) than other organizations. Performing R&D is always a risk for industry, as the commercial revenues are unclear.

FP participation

- FP6 includes a steady group of participants as one third of the respondents participated in at least 3 FPs (FP5 to FP7) and more than half of the respondents (55%) participated in FP5 and FP6.
- Half of industrial organization has only participated in FP6, and are thus less experienced. Higher education organizations form a group of more "regular clients".
- Neither FP5 nor FP6 shows evidence to suggest domination by any 'closed member club'. However, in both FPs the largest numbers for both applications and successful applications in the next FP belongs by far to the experienced participants (participants in the previous FP).

- Participating in previous FPs facilitate the application to next FPs. These experienced participants are also more successful in their application process.
- Rejection of FP6 does not lead to exclusion of FP. Almost one third of rejected FP6 appliers are already conducting an FP7 project.

Additionality

- Six projects out of 10 were abandoned after the rejection of their FP6 proposal (*full additionality*), another third were adapted (*partial additionality*).
- The more strategic a project, the less likely it is to be abandoned.
- *Programme additionality* (additionality of strategically important projects) remained stable over FP5 and FP6: of the projects with high strategic importance 55% are cancelled and 38% are only continued with changes. However the share of strategically important projects is decreasing in comparison with FP5.
- We noticed a double shift from FP5 to FP6: i) from 'no additionality' to 'partial additionality' for projects of low strategic importance and ii) from 'full additionality' to 'partial additionality' for projects of medium strategic importance.
- The 'behavioural additionality' aspects have remained largely the same. FP6 respondents confirmed results from previous surveys concluding that FPs usually enable projects to be carried out with better features such as more partners (especially international ones), more ambitious objectives, longer time scales and extra, mainly international, funds, in the absence of which participants mainly turned to national / regional programme sources.
- The projects that were carried out in the absence of FP6 funding showed lower achievements in comparison with expectations than funded projects.

What did the participants get out of it?

- Participants report satisfactory *knowledge sharing* outcomes, especially for the "other ways" of expanding knowledge (e.g. development of new tools, participation in international conferences) rather than through academic results (publications, Ph.D.'s grant & award schemes).
- The *networking* objectives have mainly been achieved by means of project based networking. Effects of the projects on structural, long term oriented networking (e.g. cooperation between research and industry, business alliances) are more limited.
- Even though the participants appreciate *outputs indirectly influencing revenues* (e.g. new products, services and processes, enhanced productivity), the *outputs directly influencing revenues* (e.g. patents, copyrights, licence incomes) seem to be of very low importance.
- The contribution of the FP6 programme to an *improvement of the research conditions* remains relatively constrained. FP6 projects have contributed to an improvement of the reputation, image and status of its participants but did not succeed in reducing the research barriers.
- FP6 *contributed to society* via specific support to target groups (i.e. communication of research results to relevant stakeholders, involvement of young people and of women in research), but did not directly influence policymaking.
- The new member states that joined the EU in 2004 do not assess their project outputs to be significantly different from those of older European member states. Candidate countries often report higher scores for the outputs than other countries especially for knowledge sharing and networking.

Goal attainment

- Most FP5 and FP6 participants achieved or exceeded their goals, particularly in terms of *knowledge-related goals* and *network-related goals*. Regarding the goals related to 'use of results', however, it became more evident in FP6 that achievements were generally lower than expected especially to the industrial population and even for those who considered this group of impacts / goals of high importance. Societal goals and impacts, on the other hand, do not feature among the primary ones in either FP.
- Positive correlation between goal importance at the start of the project and goal achievements is present for higher education and research organizations, but not for industrial organizations. Industry is more critical about achievements.
- Despite this critical view of industrial partners almost half of them expect commercial returns from their FP6 participation within 5 years.

Benefit for the European Society

- Better quality of life and increased employment are both general societal objectives stated in FP6. While most participants judged that their project contributed a better quality of life, they did not consider that they had an impact on overall employment levels.
- By means of focused priorities FP6 seems to better achieve certain objectives. Activities under the priority focused on sustainable development (thematic priority 6) and under the priority nanotechnologies and -sciences (thematic priority 3), seemed to have an impact on environment and on the sustainable use or production of energy. Participants in projects related to aeronautics and space (thematic priority 4) claim they contributed to environment. Life sciences' projects state impacts on healthcare.
- If progress on a certain objective is desirable (such as sustainable use and production of energy), explicitly formulating a priority/objective for it, seems essential. Working towards a well-defined objective determines part of the impact of the programme on that objective.

Sustainability

- There are high individual learning effects for future projects.
- FP6 encourages new partnerships more than FP5. A large majority of respondents (more than 80%) will continue to collaborate with at least one new partner after the project. Both FPs have strengthened existing linkages between organizations.
- The FP6 survey demonstrates that projects are integrated into a continuous stream of R&D. The great majority of FP6 projects built on past research either in-house or under national/regional programmes, and are most likely to continue in-house, under the FP or national/regional programmes.
- Employment effects vary according to the type of organizations considered: even if the majority of them hire new staff to conduct a FP6 project, higher education organizations seem to generally have a higher staff turnover. Research organizations on the other hand, only experience difficulties to keep their additionally hired staff. The picture for industry is more positive, as 93 % of them report stability or even positive staff evolution (for 30%) after the project.

EU administration

- The 'coherence and ambition of the partnership and the project goals' are more important than 'capabilities' and 'resources'. These success factors are also similar across FP5 and FP6
- For the group of rejected applicants, learning effects for future proposals is moderate.
- Satisfaction with the organization of the programme has generally increased in comparison with FP5. Improvements are perceived regarding support and FP information dissemination services, the range of instruments and flexibility in project composition, as well as the call and evaluation processes.
- Some other areas like setting up projects, or acceptance of proposals seem to have worsened especially for the new instruments in FP6.
- Financial reporting requirement remains a critical issue for FP6 participants.
- Dissatisfaction of participation with programme implementation and administration still remains in areas like payment and contract procedures.

7.2 What was the impact of the research activities under FP6?

In chapter 2 we presented the theoretical hierarchy of objectives and effects we developed in order to evaluate the achievements of the 6th Framework Programme.

In this section we present the extent to which these objectives have been reached. We use the findings we presented in this report to measure the impact research activities completed under the 6th Framework Programme¹⁷.

Box1: Approach

In order to evaluate to which extent FP6 reached its strategic objectives, we followed a double approach:

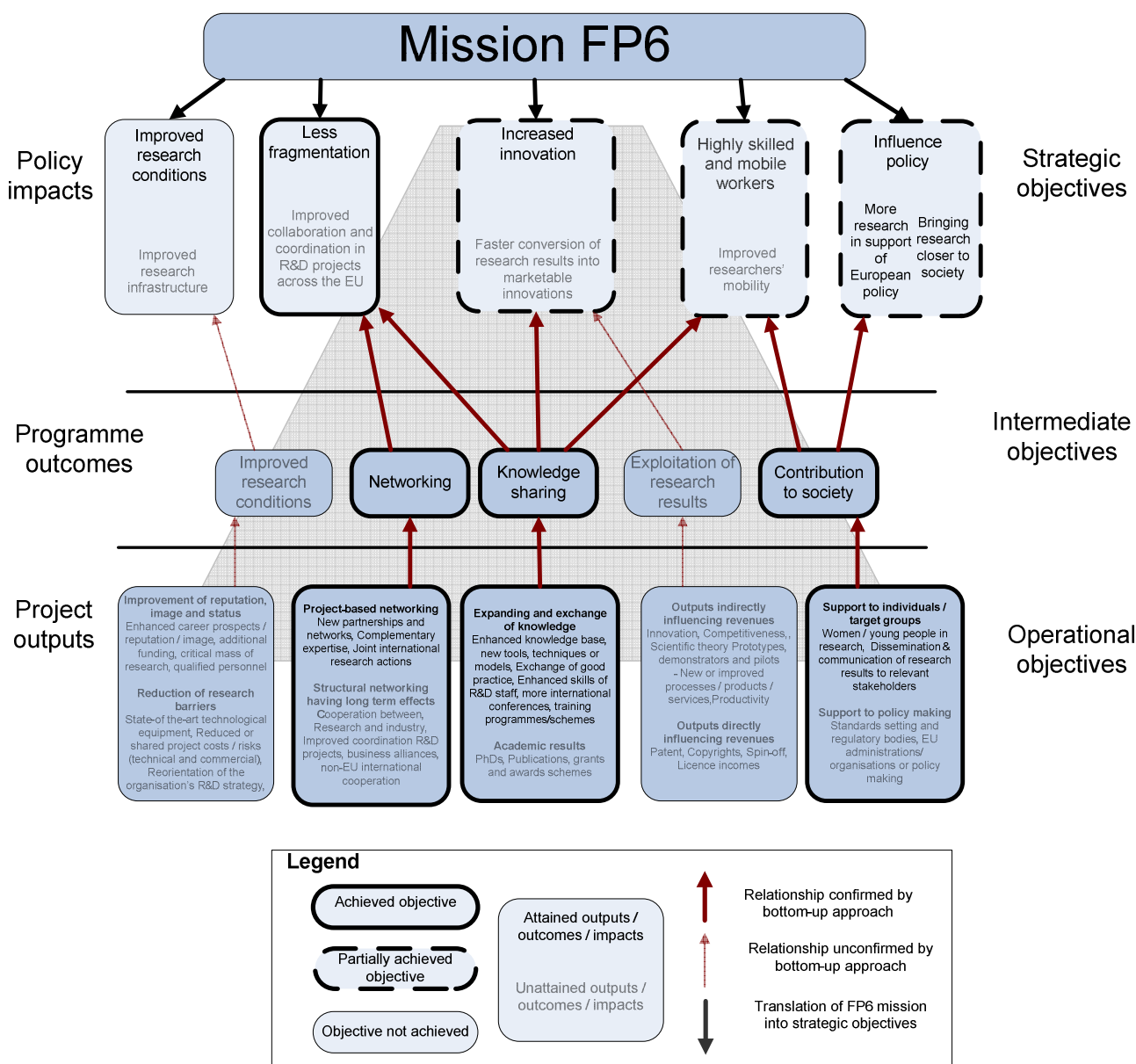
*- A "**bottom-up**" approach in which we questioned the FP6 participants on the outputs delivered by their FP6 projects assessing the success of the FP6 operational objectives.*

Aggregating the outputs results reported by the participants, we estimated the success of the intermediate objectives we identified for FP6.

Using the relationships between intermediate and strategic objectives we assessed which of the FP6 strategic objectives were met.

*- The "**top-down**" approach was used to confirm the results of the bottom-up approach by questioning the project's coordinators directly on the contribution of their projects to the FP6 strategic objectives.*

¹⁷ We consider an achievement to have been reached, if the aggregate scores given by the survey respondents is higher than 3,3 on a scale of 1-5 (negative to positive)



Starting from the project outputs, we observe that the operational objectives that seem to have been met are the following: i) an improvement of the project-based networking; ii) an expansion and an exchange of knowledge and iii) an improved support to individuals and target groups.

Using the reported achievements of the project outputs (see *What did the participants get out of it?*), we conclude that the programme at least partially fulfilled the following intermediate objectives: **networking, knowledge sharing and contribution to society**.

According to the bottom up approach in questioning the participants on their project outputs, combined with the "top-down" approach, we conclude that one of the strategic objectives of FP6 was fully attained: **Less fragmentation**. This objective was **achieved** through satisfactory project results in *networking* and *knowledge sharing*. And these findings are confirmed by the "top-down" approach as the coordinators appraise their project as contributing to *improved collaboration and coordination in R&D projects across the EU*.

Three strategic objectives were **partially achieved**: Increased innovation, highly skilled and mobile workers and influencing policy.

FP6 did not fully succeed in increasing innovation. Both knowledge sharing and the exploitation of research results contribute to an increased innovation. However, the achieved results on this last component remain limited. Coordinators corroborate this diagnostic by giving a relatively low score to faster conversion of research results into marketable innovations. This indicates that even if innovation is indirectly stimulated, the translation of innovation into marketable outcomes is less obvious.

FP6 only indirectly contributed to highly skilled and mobile workers through the achieved knowledge sharing and support to specific target groups. But the coordinators stated that their projects only moderately improved researchers' mobility.

The influence on policy making of FP6 is rather limited. Even if coordinators consider their projects to bring research closer to society and report conducting research in support of European policy, the "bottom-up" approach shows that although FP6 succeeded in supporting individuals or target groups, it did not actually influence policymaking.

The programme seems to have had no impact on improving the research conditions. The outputs at project level in this area are very limited. This result is confirmed by the coordinators who do not believe that their project contributed to improved research infrastructure.

7.3 Recommendations

7.3.1 *General recommendation*

The FP5 Five Year Assessment Panel made 10 recommendations for future Framework Programme(s). One of these recommendations was: *A clearer vision of priorities and objectives of the programme, with a better focus at the overall priority level and reduced specificity at individual programme level.*

The Commission responded¹⁸ to this recommendation by taking it into consideration in preparing FP7. The vision underlying FP7 took the form of: (i) the 'Europe of Knowledge' conception, expressed through the triangle of education, research and innovation and (ii) the 'Building the ERA of knowledge for Growth' which was the subject of a separate Communication accompanying the Framework Programme proposals.

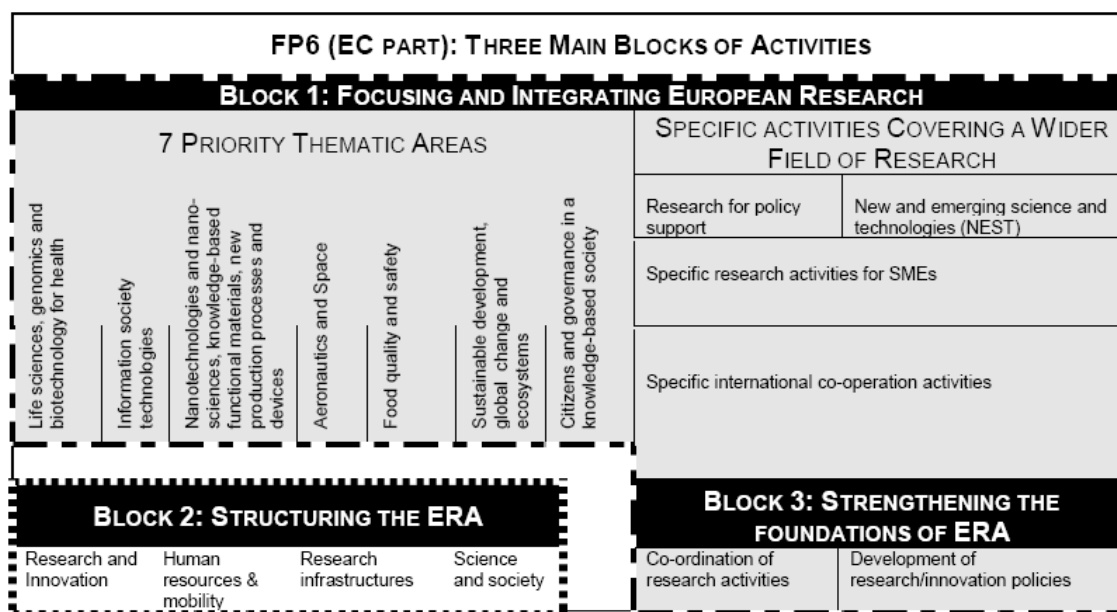
The main focus of FP6 was the creation of a **European Research Area (ERA)** as a vision for the future of research in Europe. It aimed at scientific excellence, improved competitiveness and innovation through the promotion of increased co-operation, greater complementarity and improved coordination between relevant actors, at all levels.

However, the way FP6 is presented to the research community conveys FP6 as a quite complex programme. More specifically, we think for example of the presentation of FP6 as consisting of three main blocks of activities grouped in two

¹⁸ The Commission's response to the total of the recommendations made are at: http://ec.europa.eu/research/reports/2004/fya_en.html

specific programmes along with a third specific programme on nuclear research (Euratom).

Table 19: The three main blocks of activities in FP6



— — — Specific Programme "Integrating and Strengthening the European Research Area"

..... Specific Programme "Structuring the European Research Area"

Source: The 6th Framework Programme in brief, EC, December 2002 edition

The two specific programmes: *Integrating and strengthening the ERA* on the one hand, and *Structuring the ERA* on the other hand, both still present a wide **variety of objectives** at different levels. Nevertheless these objectives are close to each other and some objectives (e.g. involvement of SMEs, of young researcher and women) could be labelled as horizontal or cross-cutting. Such way of presenting the programme and its objectives induces a perception of complexity, and greatly reduces transparency of expectations towards the participants.

Therefore, we have first attempted to structure all the objectives into a **hierarchy of objectives** (see Figure 2 and especially Table 21 in Annex 2). This structure has made the strategic objectives that FP6 programme as a whole tried to achieve much more explicit. Additionally, such hierarchy of objectives provides clear insight into the way the project outputs theoretically play into these objectives. For instance, project outputs related to 'networking' contribute to achieving the strategic objective of 'less fragmentation'. Ultimately, in using the survey results, this structure allowed us to assess to what extent FP6 attained its strategic objectives.

Identification of such a hierarchical structure ex ante would greatly improve the transparency of the aims and mission of the Framework Programme. Explicitly **linking the operational objectives (and project outputs) via intermediate objectives to the strategic objectives using a clear intervention logic** would facilitate the achievement of the desired objectives.

Moreover, such clear intervention logic would allow for efficient, *more transparent monitoring* of progress towards the FP6 objectives (and mission).

We believe that the mitigated impacts are somehow related to the relative complexity of the FP6 programme and its objectives. This again leads us to the conclusion that the **formulation of concrete and explicit priorities and objectives within a clear intervention logic** between them is a pre-requisite for successful achievement of the mission.

7.3.2 *Monitoring recommendations*

The two databases received from the Commission are very useful sources of information for all parties interested in assessing effects and impacts of and analyzing other questions of interest about the FP programmes.

The existence of these databases for FP6 is a big step forward compared to the previous FP programmes. However, we would like to formulate the following recommendations in order to further improve the collection of data within FP6.

7.3.2.1 *Improvements, easy to implement:*

- Some quite basic and easy to register **information can be added** to better monitor the FP programmes e.g. *size* of the organizations and *gender*.
- In general it would greatly improve interpretation of the data to all stakeholders to adopt throughout the different databases the **same convention for different variables**. An example is the binary yes/no variable. In some cases it is coded using a Y/N convention while in other cases it is coded using -1 for yes and 0 for no. It would be easier to always use the same convention such as 0 for no and 1 for yes.
- Numerous structural mistakes and double ID occurrences in the **participants' ID numbers** complicated the counting of the number of institutions (see Inception Report, page 30). Correcting these mistakes and establishing a system in which they are prevented would greatly lighten and improve the monitoring efforts.

7.3.2.2 *Contracts and participants database:*

- As it is very important to know **who participated in the FP programmes**, the variable on "**nature**" of organization could be improved. It would be interesting to offer more details to the participants about the *exact definition of the "nature" of the participating institutions* (Higher education, research organization, industrial and other) and to *extend the available categories*. One third (33%!) of the sample is composed of "undefined" or "other" organizations.

Manual check of the field "nature of organization" allowed us to *re-categorize* some of the "others" (170 respondents): 26% of those can be considered as private services companies, whereas almost 33% falls under the governmental/public category. We also noticed that more than 40% of the others could be reclassified in existing categories. Proving that participants do not fully understand the existing categorization and that maybe some more options should be available.

- It would be good to clarify *the difference between an "undefined" SME status* (SMECalculated = U) and a *SMECalculated field that is empty* (~not applicable). This is certainly true in the light of the special attention of the EC to the **SME participation**.
- The variable **legal status** should be completely revised. It might be worth, with the help of legal experts, to scrutinize the *legal aspects of organizations in different Member States*.
- Some projects seem to have been **cancelled**. It would be interesting report in the database *why they were cancelled*.

7.3.2.3 Proposal database

- It would be interesting to report in the database **why some proposals have been rejected** (insufficient quality, etc.).
- It would be useful to have the information from the database of rejected on *which proposals were rejected only for administrative reasons but did pass a certain threshold (of quality) and which ones did not pass the quality threshold*.

7.3.2.4 General remarks

As already mentioned, the existence of these databases for FP6 is a big step forward compared to the previous FP programmes. The databases contain however quite rudimentary (input) information on the implemented projects and can, as of today, not be considered as a monitoring instrument to follow up the FP6 programme implementation. A monitoring instrument designed to follow-up the implementation of a certain policy should be linked, with a clear intervention logic, to the (hierarchy of) objectives of the policy under evaluation.

Our past monitoring and evaluation experience shows that defining the required information (variables, indicators) is only one of the necessary steps to reach a transparent and uniform monitoring system. It is, furthermore crucial to provide a well-defined unique interpretation framework for each of the selected variables and, last but certainly not least, to fully embed the monitoring system into all processes.

We conclude that, in order to better assess the effects and impact of the FP programmes, it is necessary:

- a) To conduct an overall exercise on **what information is needed to** answer the question currently posed about FP programmes and subsequently;
- b) To (further) develop the **required monitoring system** for it.

ANNEX 1 TO WHAT EXTENT DID THE FINDINGS FROM THE EX POST EVALUATION STUDY ON FP5 AFFECT THE SET UP OF FP6?

The recommendations made by the FP5 Five Year Assessment Panel¹⁹ were taken up to various degrees and in various ways. It has to be reminded that the FP5 Five Year Assessment exercise took place two years into FP6. Thus, most of the recommendations were taken up in preparing FP7 rather than the immediately following FP6. This section assesses the extent to which the recommendations formulated in the FP5 participant survey report and the five year assessment panel report were taken into account for the design of FP6 and FP7.

1 Response to recommendations made in the FP5 Participant Survey report

The FP5 participants' survey²⁰ report made the recommendation to ensure that proposal selection criteria adequately reflected those important 'nature of research' and 'success factor' variables associated with successful outcomes and high benefit/cost ratios. These essentially included:

- The presence in proposals of clearly specified and ambitious project goals, combined with the complementarity of partners' objectives
- Evidence of sound technical, managerial and exploitation capabilities within partnerships
- Projects of high strategic importance, tightly linked with projects in core technology areas.

The FP6 Rules for Participation²¹ published in 2002 had already given attention to ensuring clarity and ambition levels of objectives in the FP6 proposals' evaluation criteria (Article 10), the latter especially for integrated projects. Adequate weight was also given to the partnerships' capacities in terms of project implementation and management as well as dissemination and exploitation of results. Similar evaluation criteria were retained in FP7.

Thus, rather than a signal that a radical change was necessary these recommendations confirmed that the evaluation criteria already set for FP6 were in the right direction.

The degree to which projects are considered strategically important and in core technology areas for their organizations is not seen as an evaluation criterion either in FP6 or FP7 Rules for Participation. However, examining the criterion about capacities and interest of the partnership, intention for dissemination and

¹⁹ It has to be noted here that the FP5 Participants' Survey was only one of the several inputs that the Panel took into consideration for preparing their report and consequent recommendations. The total of the studies that the FP5 Five Year Assessment Panel considered are at http://ec.europa.eu/research/reports/2004/fya_en.html

²⁰ Assessment of the impact of the actions completed under the 5th Community Research Framework Programme; survey for the Five Year Assessment of Community research activities (1999-2003)', 2004, http://ec.europa.eu/research/reports/2004/pdf/fp5_ia_1_en.pdf

²¹ Regulation (EC) No 2321/2002 of The European Parliament and of The Council of 16 December 2002, http://ec.europa.eu/research/fp6/index_en.cfm?p=0_docs#rules

use of the project results as well as the potential impact envisaged provides some insight into the strategic importance.

Furthermore, the degree to which a project has to be strategically important to be funded by the FP, and thus using this as an explicit evaluation criterion, has to be treated with caution. This potential criterion may jeopardise the additionality of the programme, as projects considered of very high strategic importance and in the core area of the organization are more likely to be carried out even without FP funding. In addition, setting such a condition as an evaluation criterion has to be in line with the purpose and objectives of the programme and may be more appropriate to apply in the case of certain programme priorities rather than the programme as a whole.

2 Response to recommendations made in the FP5 Five Year Assessment Panel Report

The FP5 Five Year Assessment Panel²² confirmed that the EU's Research Framework Programmes had played an important part in developing a European knowledge base, correcting some of the deficiencies of European R&D and bridging the gap between research and innovation. Indeed, they found that funding at European level gave significant added value over and above national research investment.

A similar statement about the general achievements of the FP was also made for FP6. The ex-post evaluation for FP6²³ concluded that FP6 was a powerful mechanism for catalysing RTD in Europe that could only be realised through action at the European level. The Expert Group believed that the activities under FP6, especially its core thematic priorities that constitute 65% of its total expenditures, have generated European Added Value (EAV). This EAV generally contributed to increased industrial competitiveness, generated network externalities, and strengthened the knowledge infrastructure in Europe.

On a less positive note, the FP5 Five Year Assessment Panel noted the more modest success of FP5 in terms of direct contribution to innovations with the potential to deliver dominance at global markets. However, the panel also acknowledged that evaluations and impact studies are generally conducted too early for major economic impacts to be evident. Moreover, it was pointed out that the production of specific innovations had never been the core focus of the Framework Programme. The core focus had been the strengthening of the European research system as a whole. In this structural role the achievements of the Framework Programme were considered very important. Such concerns were not remedied in FP6. FP6 was successful only to a limited extent in bringing the new knowledge all the way to the industrial sector, as the Expert Group noted in their report.

The FP5 Five Year Assessment Panel made 10 recommendations for future Framework Programme(s), which were proposed by the Commission later in 2005. Below, we assess the progress on each of these recommendations:

²² Five Year Assessment 1999-2003, http://ec.europa.eu/research/reports/2004/fya_en.html

²³ FP6 Ex-post Evaluation - Report of the Expert Group
<http://ec.europa.eu/research/index.cfm?lg=en&pg=reports>

1. *A clearer vision of priorities and objectives of the programme, with a better focus at the overall priority level and reduced specificity at individual programme level.*

The Commission responded²⁴ to this recommendation by taking it into consideration in preparing FP7. The vision underlying FP7 took the form of: (i) the 'Europe of Knowledge' conception, expressed through the triangle of education, research and innovation and (ii) the 'Building the ERA of knowledge for Growth' which was the subject of a separate Communication accompanying the Framework Programme proposals.

Concerning the recommendation to reduce the specificity at individual programme level, the Commission considered the focus of individual programmes already to be at a sufficiently broad level.

2. *Emphasis on the promotion of European leadership in science and technology at global level by promoting excellence in research, longer-term research agendas, and more emphasis on radical innovation and risk-taking research.*

The FP5 Five Year Assessment Panel acknowledged that FP6 had encouraged risky research through the implementation of the NEST programme. However, they regarded this approach rather narrow and prompted for encouraging high-risk research in all thematic priorities along with the support of long-term RTD. This ambition should be embedded in the Framework Programme objectives, instruments and implementation as well as in the assessment of achievements and impacts²⁵. In response to this recommendation the Commission collated the creation of the European Research Council, the reinforcement of the role of the NEST programme in FP7, and some indirect R&D supporting measures of a more general nature (fiscal incentives, changes in IPR, etc.).

3. *More industry involvement, especially for high-tech small- and medium-sized enterprises.*

Industrial and SME participation has been a subject of particular attention across all FPs. The FP5 Five Year Assessment Panel felt that the Programme had over the years expanded its scope by a number of socio-economic objectives, deviating from the original target of the Framework Programme to strengthen European competitiveness. This might have inadvertently decreased the industrial focus of the programme. Thus, they stressed that industrial participation should be raised and high-tech SMEs should be able to find direct participation more attractive. Concerns about a decreasing attractiveness of the FP for small organizations and SMEs were expressed in the FP5 participant survey report and repeated in following FP6 studies like the Marimon Report²⁶.

The response of the Commission related to industrial participation took the form of Technology Platforms and Joint Technology Initiatives that were established, and designed to deepen and widen the scope of industrial participation by

²⁴ The Commission's response to the total of the recommendations made are at: http://ec.europa.eu/research/reports/2004/fya_en.html

²⁵ Five Year Assessment Report 1999-2003, http://ec.europa.eu/research/reports/2004/fya_en.html

²⁶ Marimon Report, (2004), "Mid-term Evaluation of the effectiveness of the New Instruments of Framework Programme VI.

bringing together all relevant public and private actors. The note on SME participation was taken up in FP7 by continuing and further strengthening support to R&D performing SMEs in the various thematic areas, as well as by scaling up the budget for SME specific measures and setting up the Competitiveness and Innovation Framework Programme.

While the FP6 Ex-post Evaluation Expert Group²⁷ acknowledged that European Technology Platforms (ETPs) helped stakeholders identify and explain their needs jointly, they, nevertheless, marked that low industrial as well as SME participation continued under FP6. However, they also stressed that the goal of allocating 15% of the FP resources to SME participation was rather arbitrary and that other ways to safeguard the adequate participation of SMEs in future FPs needed to be developed.

4. *A simple and robust definition of European added value.*

The FP5 Five Year Assessment Panel request for a simple and robust definition of European Added Value was met rather indirectly via the new EU governance and financial requirements. According to these requirements, the Framework Programme proposals have to be based on an in-depth ex ante Impact Assessment accompanying the proposals. This document contains a very clear analysis of the European Added Value. The proposals for FP7 followed this approach.

5. *Streamlined and simplified administration of the application procedure, management and financial control.*

Regarding programme implementation and administration, the FP5 Five Year Assessment Panel²⁸ noted that the procedures were out of balance in favour of financial control and suggested that rules should be harmonised throughout the Commission and the Framework Programme.

The panel also remarked that, although the criticisms expressed in FP5 had induced significant efforts to improve the communication, transparency, and quality of the information for FP6, there was still room for improvement on these areas.

The Marimon report criticised the extra management work and administrative burden due to the internal procedures established by project coordinators in Consortium Agreements for the sake of potential risk management reduction strategies. In addition, it recommended the use of a common information structure to avoid participants having to submit the same information more than once.

A final remark made by the FP5 Five Year Assessment Panel about programme implementation related to the negotiation process. This process suffered long delays in 'time to contract' and 'time to payment' implying that the administrative procedures and financial rules had become too complicated. The FP5 Five Year Assessment Panel stressed that despite efforts by the Commission to improve negotiation procedures, the legal, financial and administrative requirements were

²⁷ FP6 Ex-post Evaluation - Report of the Expert Group
<http://ec.europa.eu/research/index.cfm?lg=en&pg=reports>

²⁸ Five Year Assessment Report 1999-2003, http://ec.europa.eu/research/reports/2004/fya_en.html

still overwhelming. Similar concerns were repeated in the FP6 Monitoring Reports of 2005 and 2006.

Streamlining and simplifying the administration of the Framework Programme was an issue that concerned the Commission both in FP6 and in FP7. The simplification process started with the adoption of an action plan on rationalisation and acceleration of the implementation of FP6. The scope was broadened from the initial focus on instruments to covering the simplification of all aspects of submission and procedures such as management, financial control and communication.

The FP6 Participants' Survey from 2008 showed, as presented above, that the Commission efforts to improve communication and support activities seem to have been successful as elements such as 'dissemination of FP6 information', 'support and advice for applicants', and 'transparency of the call process' gained top satisfaction scores. Still, participants were dissatisfied with some administration aspects such as 'speed of payment', 'speed and efficiency of contract procedures', and 'financial reporting requirements'.

Problematic implementation and administration aspects were also still strongly highlighted in the FP6 Ex-post Evaluation Expert Group Report²⁹. The report noted that complexity and lack of timeliness in administration remained stains on the reputation of the FP and had been cited as major factors contributing to the continuing decrease in industrial interest in the FP. In far too many ways, implementation acted against achieving the objectives set for the FP. The complexities of the application and contractual procedures raised significant barriers to entry at the proposal stage, especially for first time applicants.

Thus, the FP6 Expert Group Report urged for more flexible application and contract procedures, based on a fuller, experienced-based understanding of the operations of high-performing research procedures. In their view, the administration of the FP needs radical overhaul, not incremental tinkering, and they stressed the importance of engaging external help to review the FP procedures.

Commission efforts to improve several of the above issues were continued and intensified in some cases when designing the entire legal framework of FP7. Among the means of simplification, an electronic registration desk was established, along with assessment of financial viability based on a single public list of criteria, a more extended use of lump sum financing, especially for the Networks of Excellence, removal of cost reporting models as well as simplified calculation and payments procedures of EC financial contribution³⁰. The results of these latest efforts remain to be seen.

6. *Flexibility in the selection of instruments and maintenance of the new instruments in the new FP.*

The dissemination of information regarding the new instruments was considered insufficiently clear in the early stages of the FP6, and thus called for clearer guidelines. Concerns about the implementation of the *new instruments* had been

²⁹ FP6 Ex-post Evaluation - Report of the Expert Group
<http://ec.europa.eu/research/index.cfm?lg=en&pg=reports>

³⁰ Conclusions and Response from the Commission,
http://ec.europa.eu/research/reports/2004/fya_en.html

expressed even in the early stages of FP6, in the Marimon Report³¹. This report indicated that the new instruments were not as successful in structuring the research community and institutions as initially envisaged.

On the other hand, participants had been generally very positive about the new instruments in terms of their objectives and ambition. One of their remaining principal concerns was the costs involved in submitting a proposal. The Marimon report found the costs and risks of participation in FP6 to be 'unreasonably high', and thus proposed implementing a two-step evaluation procedure which was later applied in some cases.

The 2005 FP6 Monitoring Report³² acknowledged that the Commission dedicated significant effort towards the implementation of the new FP6 instruments. The difficulties initially encountered in the definition and implementation of NoEs had been reduced. Furthermore, they welcomed the simplification of the rules of Marie Curie actions, the reduction of the 'time to contract', and the increased use of the two-stage submission and evaluation.

On the whole, the recommendation of the FP5 Five Year Assessment Panel related to more flexibility in the use of instruments and maintenance of instruments introduced under the 6th Framework Programme was clearly taken on board by the Commission as explicitly mentioned in the Communication accompanying the 7th Framework Programme proposals.

7. *Extend human resource and mobility programmes, with emphasis on mobility between the private and public sectors.*
8. *Address the issue of trust and legitimacy of science and technology, forging greater understanding of and support to science among the European public.*

Continuation and strengthening of FP6 activities in FP7 related to supporting human resources and mobility was also the response of the Commission to the relevant request of the FP5 Five Year Assessment Panel. With regard to increasing public trust, understanding and support to science the Commission noted the specific activity on Science in Society that was proposed for FP7 along with further support to initiatives aimed at engaging broad dialogue on scientific issues and research results for all thematic areas.

9. *A consultation with the main stakeholders in order to improve the IPR procedures.*

The FP5 Five Year Assessment Panel also recommended that the Commission should launch a consultation with the main stakeholders in order to improve the IPR procedures within Framework Programmes. Such consultations were indeed carried out in the preparation of FP6 as well as FP7. Furthermore, IPR provisions in the 6th Framework Programme model contract were established with a view to simplifying the rules and making them self-sustainable as well as improving their legal certainty. The Commission noted that many of the difficulties faced by

³¹ Marimon Report, (2004) "Mid-term Evaluation of the effectiveness of the New Instruments of Framework Programme VI, <http://cordis.europa.eu/documents/documentlibrary/ADS0006763EN.pdf>

³² FP6 Monitoring Report 2005, http://ec.europa.eu/research/reports/2005/pdf/final_report_monitoring_2005_response_commission_en.pdf

participants resulted from other reasons than complexity of IPR issues. In addition, the set up of the IPR-Helpdesk was marked.

10. *Systematic development of the assessment of the FP reflecting the new understanding of the interactive nature of innovation.*

The proposals for FP7 including a new evaluation approach were put forward by the Commission in response to the request for the systematic development of FP assessment. The new evaluation approach is more oriented towards outcome and impact, covering economic, social as well as environmental domains. It is based upon clear and verifiable objectives and indicators and provides a strong articulation between ex-ante and ex-post evaluation while separating three distinct tasks: (i) the monitoring of programme implementation by the Commission services, (ii) an interim evaluation carried out by science panels and focusing on research quality and effectiveness and tracking progress and (iii) an independent ex-post assessment within 2 years of its completion. The new approach also provides for new and simplified means for the collection of data thus, reducing the burden on research participants. The call for an approach reflecting the interactive nature of innovation is met by carrying out a set of evaluation studies at both horizontal and thematic level, including long-term innovation impacts, which also pays particular attention to the assessment of system-level effects³³.

The FP6 Ex-post Evaluation Expert Group³⁴ acknowledged improvement in the way evaluation of the FP was organised in recent years. However, they repeated concerns about the partial evaluation approach resulting in a significant deficit in understanding the FP effects over time and in the wider context (including institutions; disciplines and technologies; industry; society at large; policy). In addition, they repeated the FP5 Five Year Assessment Panel recommendation that public accountability of the FP should be increased through clear procedures and access to information at all stages and, where appropriate, through open access to the research results.

3 Conclusions

The recommendations made in the FP5 Participants' Survey report to ensure that proposal selection criteria reflected certain important 'nature of research' and 'success factor' variables were more of a confirmation that the FP6 evaluation criteria were already set in the right direction rather than a signal that a radical change was necessary.

The FP5 Five Year Assessment Panel noted the significant structuring role of the FP in strengthening the European research system as a whole. The recommendations of the Panel were taken up to various degrees and in various ways. It has to be reminded that the FP5 Five Year Assessment exercise took place two years into FP6. Thus, most of the recommendations were taken up in preparing FP7 rather than the immediately following FP6.

³³ Conclusions and Response from the Commission,
http://ec.europa.eu/research/reports/2004/fya_en.html

³⁴ FP6 Ex-post Evaluation - Report of the Expert Group
<http://ec.europa.eu/research/index.cfm?lg=en&pg=reports>

The final degree of success of the different changes implemented for the remaining FP6 duration varies. Efforts seem to have been successful in simplifying certain implementation and administration aspects as well as in improving communication, information dissemination and support activities and ensuring flexibility in the use of new instruments.

Despite the numerous efforts made in relation to programme implementation and administration there is still room for improvement in relation to 'speed and efficiency of contract procedures', 'financial reporting requirements', as well as long delays in 'time to contract' and 'time to payment' and complicated negotiation procedures. Furthermore, despite efforts to increase SME participation, their share still remains low.

The Commission's response to the other recommendations took mainly the form of continuation and strengthening of FP6 related activities in FP7, as in the case of supporting human resources and mobility activities, or in the case of establishing specific activities like e.g. Science in Society. The proposals for FP7 including a new evaluation approach were put forward by the Commission in response to the request for the systematic development of FP assessment. The success of these efforts which were mainly designed and implemented in FP7 still remains to be seen.

ANNEX 2 HIERARCHY OF OBJECTIVES

Table 20: Hierarchy of objectives of FP6

Hierarchy of Objectives for FP6			
High level Strategic objective (> FP6)	Mission of FP 6	Strategic objectives	Intermediate objectives (related to the different programmes)
<p>Increase competitiveness of the European industries through RTDI (growth and jobs cfr Lisbon strategy)</p> <p>Increase sustainable development, health and well being of European citizens</p>	<p>Contribute to the creation of the European Research Area</p>	<p>Decreasing fragmentation of RTD through supporting collaboration and coordination</p>	<p>Specific programme "Integrating and strengthening the ERA":</p> <p>Promoting RTD in 7 key priority areas</p> <p>Promoting RTD that supports European policies like CAP, CFP, environment, energy, transport, health</p> <p>Promoting unconventional and visionary research (new and emerging science and technology)</p> <p>Promoting international cooperation</p> <p>Encouraging SMEs to participate in research activities</p> <p>Supporting programme coordination and joint actions conducted at national and regional level</p>
	<p>Strengthening the scientific and technological bases of industry</p>	<p>Improving the necessary conditions for European research (infrastructure, HR, mobility, regulation, networking, services, ...)</p>	<p>Promote research as a fundament of societal development</p> <p>Responding to the special needs of SMEs</p>
	<p>Encouraging international competitiveness while promoting research activities in support of other EU policies</p>		

Table 21: Link between hierarchy of objectives and hierarchy of effects

Mission of FP6		
Contribute to the creation of the European Research Area Strengthening the scientific and technological bases of industry Encouraging international competitiveness while promoting research activities in support of other EU policies		
Hierarchy of objectives		Hierarchy of effects
↑		↑
Strategic objectives <ul style="list-style-type: none"> - Decreasing fragmentation of RTD through supporting collaboration and coordination - Stimulating better integration between research and innovation and marketability - Improving the necessary conditions for European research: infrastructure, HR, mobility, regulation, networking, services, ... - Promote research as a fundament of societal development - Responding to the special needs of SMEs 	↔	Impact effects <ul style="list-style-type: none"> - Less fragmentation of research activities - Increased public and private investments in innovation - Improved research conditions (legal framework, standard setting etc) - Highly skilled and mobile researchers - More involvement of SMEs in research activities - More public policies supported by research
↑		↑

Intermediate Objectives	Outcome effects	Output effects
<p>Specific programme "Integrating and strengthening the ERA":</p> <ul style="list-style-type: none"> - Promoting RTD in 7 key priority areas - Promoting RTD that supports European policies like CAP, CFP, environment, energy, transport, health - Promoting unconventional and visionary research (new and emerging science and technology) - Promoting international cooperation - Encouraging SMEs to participate in research activities - Supporting programme coordination and joint actions conducted at national and regional level <p>Specific programme "structuring the ERA"</p> <ul style="list-style-type: none"> - Stimulate networking and interaction between the research players - Increasing knowledge sharing and transfer of knowledge - Promoting the development and the optimal use of research infrastructures in Europe - Strengthening the dialogue between research and society 	<p>Outcome effects</p> <ul style="list-style-type: none"> - Improved research conditions - Networking - Use of research results - Research for society - Knowledge sharing - Adequate distribution of research actions over different scientific areas 	<p>Output effects</p> <ul style="list-style-type: none"> - New or updated research infrastructure in Europe - Enhanced career prospects - Enhanced reputation - Access to additional funding - Establishing international cooperation - Enhanced cooperation between industry and research - Increased involvement of SME's - Joint international and transregional research actions - Development of new tools, methods and approaches - Enhanced services in support of innovation - Patent, copyrights, trademarks, registered designs,... - Development of market products - Promotion and communication actions - Studies for government institutes - Actions in order to involve young people, women and other specific target groups - Research as a support for policy making - Development of and participation in training programmes - Grant and award schemes - Organization of and participation in conferences

ANNEX 3 DISTRIBUTION OF THE TWO SUB-GROUPS

The following tables show the distribution of the e-mail addresses of the two samples (PS and BA) over different characteristics. The tables show that the two samples have similar characteristics and are thus statistically equal.

The column *sample 1+2* refers to the sample as defined in the point 0. It includes all the records that survived the selection process before the separation of the sample and the screening of the email addresses.

Criteria - organization level	Sample 1	Sample 2	Sample 1+2
SME	11,9%	11,9%	11,9%
Governmental organizations	50,1%	50,2%	50,1%
Private organizations	48,5%	48,3%	48,4%
Higher education organizations	35,5%	35,7%	35,6%
Industry organizations	17,9%	16,8%	17,3%
Research organizations	29,4%	30,1%	29,7%
EU participants	91,1%	90,9%	91,0%

Programme	Priority	Sample 1	Sample 2	Sample 1+2
Euratom	Euratom	2,6%	2,5%	2,6%
	1. Life sciences, genomics and biotechnology for health	13,3%	13,6%	13,5%
	2. Information society technologies	18,3%	17,4%	17,9%
	3. Nanotechnologies and nanosciences, knowledge-based multifunctional materials and new production processes and devices	11,4%	11,4%	11,4%
	4. Aeronautics and space	6,5%	6,2%	6,3%
	5. Food quality and safety	6,1%	6,2%	6,2%
	6. Sustainable development, global change and ecosystems	15,3%	15,2%	15,3%
	7. Citizens and governance in a knowledge-based society	3,8%	3,9%	3,9%
	Horizontal research activities involving SMEs	0,3%	0,3%	0,3%
	Policy support and anticipating scientific and technological needs	8,5%	8,9%	8,7%
	Specific measures in support of international cooperation	2,3%	2,6%	2,4%
	Support for the coherent development of research & innovation policies	0,4%	0,3%	0,3%
	Support for the coordination of activities	2,4%	2,6%	2,5%
	Subtotal		88,6%	88,7%
Integrating and strengthening the ERA	Human resources and mobility	0,6%	0,6%	0,6%
	Research and innovation	3,1%	3,2%	3,1%
	Research infrastructures	3,2%	3,1%	3,2%
	Science and society	1,9%	1,9%	1,9%
	Subtotal		8,8%	8,8%

Instruments	Sample 1	Sample 2	Samples 1+2
Coordination actions	12,1%	12,8%	12,4%
Specific actions to promote research infrastructures	0,3%	0,2%	0,3%
Specific actions to promote research infrastructures	1,9%	2,0%	1,9%
Integrated projects	28,7%	28,4%	28,6%
Network of Excellence	7,8%	8,2%	8,0%
Specific support actions	12,5%	12,5%	12,5%
Specific targeted research projects	36,6%	35,8%	36,2%

Country type	Sample 1	Sample 2	Samples 1+2
Associated Candidate	2,4%	2,6%	2,5%
Associated State	6,0%	6,0%	6,0%
EU	91,1%	90,9%	91,0%

ANNEX 4 RESPONSE ANALYSIS

Gross sample PS: this group represents all participants who had a chance to answer to the survey.

Response (net sample): participants who answered to the survey (completely and partially).

Non response: Gross sample – net sample

Criteria - organization level	Gross sample PS	Response (net sample)	Non-response
SME	11,9%	10,9%	12,0%
Governmental organizations	50,2%	52,4%	50,5%
Private organizations	48,3%	46,4%	47,9%
Higher education organizations	35,7%	36,7%	36,5%
Industry organizations	16,8%	15,7%	17,6%
Research organizations	30,1%	31,9%	28,8%

Programme	Priority	Gross sample PS	Response (net sample)	Non response
Euratom	Euratom	2,5%	2,6%	2,3%
Integrating and strengthening the ERA	1. Life sciences, genomics and biotechnology for health	13,6%	12,6%	13,8%
	2. Information society technologies	17,4%	15%	17,9%
	3. Nanotechnologies and nanosciences, knowledge-based multifunctional materials and new production processes and devices	11,4%	12,1%	11,7%
	4. Aeronautics and space	6,2%	5,8%	6,0%
	5. Food quality and safety	6,2%	7,4%	5,9%
	6. Sustainable development, global change and ecosystems	15,2%	13,8%	14,8%
	7. Citizens and governance in a knowledge-based society	3,9%	5,3%	4,1%
	Horizontal research activities involving SMEs	0,3%	0,3%	0,3%
	Policy support and anticipating scientific and technological needs	8,9%	10,6%	8,7%
	Specific measures in support of international cooperation	2,6%	2,9%	2,5%
	Support for the coherent development of research & innovation policies	0,3%	0,4%	0,2%
	Support for the coordination of activities	2,6%	2,3%	2,7%
	Subtotal		88,7%	88,5%
Structuring the ERA	Human resources and mobility	0,6%	0,8%	0,7%
	Research and innovation	3,2%	2,5%	3,1%
	Research infrastructures	3,1%	3,3%	3,3%
	Science and society	1,9%	2,3%	2,0%
	Subtotal		8,8%	8,9%

Instruments	Gross sample PS	Response (net sample)	Non response
Coordination actions	12,8%	11,9%	13,0%
Specific actions to promote research infrastructures	2,2%	2,6%	2,3%
Integrated projects	28,4%	25,2%	28,5%
Network of Excellence	8,2%	6,9%	8,5%
Specific support actions	12,5%	12,9%	11,6%
Specific targeted research projects	35,8%	40,6%	36,1%

Country type	Gross sample PS	Response (net sample)	Non response
Associated Candidate	2,6%	3,6%	2,4%
Associated State	6,0%	6,6%	6,2%
EU countries	90,9%	89,9%	91,3%

This response analysis shows that on programme level the distributions over gross and net sample are nearly identical. Within the programme, on priority level, some slight differences appear, but this does not distort the distribution

With respect to the FP6 instruments, the analysis again demonstrates that the distributions over both samples are similar, although a few shifts appear. The instruments 'Integrated Projects' and 'Networks of Excellence' are somewhat less represented in the net sample, together approximately 5%. This is compensated by 'Specific targeted research projects', that occurs 5% more in the net sample (40%) than in the gross sample (35%).

As for the other subgroups, the distributions over country type follow the same pattern for both samples.

Overall, the distributions of the initial gross sample and the net sample of respondents largely match for all the sub-groups. Therefore, there is no problem in performing the analyses with the survey responses and results.

ANNEX 5 NON-RESPONSE ANALYSIS

Non-response analysis is essential to ensure that the results are not biased towards certain types of participants or projects. Therefore a non-response unit statistical analysis was carried out.

The non-response analysis was applied to the population that did not answer the questionnaire, i.e. to the remaining potential respondents after deducting the respondents to the survey.

The non-response analysis verifies whether response and non-response are linked with available profile characteristics like for instance:

- type of organization;
- country or origin;
- participation in different programmes and priorities;
- instruments

The results were analysed to see if the distribution of the non-respondents' population is different from the total population or to the respondent's population, and consequently if the survey results are eventually biased along any of the variables given above.

The table below provides an overview of the distributions of the subgroup over the (gross) PS sample and the non-response group. Both groups generally show the same distribution.

Table 22: Non-response analysis organization characteristics

Criteria - organization level	Gross sample PS	Non-response
SME	11,9%	12,0%
Governmental organizations	50,2%	50,5%
Private organizations	48,3%	47,9%
Higher education organizations	35,7%	36,5%
Industry organizations	16,8%	17,6%
Research organizations	30,1%	28,8%

Source: IDEA Consult

The conclusions of the response analysis are also valid for the non-response analysis. Both groups show similar patterns. An extended overview of the different characteristics can be found in Annex 4.

ANNEX 6 INTERVIEW QUESTIONNAIRE

Participation survey 6th Framework Programme

Interview questionnaire

This is a proposition of topics to be discussed for the telephone interviews between ... (Idea Consult) and ... an (industrial) participant of FP6.

Background project

- Could you please describe shortly what the content and the aims of the project were? What were the key characteristics of the project?
- Is it typical or a-typical of the research activities that you perform?
- To what extent and in what way does the FP6 project fit into your organization's (short-term and) long-term strategy?

Motivation to get involved

- How did your organization get involved in FP6 and this particular project? Information trajectory?
- What was the overall motivation to get involved?
- What were the main objectives/expectations for your organization at the moment you got involved?
- What concrete results/benefits did you expect? (knowledge sharing, networking, improving research conditions, use of research results, creating societal impact, commercial returns)

Project outcomes and results

- Could you describe some of the outcomes of the project?
- In what way these outcomes are/can be of use:
 - o For your research team?
 - o For your organization?
 - o For your sector?
 - o For society?
- What results have you achieved today?
- What results, based on the outcomes of the project, do you expect to achieve in the near future (within 2 years).
- From the survey results (610 industrial organizations) we learnt that
 - o Enhanced potential for innovation
 - o Enhanced competitiveness
 - o Development of prototypes
 - o New products and new services

are important results for industrial organizations.

However, outputs producing commercial returns (e.g. patents, copyrights, registered designs, licence incomes) seem not important. Similarly, increased turnover, profitability, market share, are not so important.

Why? What is your opinion on this?

- Were the outcomes of the project in line with your expectations?
- Overall, were the benefits of participation greater or less than the costs involved (see questionnaire)? Why?
- Are you planning new projects in line with or building further on this FP6 projects (see questionnaire)? Possibly in FP7?
- To what extent are/would be the same organizations (partners) involved in this project?

Role in the project

- How was the development/writing of the project proposal organised?
- To what extent was your organization involved in the proposal preparation?
- Did this process take place according to expectations?
- What did you learn from the proposal phase (for writing future proposals, for project execution, ...)
- How was the workload in the project distributed?
- What was the exact role of your organization in the project?
- Did your organization have any specific tasks to perform?
- Could you specify the (financial/human/other) resources your organization put into this project?
- How does this relate to the other involved organizations (partners)?
- In what way were the partner organizations in the project complementary to your organization? Which capabilities did they add to yours?

Your opinion on the FP6 programme

- What are the (dis)advantages of the EU FP compared to other national/international research funding programmes?
- Do you think that the programme responds well to the specific needs of industry? Why (not)?
- Did the FP6 programme provide sufficient flexibility to react to emerging needs/challenges?
- Did the programme have sufficient operation resources in order to fulfil the mission and achieve the objectives? (Total EC contribution FP6 programme: €16,7 billion)

Closing questions

- What are the main learning points from the project and its results for your future activities (e.g. technology, management experience, equipment, other?)
- What are the overall effects of participating in FP(6) for you?
- What are the three main reasons why FP6 is useful for you?
- Additional comments/remarks?

ANNEX 7 BIBLIOGRAPHY

During this project we used information coming from previously developed questionnaires and literature concerning European Community Framework Programmes.

The first reference document used is the decision of the European Parliament and of the Council (L 232/26 29.3.2002) concerning the 6th Framework Programme of the European Community for research, technological development and demonstration activities, contributing to the creation of the European Research Area and to innovation (2002 to 2006). In addition to this legal text we also used the brochure "the 6th Framework Programme in Brief" edited by the European Commission.

Other references concerning the 6th Framework Programme include:

- *Introduction to the instruments available for implementing the FP6 priority thematic areas,* http://ec.europa.eu/research/fp6/pdf/instruments_150703.pdf
- *What is FP6: Activity Areas,* <http://cordis.europa.eu/fp6/activities.htm>
- *FP6 Final Review: Subscription, Implementation, Participation,* (Brussels, June 2008), <http://ec.europa.eu/research/reports/2008/pdf/fp6-final-review.pdf>)
- *Monitoring Report 2005:* http://ec.europa.eu/research/reports/2005/pdf/final_report_monitoring_2005_response_commission_en.pdf
- *FP6 Ex-post Evaluation - Report of the Expert Group,* <http://ec.europa.eu/research/index.cfm?lg=en&pg=reports>

Other documents referring to previous Framework Programmes were also used. This includes:

- Ormala E. and Vonortas N. S. , *Evaluating the European Union's Research Framework Programmes: 1999–2003*, Science and Public Policy, volume 32, number 5, October 2005, pages 399–406, Beech Tree Publishing, 10 Watford Close, Guildford, Surrey GU1 2EP, England

This paper summarises the main findings of the latest five-year assessment of the European Union Research Framework Programmes over the period 1999–2003.

- Guy K., Amanatidou E. and Psarra F., *Framework Programme 5 (FP5) impact assessment: a survey conducted as part of the five-year assessment of European Union research activities (1999–2003)*, Science and Public Policy, volume 32, number 5, October 2005, pages 349–366, Beech Tree Publishing, 10 Watford Close, Guildford, Surrey GU1 2EP, England

This paper reports the results of the 2004 survey to Framework Programme participants focused on goal attainment, project impacts and overall satisfaction with the programmes.

- "Five-Year Assessment of the European Union Research and Technological Development Programmes, 1995-1999", Report of the Independent Expert Panel chaired by Joan Majo, 2000.
- *Assessing the Socio-economic Impacts of the Framework Programme*, PREST, AUEB, BETA, ISI, Joanneum Research, IE HAS, Wise Guys, 2003.
- *Assessment of the impact of the actions completed under the 5th Community Research Framework Programme; survey for the Five Year Assessment of Community research activities (1999-2003)*, 2004, http://ec.europa.eu/research/reports/2004/pdf/fp5_ia_1_en.pdf

We also used the following documents:

- *The impact analysis of the evaluation of the The Austrian Industrial Research Promotion Fund (FFF)*. The study is aimed at giving a thorough description of the patterns of R&D funding by the FFF, identifying parameters which influence the provision of funds and presenting the direct, indirect and broader effects of FFF funding. This study also included a survey conducted among funded firms as well as firms, which submitted a research proposal to the FFF but were rejected.
- *More Research and Innovation - Investing for Growth and Employment: A Common Approach* {SEC(2005) 1253}, http://ec.europa.eu/invest-in-research/pdf/download_en/comm_native_com_2005_0488_4_en_acte.pdf
- *Action Plan 'Investing in Research'*, http://ec.europa.eu/invest-in-research/action/2003_actionplan_en.htm
- *Green Paper, The European Research Area: New Perspectives*, {SEC(2007) 412}
- "RTD Evaluation Toolbox", IPTS, Joanneum Research, 2002.
- Marimon Report, (2004) "Mid-term Evaluation of the effectiveness of the New Instruments of Framework Programme VI (<http://cordis.europa.eu/documents/documentlibrary/ADS0006763EN.pdf>)
- Regulation (EC) No 2321/2002 of The European Parliament and of The Council of 16 December 2002, http://ec.europa.eu/research/fp6/index_en.cfm?p=0_docs#rules

Surveys

- Survey conducted as part of the Five Year Assessment of EU Research Activities (1999-2003).
- Follow-up study for support approved in 2000 - Client survey regarding SND (Norwegian Regional Development Fund) financial support.
- A survey conducted by IDEA Consult for the Institute for the Promotion of Innovation by Science and Technology in Flanders.
- The questionnaire developed in order to assess the impact of the actions completed under 5th Community Framework Programme for Research (http://cordis.europa.eu/fp5/5yr_reports.htm)

