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Evaluation of Framework Programme 6 in Ireland

Forfás

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This report was commissioned by Forfás.

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Executive Summary

This report sets out the results of an evaluation of Ireland's involvement in Framework Programme 6, carried out by Technopolis Group. The study was contracted and managed by Forfás and was overseen by a steering group representing the Office of Science and Technology, Enterprise Ireland, IDA Ireland, HEA, IUA, IRCHSS, SFI and Forfás.

The results of the study have shown that Ireland's participation in FP6 was strong overall, and that its public and private research communities have played an active role in the Programme, deriving significant benefit as a result. FP6 was considered to be of high relevance to Irish researchers. The programme's Priority Areas and Instruments were rated as an improvement on those employed in FP5, and proved a good fit with most researchers' requirements. However, demand for participation as measured by Irish participation in proposals was lower than might have been hoped, particularly within the Life Sciences Priority Area.

Success rates within the competition were well above FP6 averages overall, and were particularly high in the Food quality and safety, Sustainable development, Research infrastructures and Euratom areas. Irish research institutes and public sector bodies enjoyed the highest success rates, while Industry's were much lower than for the other main groups of actors. Unsuccessful applicants have gained a good understanding of why their proposals were not supported, and many have taken steps to take their ideas forward through other support mechanisms or subsequent FP calls.

Irish participants were awarded a total of €199 million in FP6 funding, an increase in real terms but the same share of the total that was achieved in FP5. The share of FP6 funding awarded to Irish participants was in line with Ireland's share of GDP and its contribution to the EU budget, was significantly above its share of GNP and was very high in relation to the size of its population. Funding allocations to Irish participants were above the average amounts awarded during FP6 as a whole, driven mainly by higher than average levels of funding being achieved by Ireland's HEIs.

Participant numbers and participation levels were slightly lower in FP6 than in FP5. A combination of high success rates but falling levels of participation suggests that there is scope for further increasing demand among Irish research communities for participation in the Framework Programmes. Significant increases in national funding issued by the HEA, SFI and other agencies during the course of FP6 appear to have strengthened some actors' desire and ability to participate. However, it is clear that in other cases national funding has (understandably) diverted attention away from FP participation in the short term, with some research teams giving greater priority to the setting up of national research infrastructure and projects than to FP6 participation. It is expected, however, that the increased capacity and capabilities developed through national funding can and will strengthen participation in future Framework programmes among all groups of actors.

Irish organisations took part in all priority areas of FP6, and made use of all of the main instruments. In absolute terms participation levels and funding were highest in the Information society technologies and Human resources & mobility (HRM) areas. However, in comparison with other countries Ireland performed most strongly in the Food quality & safety, HRM, and Horizontal research involving SMEs areas.

Irish participants have played a very active role in the projects, and Irish coordination rates were well above FP6 averages. The FP6 priorities and instruments received positive ratings from participants. Irish participants expressed reasonably high levels of satisfaction with FP6 administrative processes and procedures, and the balance of opinion was that these were better in FP6 than in FP5. Irish participants made good use of the support available during FP6 and rated the assistance received very highly.

A comparison of the motives for participation in Framework and the results achieved has shown that the Framework Programmes are effective at delivering the kinds of outputs and benefits that participants have sought. The formation of new networks and the exchange of knowledge and expertise were the primary motives for participation, along with a desire to access research funding. The primary benefits came in the form of improved relationships and networks, increased knowledge and capabilities (both scientific and technological), and enhanced reputation and image. FP participation has helped to strengthen and support participants' own research strategies, enabling

them to extend their capabilities and pursue new lines of research. As a result, the benefits of FP6 participation have outweighed the costs for the vast majority of Irish participants.

The evaluation of FP6 has investigated early views on FP7, and the results are also positive, with most Irish actors considering FP7 priorities and instruments to be as relevant or of higher relevance than those of FP6. Ireland's new National Support Network (NSN) introduced for FP7 has attracted significant praise, and the research communities appear to be making good use of the support on offer. Ratings of the main service providers and the assistance received are extremely positive, and there are some early indications to suggest that Ireland's participation rates may be higher under FP7 than FP6.

Ireland's success rates are already high, and so the major challenge in the short term is to increase the extent of demand for FP participation. While the significant increases in national funding issued by the HEA, SFI and other agencies during the course of FP6 have undoubtedly helped to strengthen national RTD capabilities and capacity, it was perhaps unreasonable to expect to see an 'immediate' increase in Framework participation at the same time as the national funding was being absorbed. However, it is essential that in the longer-term, national investments in infrastructure and capabilities are used as a platform for strengthened participation in international RTD initiatives.

We therefore recommend that the national funding agencies reaffirm the importance of FP participation and ensure that all of the major recipients of national funding are aware of and take seriously their responsibilities to leverage national money against other funding sources[1]. As a priority the non-involvement of key research groups and companies in FP *proposals* should be targeted. In parallel, the national funding agencies should ensure that appropriate incentive systems are in place, which encourage and give sufficient credit for FP participation. This would appear to be most needed in the Life Sciences area where Irish participations in proposals was much lower than we might have expected.

We also recommend that the national funding agencies and their key constituents begin to develop strategies with regard to FP participation, assessing national research strengths and priorities and linking these to FP priorities and opportunities. It seems that some of the key players within the research base and the NSN already have a good understanding of where Ireland has been making the most of the available opportunities and where it has not. Such 'tacit' understanding should be underpinned by a more formal analysis, and then converted into a series of documented strategies as to how and where FP participation can be enhanced in the future. These strategies should form the basis for improved 'positioning' of the Irish research and industrial communities with respect to Framework participation, the establishment of EU partnerships and the influencing of future policy directions.

The Commission itself is moving to take more of a policymaking role, increasingly setting wider RTD priorities and agendas in cooperation with the member states. As such there is increasing 'policy space' for countries like Ireland to interact with and influence overall EU-level RTD strategies. New programming instruments provide opportunities for Ireland to take a stronger role in policy coordination and to influence more of the European agenda. The findings in this report suggest that Ireland is already beginning to play such a role, but a more concerted effort may be needed to ensure that the strategies of other actors do not crowd out Ireland's national interests. Active participation in the Joint Technology Initiatives and Joint Programming Initiatives and the negotiation of RTD agendas with other Member States is therefore essential if Ireland is to build on the recent investments it has made in its RTD base.

In addition, we make the following more specific recommendations for strengthening Ireland's participation in the Framework Programmes, most of which should be taken up by the national funding agencies through the NSN:

Increase efforts to influence and provide early warnings of FP calls, with a stronger role in 'behind the scenes' negotiations in relation to FP priorities, and with National Delegates occupying a more central role within the NSN

[1] Some national funding programmes such as the PRTLI have now set explicit targets in this regard. All successful applicants to PRTLI Cycle 4, regardless of size of award, are required to leverage 15% of the total PRTLI Exchequer investment (capital and recurrent) from non-Exchequer sources over the period of PRTLI Cycle 4 investment (this is subject to the Department of Finance's guidelines and National Eligibility Rules for Expenditure co-financed by the ERDF in 2007-2013).

Provide increased support for identifying partners and building consortia, with increased help in building links with established EU players and increased incentives for intra-Ireland collaboration, particularly where Irish participants are in a coordinating role

Provide increased levels of support from 'experienced campaigners' in reviewing draft proposals and advising on critical success factors

Encourage increased levels of participation by Irish researchers within the FP evaluation processes, in order to enable an improved understanding of how the process operates and how to maximise chances of success

Increase the use of dedicated (professional) management support, to assist in the development of proposals, drawing up of contracts, and management of large-scale projects

Improve the balance of support provision, with a better regional distribution and a greater focus on support to industry

Provide more flexible forms of financial assistance, including the option to claim travel grants retrospectively and selective provision of matched funding in strategically important areas to support FP participation

Strengthen the promotion of the support available, particularly to less established and new participants in order to ensure that the assistance is given to those who most need it

Evaluate on an ongoing basis the effectiveness of the support provision, in order to understand whether the increased investment is producing the desired results, overall and at the level of the different elements, particularly the financial supports

The current economic climate brings forth the serious prospect of ever more serious cutbacks in national funding for R&D, and it is therefore vital that the upgrading of Irish research capabilities that has been taking place over the last decade can be exploited and further developed through FP participation. The measures set out above should provide an improved basis for ensuring that this can happen.

1. Introduction

This is the final report for the Evaluation of Framework Programme 6 in Ireland, which was carried out by Technopolis.

The overall aims of the study were to assess Ireland's performance in relation to FP6, identifying the extent to which Irish organisations were involved and the benefits they have derived. The study was also asked to canvass early views on FP7 and on the new National Support Network.

Particular emphasis was placed on the relevance of FP6 to Irish organisations, the extent to which new actors engaged in the programme, the leverage from Irish research organisations in assisting other Irish actors to become involved, the added value of FP6 in contributing to national research and development and innovation output, and the suitability of support mechanism in place at national and EU levels.

The report is organised into six further sections as follows:

Section 2 describes the methodology employed in carrying out the evaluation. It begins by describing the terms of reference for the study and then sets out the methods used to carry out the evaluation

Section 3 presents the findings from our analysis of Ireland's participation in FP6. It describes the patterns of participation by Irish organisations, overall and by type of organisation, and in comparison with previous Framework Programmes. We describe the funding received, the areas of the programme in which Ireland has been involved and the instruments used, identifying the main participants that have been involved and the nature and extent of collaboration that has taken place within the projects. We also set out information on the level of demand for FP6 participation and Ireland's success rates in applying to the competition

Section 4 presents feedback obtained from Irish participants through a questionnaire survey, covering the relevance of FP6, the drivers and motives for involvement and the impact of national funding on FP6 participation. We also explore Irish partners' roles in the projects, the outputs delivered and the benefits and wider impacts of the projects. The costs and benefits of participation and participants' satisfaction with FP6 processes and procedures are also assessed. Finally we present FP6 participants' views on FP7. The results from the survey of participants is supported by information gained through interviews with key researchers, support providers and national funding agencies

Section 5 presents feedback collected from unsuccessful applicants, exploring participants' roles in relation to the unsuccessful proposals, the reasons for non-success and the fate of the unsuccessful project ideas. We also set out unsuccessful applicants' views on FP6 procedures, the impact of non-success on future participation levels and views on FP7

Section 6 presents feedback received on the support provided to Irish applicants and participants during FP6 and FP7. The use and ratings of FP6 and FP7 support is described, as are participants' suggestions for improving support provision at national level

Section 7 discusses Irish participation in the Framework Programmes within the wider EU policy context, looking at changes to the policy landscape and the implications for Ireland

In **Section 8** we summarise the main findings of the study and present our conclusions and recommendations

2. Methodology

This section describes the methodology employed by the study team during the course of this evaluation. We begin by outlining the main points of the study terms of reference issued by Forfás, which sets out the issues to be addressed by the study and the methodology to be followed. We then go on to describe the programme of work carried out by the study team and the methods employed.

2.1 Study terms of reference

In September 2008 Forfás issued an invitation to tender for the evaluation of Framework Programme 6 in Ireland, and following a competitive tendering process Technopolis was awarded a contract to carry out the study.

The terms of reference for the study set out the background to the work, indicating that FP6 was reaching its final stages, with all contracts signed and all budget commitments made, and that while not all projects were complete sufficient data was available to carry out an evaluation. Issues arising from evaluations of Ireland's participation in previous Framework Programmes were highlighted.

2.1.1 Objectives of the study

The objectives of the evaluation, following some adjustments agreed at a kick off meeting with the steering group for the study, were as follows:

To assess the added value of FP6 in contributing to national research and development and innovation output

To assess the relevance of FP6 to Irish organisations, and the extent to which new actors engaged in the programme

To assess the leverage (or lack thereof) from Irish organisations in encouraging and assisting participation in FP6

To assess the suitability for participants of support mechanisms in place at national and EU levels

It was also stated that the evaluation should determine:

The pattern of participation in FP6 by Irish organisations in terms of a range of factors, including

- The types of organisation participating
- The nature of participation
- The level of involvement of Irish participants in the various FP6 priority areas and instruments
- The volumes of funding Irish organisations were contracted to receive
- The nationality of partner organisations
- The contribution of Irish organisations to the projects
- The relationship between involvement in national research programmes and FP6 participation
- The level of interaction between Irish organisations and the stable core of S&T actors at European level

The performance of Irish organisations in FP6, relative to comparable organisation in other countries, Irish performance in previous Framework Programmes, and Ireland's contribution to the EU budget

Participants' awareness of the support structures for FP6 and the new support system implemented for FP7, and the relevance of these to Irish participants

The effectiveness and efficiency of the FP6 reporting procedures and administrative mechanisms

The nature of the benefits derived by Irish participants, including intangible benefits such as the creation of new networks

The benefits to participants who conduct their research abroad, e.g. Irish recipients of Marie Curie funding

The relevance of the projects to Irish industry, including the mechanisms by which enterprises got involved in FP6 and the business drivers for doing so

The importance of FP6 for the internationalisation of research in comparison with other funding mechanisms

The relevance of the new FP6 instruments and activities to Irish participants

The degree to which FP6 complements and reinforces the research strategies of Irish organisations

The degree to which FP6 has supported the career development and mobility of Irish researchers

The study was also required to provide recommendations on enhancing Ireland's participation in future FPs and the benefits obtained.

A copy of the invitation to tender which set out the terms of reference for the study is shown in Appendix A.

The planned timetable for the study was six months, and the work began with a kick-off meeting with the steering group at the end of November 2008. Due to delays in obtaining data on Ireland's participation in FP6 proposals, necessary for an analysis of demand and success rates and for a questionnaire survey of unsuccessful applicants, the timeframe for the study was extended by two months. The study was therefore completed at the end of July 2009.

The following sub-sections detail the methodological approaches that were followed in order to collect and analyse the data and information needed to meet the requirements and answer the questions set out above.

2.2 Analysis of Irish participation in FP6 projects

2.2.1 Data acquisition

The data used for the analysis of Ireland's participation in FP6 was extracted by Forfás from the European Commission's e-corda database and supplied to the study team. This data was compared with published data on FP6, specifically that reported in the FP6 Final Review, produced by the European Commission's Directorate General for Research (June 2008). The two datasets were found to be identical, confirming that the analyses presented in this report are consistent with published data on FP6 participation. However, for certain specific elements of the analysis some cleaning of the data was required, as detailed below, in order to improve the accuracy of the results.

2.2.2 Data cleaning

In order to assess the number of Irish organisations participating in FP6 it was necessary to standardise within the organisation name field. In many cases the same organisation was listed under various different names, so the study team undertook steps to ensure that all participations by a single organisation (HEI, company, etc.) carried only a single organisation name. Standardisation within this field was also necessary in order to identify the numbers and types of organisations participating in FP6 but not FP5, and vice versa.

Participants in FP6 were listed by type of organisation (known in the database as activity type), using four main descriptors. These were

Higher Education Institutes - organisations only or mainly established for higher education/training, e.g. universities, Institutes of Technology, both public and private

Research Institutes - Research organisations only or mainly established for research purposes, both public and private

Industry - industrial organisations private and public, both manufacturing and industrial services, such as industrial software, design, control, repair, maintenance

Other – Other organisations, mainly public and semi-public organisations, charities, NGOs, etc.

Organisations where the activity type was not known or recorded in the database were marked as N/A (undefined).

Analysis of the FP6 database indicated that in some cases the same organisation was listed under two or more different activity types. We identified all such cases and agreed with Forfás as to the 'correct' activity type for each organisation. The database was then updated with the correct, standard activity type for each participating organisation. It should be noted, however, that we did not go so far as to change the activity type in cases where the coding in the database was consistent across all of a given organisation's participations as this would have interfered with our ability to assess whether the pattern of participation by different types of Irish organisations was consistent with patterns within FP6 as a whole. As a result some of the activity type codings in the database were considered to be incorrect but were nonetheless retained.

A small number of gaps relating to Irish participation in FP6 were also identified, and these gaps were filled where possible in discussion with Forfás. For example, on one project it was indicated that an Irish organisation was involved, but the name of the organisation was not shown, nor was the amount of EC funding provided. Forfás was able to identify the missing organisation and the funding amount and this information was entered into the database.

It should also be noted that while the completeness and consistency of the Irish FP6 participation data was checked and cleaned to some degree, it was not possible to do this for all (i.e. other countries') records. Therefore we limited the amount of changes we made to the Irish component of the overall dataset.

2.2.3 Data analysis

Following the cleaning of the data, we undertook a range of analyses to describe the nature and extent of Irish participation in FP6. This analysis has been focused around the questions set out in the study terms of reference, and wherever possible the results have been compared and contrasted with overall patterns of participation in FP6, and in some cases equivalent data for FP5. The results of the FP6 participation analyses are presented in Section 3.

2.3 Analysis of Irish participation in FP6 proposals and success rates

2.3.1 Data acquisition

The availability of data relating to Ireland's participation in proposals submitted to FP6 was unclear at the outset of the study. It was revealed that Forfás had a database, which listed a large number of Irish participations in FP6 proposals, but it was not clear whether and to what extent this dataset was complete and accurate. An initial analysis of the data held by Forfás revealed that, if the dataset were complete, Irish success rates would have been more than double the FP6 average. It was suspected, therefore, that the dataset may not be complete, missing a significant number of proposals submitted by Irish organisations.

In light of this Forfás issued a request to the European Commission for data on Irish participations in FP6 proposals. Delays were introduced at this stage, as it was unclear as to where within the Commission such a request should be directed, and it took some time for the correct unit to be identified and for that unit to respond to the request. However, a database was provided, containing just over 4,000 records. The database provided information on the call and priority area to which each proposal was submitted, the name and activity type of the Irish participants in each proposal, the number of partners in each proposal, and contact details for the Irish participants. The database did not, however, give any further details concerning the proposals, such as their title or acronym, the Instrument to which they related, the amount of funding requested, or whether they were successful or not within the competition. Because of this it was not possible to carry out an analysis of demand and success rates by Instrument, nor was it possible to assess whether certain types of proposal were more or less successful in the competition. It was also not possible, based on this data, to provide any information on the reasons why unfunded proposals had not been successful.

2.3.2 Data cleaning

A preliminary analysis of the dataset provided by the Commission revealed that there were a number of duplicate records (n=178), and that there were also a number of proposal participations that did not relate to Irish organisations (n=29). These were therefore removed from the dataset prior to analysis, leaving a total count of 3,846 Irish participations in proposals submitted to FP6.

In addition to removing duplicate and non-Irish records, it was necessary to clean the organisation names in order to support an analysis of the number of discrete organisations that have applied to FP6 and to determine the proposal success rates of selected individual organisations.

2.3.3 Data analysis

Following the cleaning of the data, we carried out as much analysis as was possible within the limitations of the dataset provided. This analysis has been focused around the questions set out in the study terms of reference, and the results are set out in Section 3.10.

2.4 Questionnaire survey of FP6 participants

2.4.1 Questionnaire development

Technopolis developed a preliminary draft of a questionnaire to be sent to Irish participants in FP6 projects, with the question set being designed to address the various information requirements contained in the study terms of reference, and focusing on elements that could not be answered through the analysis of participation data or that would not be better addressed through the programme of interviews.

The questionnaire was revised in discussion with Forfás and was then circulated to the steering group for comment. Comments were received from representatives of Enterprise Ireland, the Irish Universities Association, the Higher Education Authority, and from Forfás. Technopolis revised the questionnaire, with most of the suggestions from Steering Group members being acted on.

The final version of the questionnaire was approved by Forfás at the end of January and was uploaded to a professional on-line survey facility. Final checks and adjustments to the formatting of the questionnaire were made after which Forfás approved the final on-line version. The FP6 participant questionnaire used in this study is shown in Appendix B.

2.4.2 Preparation of the contact database

In parallel with the development of the questionnaire, Technopolis analysed and prepared the contact information relating to Irish FP6 participants. The FP6 database showed that Ireland had 890 participations in total across FP6. In most but not all cases the Commission's database included the name and email address of the Irish participant. In 189 cases no email address was provided and in a further 40 cases the email address was found to be incorrect (i.e. not working)[2]. This left 661 Irish participations with what we believe to be a working email address.

Analysis of this set of 661 participations revealed that 524 individuals were listed, of which 423 had participated in one FP6 project, and 101 had participated in multiple FP6 projects. It was agreed in discussion with Forfás that participants who had been involved in more than one project would only be asked to complete one copy of the questionnaire, responding in relation to the project that best exemplified the kind of work they were involved with in FP6. However, respondents would be allowed to complete more than one copy of the questionnaire (i.e. for different projects) where they considered it to be appropriate due to the different nature of their different participations. Therefore our initial 'sample' was 524 FP6 participations, or 59% of the total.

The 229 participations where no contact information was given or where the email address was found not to be working was passed to Forfás and efforts were made to fill in some of the missing information. By the time the questionnaire survey was launched in early February 09 Forfás had identified contact names and provided email addresses for a further 33 participations. Of these, four already appeared in the database (for other projects) and so the number of participations targeted by the survey increased (by 29) to 553, or 62% of all Irish FP6 participations.

2.4.3 Survey implementation

On 6th February 09 emails were sent to the 553 Irish FP6 participants that had been identified, with a request to participate in the survey. The deadline for completion of the questionnaire was set at 27th February 2009, giving respondents three full weeks in which to provide a response. Some latitude

[2] A programme was used to validate whether the given email addresses were active / working

was given to people who were unable to complete the questionnaire by that date but who could complete it in the first week of March.

A small number of 'undeliverable' messages were received and some of the targeted individuals were identified as having already 'opted out' of receiving questionnaires distributed through our on-line survey tool. Taking the undeliverable and 'opt out' messages together, we estimate that our request failed to reach 29 people, leaving us with a pool of possible respondents numbering 524.

A reminder email was sent a few days ahead of the deadline to all of the participants that had not responded to the survey or had not 'opted out' by that date. The message reaffirmed the importance of the exercise, and encouraged participants to complete the questionnaire by the deadline. The questionnaire was held open for a further week following the published deadline for receipt of completed questionnaires, after which we proceeded to analyse the results.

2.4.4 Survey response rates

A total of 153 respondents provided a useable questionnaire return, giving an overall response rate of 29%. A breakdown of the number of people targeted, the number of people responding and the calculated response rate for each main organisational group are shown in Figure 1. It can be seen that we have obtained a good level of response from each group apart from Industry, where the number of responses obtained was just 16, a response rate of just 18%.

Figure 1 – FP6 Participant survey response rates, by type of organisation

	Number of people targeted	**Number of responses obtained**	**Response rate**
HEIs	288	86	30%
Research Institutes	52	20	38%
Industry	91	16	18%
Other	93	31	33%
Total	**524**	**153**	**29%**

Figure 2 shows the distribution of Ireland's FP6 participations by type of organisation and compares this to the distribution of survey responses. It can be seen that for three of the four groups the distribution of responses is broadly in line with their overall share of FP6 participations, but the low response rate from industry means that industry views are under-represented somewhat within the survey results.

Figure 2 – Share of FP6 participations and survey responses, by type of organisation

	Share of Ireland's FP6 participations	**Share of questionnaire responses**
HEIs	53%	56%
Research Institutes	9%	13%
Industry	19%	10%
Other	19%	20%
Total	**100%**	**100%**

Responses were received from participants across all FP6 priority areas and across all forms of funding instrument, in broadly similar proportions to those of the Irish participant base as a whole.

Just less than a third (30%) of the responses received were from coordinators of FP6 projects, and the remainder were from partners in the projects. Irish participants occupied the role of coordinator in 20% of their participations, so the results are skewed slightly towards the views of this group.

Overall we feel able to conclude that the survey responses provide a reliable sample from which to draw our conclusions, notwithstanding the lower level of feedback received from industry and the over-representation of project coordinators within our pool of respondents.

2.4.5 Survey analysis

The database of responses was downloaded from the on-line survey tool and checked prior to analysis. The number of responses received was slightly higher than shown in Figure 1 but a number of respondents were found to have only completed basic information about themselves and had not answered any of the questions relating to their participation in FP6. These were removed prior to analysis and are not included in the numbers presented in Figure 1.

The questionnaire data was analysed in order to determine the pattern of responses for each question. Where appropriate, separate analyses were carried out for each of the four main types of organisation. In a small number of cases other sub groups were identified based on the responses to specific questions (e.g. those who reported a positive benefit:cost ratio from their participation and those who did not) and these 'groupings' were used as the basis for comparison of responses to other questions.

The results of the survey are presented in Section 4.

2.5 Questionnaire survey of unsuccessful FP6 applicants

2.5.1 Questionnaire development

A draft questionnaire to be sent to unsuccessful FP6 applicants was developed based around questions set out in the study terms of reference. The draft questionnaire was distributed to the Steering group as part of an interim report and as no comments were received it was then placed on-line ready for use. The final on-line version of the questionnaire was then checked and approved by Forfás, and can be found in Appendix C.

2.5.2 Preparation of the contact database

The data supplied by the Commission on unsuccessful proposals with Irish involvement contained 3,846 records after duplicates and non-Irish applicants were removed. Within this dataset we were able to identify 1,224 unique individuals with properly formed email addresses that we *believed*, based on a cross-check with the main FP6 participation database, had *not* participated in FP6 and therefore had not already been asked to complete a copy of the main participant questionnaire.

2.5.3 Survey implementation

The survey of unsuccessful applicants was launched in early May, with email messages being sent to all of the identified unsuccessful applicants. The on-line survey tool reported that 3 of the targeted individuals had already opted out of survey participation and a further 68 messages bounced, so the final pool of unsuccessful applicants targeted through the survey was ~1150 people.

2.5.4 Survey response rates

Following the deadline for returns a total of 132 responses had been received, but a small number of the respondents indicated that they had succeeded with all of their FP6 proposals (so were not unsuccessful applicants) while several others did not answer a sufficient number of questions to be of use. The final count of completed questionnaires that we considered to be useable was 110, representing a response rate of ~10%.

Due to limitations in the data the overall profile of unsuccessful applicants cannot be reliably determined, so it is not possible to assess the extent to which our pool of respondents is representative of all of Ireland's unsuccessful FP6 applicants. However, around 60% of the responses were received from HEIs, around 15% from industry, around 15% from 'Others' and around 10% from Research Institutes. This is a close enough match to the overall profile of *participation* in FP6 to be considered a sufficiently balanced sample from which to draw conclusions.

2.5.5 Survey analysis

The database of responses was downloaded from the on-line survey tool and checked prior to analysis. The data was analysed in order to determine the pattern of responses for each question, with comparisons in some cases being made between responses provided by people who had been

unsuccessful with *all* of their FP6 proposals and those who had been unsuccessful with only some. This later sub-group were therefore both participants in FP6 and unsuccessful applicants.

The results of the analyses are presented in Section 5.

2.6 Interviews with key actors

2.6.1 Identification of key actors

It was greed at the outset of the study that the evaluators would interview a total of 30 key people from within the Irish research and innovation system, using a mix of telephone and face-to-face interviews.

Forfás developed a preliminary list of target interviewees. The list contained 26 named individuals, and comprised a mix of senior researchers (from industry and HEIs), and representatives of public funding agencies and FP6 and FP7 support providers. This preliminary list was supplemented with additional people identified as key FP6 participants (based on the FP6 participation database) as well as a number of people from HEI research offices that were identified in the unsuccessful applicants database. Steering group members put forward a small number of additional suggestions for interviewees. The final list of people to be approached for interview contained 50 names, of which ~20 were support providers and / or representatives of national research funding agencies and ~30 were key researchers / FP participants from the public and private research bases.

2.6.2 Development of the interview guide

A draft interview guide was developed, based around the key questions to be addressed by the study and focusing on issues that could not easily be addressed through the participation analysis and questionnaire surveys.

The interviews were intended to be semi-structured, which means that a defined set of questions and 'topics' to cover were drawn up but there was expected to be a degree of flexibility as to exactly which questions would be tackled in each interview and in what depth, based on the knowledge and experience of the individual interviewees. The semi-structured approach also left open the possibility to discuss issues that the interviewee felt were relevant but which may not have been foreseen in our pre-defined question set.

The draft interview guide was circulated to the steering group as part of the interim report. A small number of minor comments were received and some final adjustments made prior to beginning the programme of interview. A copy of the interview guide is presented in Appendix D.

2.6.3 Arranging and conducting interviews

All of the identified people to approach for interview were contacted during March and April 09, by either email or telephone (or both) depending on the availability of contact information. Several attempts were made to reach each prospective interviewee, and in the final event we were able to secure interviews with 30 individuals, most of which were on the original target list. A small number of interviewees were 'stand-ins' or replacements for colleagues who had either retired or left their posts or who preferred not to grant an interview. 13 of the interviewees were support providers and / or representatives of national research funding / policy agencies, and 17 were senior researchers and / or FP6 participants from HEIs, research institutes and industry.

The majority of the interviews were carried out by phone but a small number were conducted face-to-face in Ireland.

2.6.4 Analysis of interview findings

Notes were taken during the course of the interviews, which were then transferred to a central database for analysis. Due to the semi-structured nature of the interviews it was not an intention to analyse the results in any quantitative way, but to capture the views and suggestions put forward by the interviewees and to compile these into an overall response in relation to each broad issue covered.

The findings from the interviews are presented at various points throughout this report, and are used to support other data and evidence gained through the analysis of Irish participation in FP6 and the questionnaire surveys.

2.7 Interviews with major beneficiaries of national research funding

Although not part of the formal terms of reference for the study, it was agreed that the study team would, with the assistance of steering group members, seek to establish the extent to which the major recipients of *national* research funding in the period 2000-6 have participated in FP6. This analysis was intended to help us to better understand the relationship between national research funding and Framework Programme participation.

In addition it was agreed that we would attempt to speak with some researchers that had been identified as major recipients of national research funding but who did not appear in the FP6 participant database. The purpose of these brief interviews would be to establish whether the researchers had participated in FP6, and, if they had not, determine the reasons behind this. The relationship between the award of national funding and FP6 participation would then be discussed in order to identify whether the former was acting as a barrier to the latter in these specific cases.

Each of the major national funding agencies provided information and / or data on the main recipients of research funding in the period 2000-6 and based on this information we were able to identify those researchers (around 10 per funding body) that had received the major awards or the greatest overall shares. The identified researchers were then cross-checked with the FP6 participants database. In many cases the major beneficiaries of national funding were confirmed as having participated in FP6 but those who could not were identified and effort was made to contact them by phone in order to clarify the situation.

In the final event we were only able to reach a small number of these individuals but all of those we spoke to confirmed that they either (i) had participated but were simply one of the (100+) Irish participants who were not, for whatever reason, named within the FP6 database, (ii) had applied but were unsuccessful, (iii) are employed at a senior (Director) level within their institutions and as such are no longer being named as Principal Investigators on FP6 proposals, or (iv) were out of the country during the early stages of FP6 and so were not able to apply. All of the people we spoke with confirmed that either they or (in the case of Directors) their institutions have applied to FP7.

2.8 Analysis and reporting

2.8.1 Analysis

Analysis of results has been carried out throughout the study, as data has been made available and as each data collection exercise has been completed. All of the results of these analyses were brought together and further analysed during late May and early June 2009 in preparation for the development of this draft final report.

2.8.2 Reporting

An interim report setting out progress and preliminary results was prepared by the study team and circulated to the steering group in February 2009. A steering group meeting was held in Dublin in late February, during which members discussed the interim report and provided a number of suggestions for the remaining elements of the work.

Following completion of all the data collection and analysis a draft final report was prepared and submitted to Forfás in mid-June 2009. A final meeting of the steering group was held in mid-July and revisions to the report were made based on comments received at and subsequent to that meeting. A condensed version of the report was also produced, suitable for publication by Forfás.

3. Analysis of Ireland's participation in FP6

3.1 Introduction

An analysis of Irish participation in FP6 is presented below. Each sub-section deals with a different element or aspect of participation, and wherever possible the data on Irish participation is compared with overall patterns of participation in FP6 overall, and in some cases for selected countries.

We begin by presenting 'top-level' data on Ireland's overall level of participation, and go on to report in the following areas:

Ireland's participation in FP6 by type of organisation

Funding received by Irish participants within FP6

Performance in FP6 in comparison with previous Framework Programmes

Ireland's participation in FP6 by Priority Area

Ireland's participation in FP6 by Instrument

Irish participants' roles in the FP6 projects

The nature and extent of collaboration within Ireland's FP6 projects

Ireland's participation in FP6 proposals (demand) and success rates within the competition

3.2 Overall participation in FP6 by Irish organisations

The overall statistics on Irish participation in FP6 are as follows:

Projects - Irish organisations were involved in 714 projects, out of a total of 10,058. Irish organisations were therefore involved in 7.1% of all FP6 projects

Participations - The total number of Irish participations was 890, out of a total of 74,400 for the whole of FP6. Ireland's participations therefore constituted 1.2% of the total

Organisations - A total of 272 discrete organisations from Ireland participated in FP6, out of an estimated[3] total of 21,365 participants (all countries). Irish organisations therefore constituted ~1.3% of all those involved in FP6

Funding – Irish organisations were allocated a total of €198.7 million in funding from FP6, out of a total allocation of €16.7 billion. Irish organisations therefore received 1.2% of all FP6 funding

3.3 FP6 participation by type of organisation

3.3.1 FP6 participants by organisation type

Figure 3 below shows the number (and share) of Irish participants for each of the four 'activity type' groups, and compares these to equivalent figures for FP6 as a whole. It should be noted that the figures for FP6 overall cannot be precise due to variability in the categorisation of organisations, wherein the same organisation is often allocated to several different activity types across their various participations. In addition, the activity type is not specified for several hundred organisations.

These limitations notwithstanding, it seems that FP6 participants as a whole are split roughly equally between (i) HEIs and Research institutes – 33%, (ii) Industry – 36%, and (iii) Other – 31%. Comparing this to the situation for Ireland we find that Irish industry has been well represented in terms of the share of organisations involved (49%), as are 'other' organisations at 37% of Ireland's

[3] The FP6 database suggests that 309 Irish organisations participated in FP6, but after the data was cleaned this figure was revised (by us) to 271, or 88% of the 'official' total. The number of organisations involved in FP6 (all countries) was 24,361 and by applying the same adjustment (88%), we estimate that the true number of organisations participating in FP6 is ~ 21,365.

total. By comparison HEIs and research institutes together made up only 14% of Ireland's participants, though it should be noted that these organisations had a very significant share of Ireland's *participations* (see below).

Figure 3 - Breakdown of Irish FP6 participants and all FP6 participants, by activity type

Activity Type	Number (and share) of participants - Ireland	Estimated number (and share) of participants – FP6 overall[4]
HEIs	18 (7%)	3,006 (14%)
Research Institutes	20 (7%)	4,055 (19%)
Industry	133 (49%)	7,561 (36%)
Other	101 (37%)	6,550 (31%)
Total	**272 (100%)**	**21,173 (100%)**

It is worth noting here that that some of the categorisations of Irish participants by activity type have been shown to be incorrect. In particular a significant number of Irish companies (n=26) have been classified in the database as 'Other' when in fact they should have been categorised as 'Industry'. Because we are using these data to draw comparisons with FP6 data overall (all countries) and we are not able to clean and correct the entire FP6 database, we have not sought to correct the categorisations for Ireland, as this would skew the comparisons being drawn. However, it should be noted that Forfás has identified 26 companies incorrectly coded as 'Other' in the database, suggesting that the true levels of Irish industry involvement in FP6 is 161 companies (not 135), making up 59% of the participants (rather than 49%). It is not possible to determine whether the number and share of industry participants in FP6 as a whole is similarly underestimated, but we believe that this is likely to be the case.

3.3.2 FP6 participations by organisation type

Figure 4 compares the breakdown of Irish participations by activity type with the breakdown for all FP6 participations.

It indicates that Irish HEIs have a much higher share of Ireland's participations (53%) than the FP6 average (36%) and that the share of participations achieved by Irish *research organisations* is much lower (9%) in comparison with the FP6 average (28%). This reflects the fact that, like the UK, most publicly funded research institutes are based within the universities. In combination, Irish HEIs and Irish research organisations achieved 62% of Ireland's participations, broadly in line with the FP6 average of 64%.

Irish industry's share of the national participations was exactly the same as the FP6 average (19%). Other types of organisation, mainly public agencies, make up the remaining 19% of Irish participations, slightly above the FP6 average of 17%. However, it should again be noted that a significant number (n=26) of Irish companies are incorrectly coded in the database as 'Other', which means that the correct number of 'Industry' participations for Ireland was 214 (or 24% of the total) while the true share of 'Other' was 125 participations, or 14% of the total.

[4] Because of the variability in categorising participants by activity type these figures should be taken as approximations. It should also be noted that they omit ~500 of the participating organisations as their activity type is not known

Figure 4 – Breakdown of Irish FP6 participations and all FP6 participations, by activity type

Activity Type	Number (and share) of participations - Ireland	Number (and share) of participations – FP6 overall[5]
HEIs	475 (53%)	26,490 (36%)
Research Institutes	76 (9%)	20,621 (28%)
Industry	168 (19%)	13,908 (19%)
Other	171 (19%)	12, 371 (17%)
Total	**890 (100%)**	**73,390 (100%)**

It is worth noting at this point the relatively low levels of involvement by Ireland-based MNCs in FP6. The most significant driver of Ireland's economic growth over the past two decades has been foreign direct investment in manufacturing and international services. Most of this inward investment has been in technology intensive sectors such as ICT, pharmaceutical, medical devices and financial services but levels of business expenditure on R&D in Ireland have remained below global norms for these sectors. Over the past decade, Ireland's enterprise agencies (Enterprise Ireland and IDA Ireland) have been active in encouraging and supporting the development of increased RD&I capacity and activity in both indigenous companies and multinational companies (MNCs), with considerable success. However, it is only relatively recently that MNCs based in Ireland have begun to establish local R&D operations, and as a result participation by this group during FP6 was relatively low. Early indications suggest that recent increases in RD&I capacity by this group have led to increased participation by MNCs in FP7 as compared to FP6. This positive trend has been boosted by improvements in FP administrative procedures, and in particular by the simpler application processes.

3.4 FP6 funding received by Irish organisations

3.4.1 Overall

Irish organisations were allocated a total of €198.7 million in funding from FP6, out of a total allocation of €16.7 billion. Irish organisations therefore received 1.2% of all FP6 funding.

The average volume of FP6 funding allocated to each Irish participant was €723k. Across FP6 as a whole the average amount of funding per participant is estimated at around €634k, so Irish organisations received 14% more than the average.

The average volume of FP6 funding allocated to Irish organisations per participation was €223k. This is almost exactly the same as the average for FP6 as a whole (€224k).

3.4.2 FP6 funding by activity type

Figure 5 shows the total FP6 funding allocations for Irish organisations, by activity type, and compares these to FP6 allocations as a whole.

Irish HEIs were allocated a total of €135.1 million in funding, an average of €7.1 million each. This represented 68% of all FP6 funding to Irish organisations, a significantly larger share than that obtained by all HEIs across FP6 as a whole. Irish HEIs received an average of €285k in funding per participation, 23% above the FP6 average of €232k per HEI participation.

Irish research institutes were allocated €12.8 million in funding, an average of €645k each. This represented just 6% of Ireland's total, far below the overall share of 32% obtained by research institutes across FP6 as a whole. Again, this reflects the low number of research institutes in Ireland in comparison with other EU countries, and is compensated for by greater levels of research activity within the HEI sector. The average amount of funding per Irish research institute participation was €167k, 34% below the overall FP6 average of €253k per research institute participation.

[5] These figures do not include 1,010 participations where the activity type is undefined in the FP6 database

Irish industry received €27.7 million in funding, an average of €205k each. This represented 14% of Ireland's total, slightly lower than the share of funding obtained by industry across FP6 as a whole (18%)[6]. The average amount of funding provided to Irish industry per participation was €164k, significantly below the overall FP6 average of €218k per industrial participation.

Other Irish participants were allocated €23.1 million in funding, an average of €228k each. This represented 12% of Ireland's total funding from FP6, broadly in line with the 13% share received by 'other' organisations across FP6 as a whole[7]. The average amount of funding per participation was €136k, 21% below the FP6 average of €172k per participation by the 'other' organisations.

Figure 5 - Irish FP6 funding, by activity type

Activity Type	Irish funding allocations (€m)	Total FP6 funding allocations (€m)[8]
Higher Education	135.1 (68%)	6,156 (37%)
Research Institutes	12.8 (6%)	5,221 (32%)
Industry	27.6 (14%)	3,027 (18%)
Other	23.2 (12%)	2,123 (13%)
Total	**198.7** (100%)	**16,528** (100%)

3.4.3 Funding received from FP6 in comparison with Ireland's share of EU GDP

Ireland's 'return' from FP6 was €198.7 million[9], or 1.2% of the total EC funding allocations for FP6 as a whole. In 2005, Ireland's share of EU GDP (out of the 25 Member States at that time) was 1.38%, so on this basis Ireland's level of return was slightly below what we might have expected. However, Ireland's share of funding allocations to the EU-25 alone was 1.32%, so the difference between Ireland's GDP contribution and its return from FP6 out of the EU-25 totals alone was not particularly large.

Ireland's position in the table indicates that it was 15th out of the EU-25 in terms of the amount of FP6 funding realised in comparison with its GDP share. Ireland's 'target figure' for FP6 income if it were to have been in direct proportion to its GDP contribution would have been €209 million, so the shortfall was ~€10 million.

[6] If we were to include the funding received by the 26 Irish companies that are (incorrectly) categorised in the database as 'Other' then Irish Industry's share increases to €32.3 million, or 16% of Ireland's total.

[7] If we were to exclude the funding received by the 26 Irish companies that are (incorrectly) categorised in the database as 'Other' then share of the funding received by 'Other' organisations falls to €18.5 million, or 9% of Ireland's total.

[8] These figures do not include €137 million of funding where the activity type is undefined

[9] This is the most accurate figure we can arrive at, but 'official' FP6 data puts the figure at €199.6 million

Figure 6 - FP6 funding allocations to the EU-25 in comparison to GDP

Member State	FP6 funding (€ million)	Share of EU-25 FP6 funding	Share of EU-25 GDP (2005)	Ratio FP6 income to GDP
Estonia	34	0.22%	0.10%	223%
Slovenia	76	0.50%	0.29%	174%
Sweden	677	4.47%	2.72%	164%
Finland	342	2.26%	1.48%	153%
Greece	419	2.77%	1.84%	150%
Netherlands	1,107	7.30%	5.20%	140%
Malta	10	0.07%	0.05%	133%
Austria	424	2.79%	2.15%	130%
Denmark	396	2.61%	2.01%	130%
United Kingdom	2,370	15.63%	12.38%	126%
Belgium	708	4.67%	4.01%	116%
Cyprus	28	0.18%	0.16%	114%
Hungary	150	0.99%	0.91%	109%
Germany	3,023	19.94%	20.56%	97%
Ireland	**200**	**1.32%**	**1.38%**	**95%**
Latvia	19	0.12%	0.13%	95%
France	2,173	14.34%	16.43%	87%
Czech Republic	131	0.86%	1.02%	85%
Portugal	171	1.13%	1.36%	83%
Lithuania	27	0.18%	0.22%	81%
Italy	1,458	9.62%	13.69%	70%
Spain	944	6.23%	8.93%	70%
Slovakia	37	0.24%	0.38%	63%
Luxembourg	22	0.15%	0.24%	61%
Poland	216	1.42%	2.34%	61%
Total	**15,160**	**100%**	**100%**	**-**

GDP is not, however, the only measure that can be used to benchmark Ireland's returns from FP6. Ireland's GDP figures have been boosted over the past two decades by foreign direct investment in manufacturing and international services, with a large number of foreign-owned multinational companies setting up operations in Ireland. While these MNCs contribute to Ireland's GDP figures, most do not carry out R&D operations in Ireland and so have not participated in the Framework Programmes. For this reason, some commentators suggest that the share of FP funding realised by Ireland in comparison with its Gross *National* Product is a more suitable measure of performance, as this limits the effects of the MNCs.

Figure 7 lists the EU-25 and shows, for each, total FP6 EC funding allocations, share of EU-25 FP6 funding, share of EU-25 GNP, and the ratio of share of EU-25 FP6 funding to share of EU-25 GNP. Ireland's position in the table on this measure indicates that it was 11th out of the EU-25 in terms of the amount of FP6 funding realised in comparison with its GNP share. Ireland's 'target figure' for FP6 income if it were to have been in direct proportion to its GNP contribution would have been €168 million, so Ireland has received a funding share greater than expected.

Figure 7 - FP6 funding allocations to the EU-25 in comparison to GNP

Member State	FP6 funding (€ million)	Share of EU-25 FP6 funding	Share of EU-25 GNP (2004)[10]	Ratio FP6 income to GNP
Sweden	677	4.47%	2.24%	200%
Denmark	396	2.61%	1.44%	181%
Finland	342	2.26%	1.30%	174%
Belgium	708	4.67%	2.72%	172%
Netherlands	1,107	7.30%	4.30%	170%
Estonia	34	0.22%	0.15%	149%
Slovenia	76	0.50%	0.35%	145%
Greece	419	2.77%	1.97%	140%
Austria	424	2.79%	2.16%	129%
Cyprus	28	0.18%	0.14%	126%
Ireland	**200**	**1.32%**	**1.11%**	**118%**
Malta	10	0.07%	0.06%	107%
Germany	3,023	19.94%	19.29%	103%
United Kingdom	2,370	15.63%	15.83%	99%
France	2,173	14.34%	14.90%	96%
Hungary	150	0.99%	1.31%	75%
Spain	944	6.23%	8.31%	75%
Italy	1,458	9.62%	13.58%	71%
Portugal	171	1.13%	1.70%	66%
Luxembourg	22	0.15%	0.24%	60%
Czech Republic	131	0.86%	1.57%	55%
Latvia	19	0.12%	0.22%	55%
Lithuania	27	0.18%	0.38%	47%
Slovakia	37	0.24%	0.65%	37%
Poland	216	1.42%	4.08%	35%
Total	**15,160**	**100%**	**100%**	**-**

Further analysis of FP6 funding allocations to the EU-25 revealed that Ireland also performed very well in comparison with the size of its population. Ireland was placed 7th overall in terms of the ratio of its share of EU-25 FP6 funding allocations to its share of EU-25 population. Figure 8 presents the data.

[10] Based on 2004 PPP GNP per capita in international $

Figure 8 - FP6 funding allocations to the EU-25 in comparison to population size

Member State	FP6 funding (€ million)	Share of EU-25 FP6 funding	Share of EU-25 population (2004)	Ratio FP6 income to population
Sweden	677	4.47%	1.97%	227%
Denmark	396	2.61%	1.19%	219%
Belgium	708	4.67%	2.27%	206%
Netherlands	1107	7.30%	3.60%	203%
Finland	342	2.26%	1.14%	198%
Austria	424	2.79%	1.79%	156%
Ireland	**200**	**1.32%**	**0.89%**	**148%**
Luxembourg	22	0.15%	0.10%	141%
Greece	419	2.77%	2.34%	118%
United Kingdom	2370	15.63%	13.24%	118%
Slovenia	76	0.50%	0.44%	115%
Germany	3023	19.94%	18.01%	111%
France	2173	14.34%	13.30%	108%
Cyprus	28	0.18%	0.17%	107%
Estonia	34	0.22%	0.29%	77%
Malta	10	0.07%	0.09%	76%
Italy	1458	9.62%	12.70%	76%
Spain	944	6.23%	8.83%	71%
Portugal	171	1.13%	2.32%	49%
Hungary	150	0.99%	2.18%	45%
Czech Republic	131	0.86%	2.24%	39%
Latvia	19	0.12%	0.50%	25%
Lithuania	27	0.18%	0.78%	23%
Slovakia	37	0.24%	1.19%	20%
Poland	216	1.42%	8.42%	17%
Total	**15,160**	**100%**	**100%**	**-**

3.5 Performance in FP6 in comparison with previous Framework Programmes

3.5.1 Headline changes in participation from FP4 to FP5 to FP6

Here we provide an initial analysis of how Ireland's participation in FP6 compares with participation levels in previous Framework Programmes, specifically FP4 and FP5. The data used for comparisons is taken from the Technopolis study 'Evaluation of the Impacts and Operation in Ireland of the European Union's Fifth Framework Programme for Research, Technological Development and Demonstration" (June 2005).

Figure 9 provides data on Ireland's basic participation statistics in FP4, FP5 and FP6. The data for FP5 and FP6 includes (in parenthesis) the extent of the change from one FP to the next. The overall picture is one of a sharp decline in participation levels from FP4 to FP5 across all of the indicators. This decline has continued in FP6, though not as sharply, for three of the indicators while the overall level of FP6 funding was significantly higher than that achieved in FP5 and is even above FP4 levels.

Figure 9 - Trends in Ireland's participation in the Framework Programmes – absolute numbers

Indicator	FP4	FP5	FP6
Number of Irish participants	467	318 (-32%)	272 (-14%)
Number of projects with Irish participation	1187	864 (-27%)	714 (-17%)
Number of Irish participations	1489	1042 (-30%)	890 (-15%)
EC funding to Irish partners (€m)	191	148 (-23%)	199 (+34%)

These data do not reveal anything about the more general trends in FP participation from FP4 to FP5 and then to FP6. Figure 10 places the Irish participation data in context, expressing Ireland's numbers of FP projects, participations and EC funding in the context of the overall totals for each successive FP. It should be noted that it is not possible to provide data on Ireland's share of all FP *participants* due to a lack of clean data with which to work.

Figure 10 shows Ireland's share of projects, participations and funding across FP4, 5 and 6. This demonstrates the importance of placing these figures in context, as the overall increase in Irish funding from FP5 to FP6 (up by over €50 million or 34%) does not actually represent any proportionate increase in Ireland's share – it simply reflects the fact that a much larger amount of funding was distributed through FP6 than through FP5. Similarly, although there was a decline in the *number* of FP6 projects with Irish participation as compared to FP5, Ireland actually increased the proportion of projects it participated in (principally because FP6 supported fewer projects but with larger numbers of participants.

Figure 10 - Trends in Ireland's participation in the Framework Programmes – share of FP totals

Indicator	FP4	FP5	FP6
Irish participation rate in FP projects	7.1%	5.3%	7.1%
Irish share of all FP participations	2.1%[11]	1.3%	1.2%
Irish share of all FP funding (EC)	1.9%	1.2%	1.2%

3.5.2 Involvement of FP5 participants in FP6

It is not easy to compare directly whether Irish participants in FP5 have participated in FP6 due to the inevitable changes in organisation names across the eight-year period covered by the two programmes. There are also problems in ensuring that the codification of organisation names is consistent across the two databases. However, we have attempted to clean both databases 'side-by-side' in order to provide the best possible assessment of the extent to which organisations involved in FP5 have also participated in FP6. It should be noted that the database used for the FP5 side of the analysis contained slightly more Irish participations and participants than reported in the evaluation of Irish involvement in FP5. The number of FP5 participations was recorded as 1,085 (not 1,042) and the number of participants after cleaning was found to be 331 (not 318).

Following cleaning of both the FP5 and FP6 databases we determined that just 89, or 27% of Ireland's (331) FP5 participants have participated in FP6. This represents a 'drop-out' rate of 73% or 242 organisations.

There were 18 Irish organisations with seven or more FP5 participations and we found that all of these went on to participate in FP6. However, only 36% of the (n=72) organisations with between two and six FP5 participations were involved in FP6, and only 18% of the (n=241) organisations that had a single FP5 participation went on to participate in FP6. It seems clear therefore that there is a very high rate of churn from one Framework Programme to the next in terms of the organisations that participate, particularly among organisations with low numbers of participations.

[11] Assumes a total of 70,000 FP4 participations – exact figure is not available

There were eight organisations with four or more FP5 participations that we believe did *not* go on to participate in FP6. These are as follows: Engineering Solutions International Ltd; Central Statistical Office; Shannon Free Airport Development Company; Arqtech Laboratories Ltd; Optical Metrology Innovations Ltd; Radio Telefis Eireann; Radiological Protection Institute Of Ireland; South Western Services Co-Operative Ltd.

It is not possible to provide precise information on the drop out rates from FP5 to FP6 by type of organisation, due to problems with incorrect codings in the FP5 database. However, a basic analysis suggests that almost all of the HEIs that participated in FP5 went on to participate in FP6, as did around a quarter of the research institutes, around 20% of Industry participants, and around a third of the 'Other' types of participant. Industry participants made up around half of all of the Irish organisations involved in FP5, and with the highest drop out rate from FP5 to FP6 (~80%) they make up the bulk of the FP5 participants that did not go on to become involved in FP6.

3.5.3 Involvement of FP6 participants in FP5

Analysis of the extent to which Ireland's FP6 participants had also been involved in FP5 reveals a similar pattern as that reported immediately above. Just 88, or 32%, of Ireland's 272 FP6 participants were involved in FP5, meaning that there were 184 'new entrants' to FP6 that had not been involved in the previous FP.

There were 26 Irish organisations with four or more FP6 participations and all but one of these had participated in FP5. 52% of the (n=50) organisations with two or three FP6 participations had also been involved in FP5, while just 19% of the (n=196) organisations with a single FP6 participation had participated in FP5. Again these data confirm that new entrants rarely have significant numbers of FP participations, and that there is a 'core' group of Irish organisations that participate in successive programmes and tend to be involved in multiple projects within each FP.

We found that 88 Irish organisations participated in both FP5 and FP6, of which 28% (n=25) had just one participation in each Programme. A further 30 organisations had three or four participations across the two Programmes, and the remaining 33 organisations had five or more participations across the two programmes. This latter group of 33 organisations with five or more participations across FP5 and FP6 could be considered as Ireland's own 'core' group of FP participants. Looking at these more closely we discovered that 15 of them saw a drop in their number of participations from FP5 to FP6, while 16 saw an increase and two saw no change. However, some of the HEIs (UCC, TCD, UL and NUIM) saw significant falls in their number of participations (down by 37%, 21%, 32% and 37% respectively), which meant that the net fall in participations among this core group of 33 organisations was 14% (or 95 participations).

The core group of 33 organisations referred to here are as follows: National University Of Ireland, Cork (UCC); Trinity College Dublin (TCD); National University Of Ireland, Dublin (UCD); National University Of Ireland, Galway (NUIG); Dublin City University; Teagasc - Agriculture And Food Development Authority; University Of Limerick (UL); Enterprise Ireland; National University Of Ireland, Maynooth (NUIM); Marine Institute; Waterford Institute Of Technology; Royal College Of Surgeons In Ireland; Economic And Social Research Institute; Dublin Institute Of Technology; Work Research Centre Limited; The National Microelectronics Applications Centre Ltd; Cork Institute Of Technology; Eirgrid Plc; Ecological Consultancy Services Limited; Technology Codes Ltd; Department Of Agriculture, Fisheries And Food; Nanocomms Limited (Aka Biosensia Ltd); Circa Group Europe; Lake Communications Ltd; Aquatt Uetp Limited; Innovawood Ltd; Dublin Institute For Advanced Studies; Convex Electrical Ltd; Environmental Protection Agency; IIMC International Information Management Corporation Limited; Nautical Enterprise Centre Ltd; Clare-Pak Limited; The Haughton Institute For Graduate Education and Training in the Health Sciences Limited.

As indicated above, most of the organisations participating in FP5 that did not go on to participate in FP6 are from industry. While this is perhaps not what we would wish to see, it appears to be a natural feature of the Framework Programmes, and is counter-balanced by the dominant showing of Industry within the body of participants that were 'new' in FP6. Of the 182 organisations that we identified as participating in FP6 but not FP5, 59% are from Industry, suggesting that most of the 'churn' is within this group. A significant proportion – around a third - of the new entrants into FP6 were 'Others'.

3.5.4 Patterns of participation from FP5 to FP6 among Ireland's major HEIs

Due to their dominant role within the Irish research system, we have investigated the changing patterns of participation by the major Irish HEIs. Figure 11 presents the numbers of FP5 and FP6

participations for each of 11 major Irish HEIs (universities and institutes of technology). It reveals that across this selected group, there was an overall fall in the number of participations from FP5 to FP6, of 16%. The figures should, however, be seen within the context of an overall fall of around 12% in the total number of participations (all countries) from FP5 to FP6.

There is something of a mixed pattern, with some HEIs seeing significant falls in the number of participations while others have seen significant increases. The large drops in participation numbers within UCC and TCD account for the majority of the overall drop of 16% from FP5 to FP6.

Figure 11 – Numbers of FP5 and FP6 participations – selected HEIs

HEI	FP5	FP6	Change
National University of Ireland, Cork (UCC)	155	98	-37%
Trinity College Dublin (TCD)	116	92	-21%
National University of Ireland, Dublin (UCD)	96	97	+1%
National University of Ireland, Galway (NUIG)	70	70	0%
University of Limerick	37	25	-32%
Dublin City University	28	34	+21%
National University of Ireland, Maynooth (NUIM)	19	12	-37%
Royal College of Surgeons in Ireland	9	10	+11%
Waterford Institute of Technology	10	14	+40%
Dublin Institute of Technology	9	6	-33%
Cork Institute of Technology	3	8	+167%
Total	**552**	**466**	**-16%**

The FP6 total of €133.2 million for the 11 HEIs represents two-thirds of all funding received by Irish participants in FP6, and further confirms both the dominant role of the HEIs and the very high levels of concentration of funding within a relatively small group of organisations. In fact, the top 10% of Irish participants based on the volume of funding were awarded 80% of all Irish allocations, receiving an average of €5.9 million each. The other 90% received on average just €157k in FP6 funding.

Figure 12 – Funding allocations under FP5 and FP6 – selected HEIs (€ millions)

HEI	FP5 (€m)	FP6 (€m)	Change
National University of Ireland, Cork (UCC)	28.14	30.11	+7%
Trinity College Dublin (TCD)	19.47	28.62	+47%
National University of Ireland, Dublin (UCD)	14.18	22.60	+59%
National University of Ireland, Galway (NUIG)	11.70	24.17	+106%
University of Limerick	6.41	5.02	-22%
Dublin City University	3.74	9.44	+152%
National University of Ireland, Maynooth (NUIM)	2.49	3.10	+25%
Royal College of Surgeons in Ireland	0.58	2.73	+373%
Waterford Institute of Technology	3.10	4.85	+56%
Dublin Institute of Technology	0.81	1.93	+138%
Cork Institute of Technology	0.68	0.62	-8%
Total	**91.30**	**133.20**	**+46%**

3.5.5 Other changes in participation patterns from FP5 to FP6

Because of the significant changes made to the structure, instruments and priority areas from FP5 to FP6 we have concluded that it is not possible to provide a reliable or meaningful analysis of Ireland's changing patterns of performance at further levels of disaggregation.

3.6 FP6 participation by Thematic Priority Area

The FP6 database does not categorise participating organisations by sector. However, the analysis of FP6 participation by Thematic Priority provides an indication of the main research fields in which Irish organisations were active.

FP6 was made up of three specific programmes, as follows

1. Integrating and Strengthening the European Research Area
2. Structuring the European Research Area
3. Nuclear Research (Euratom)

The **first specific programme** was split into two main blocks of activities[12], as follows:

Block 1 - Focusing and Integrating European research, which included seven Thematic Priorities and three specific activities covering a wider field of research

- Life sciences, genomics and biotechnology for health
- Information society technologies
- Nanotechnologies and nanosciences, knowledge-based multifunctional materials and new production processes and devices
- Aeronautics and space
- Food quality and safety
- Sustainable development, global change and ecosystems
- Citizens and governance in a knowledge-based society
- Policy support and anticipating scientific and technological needs
- Horizontal research activities involving SMEs
- Specific measures in support of international cooperation

Block 3 – Strengthening the foundations of the European Research Area (ERA), which included two priority areas as follows:

- Support for the coordination of activities
- Support for the coherent development of research & innovation policies

The **second specific programme** was formed into one main block of activities, covering four priority areas, as follows:

Block 2 – Structuring the European Research Area (ERA)

- Research and innovation
- Human resources and mobility
- Research infrastructures
- Science and society

The **third specific programme** was organised into a single area, as follows

- Euratom

This gives a total of 17 'priority areas' under which FP6 has been organised, and against which the participation data is reported by the Commission.

[12] These were known as Blocks 1 and Blocks 3 – Block 2 formed the second specific programme

3.6.1 Projects, participations and EC funding, by Priority Area

Figure 13 shows the number of Irish projects and participations, and the volume of EC funding allocated, in each of the 17 FP6 Priority Areas (note that short names for each Priority are given in the table).

Due to the differing scales of the different priority areas within FP6 it is not possible to draw conclusions on the performance of Ireland from this table, but in terms of numbers alone the **Information society technologies** and **Human resources and mobility** areas were the most significant, with over 100 projects, over 150 participations and in excess of €40 million in funding achieved by Ireland in each area.

Figure 13 - Irish projects, participations and EC funding, by Priority Area

Priority	**Projects**	**Participations**	**EC funding (€ million)**
1. Life sciences, genomics and biotechnology	49	54	14.0
2. Information society technologies	122	156	42.5
3. Nanotechnologies and nanosciences	55	78	20.8
4. Aeronautics and space	23	31	8.5
5. Food quality and safety	40	65	14.4
6. Sustainable development	54	81	16.5
7. Citizens and governance	25	28	3.0
Policy support / S&T needs	48	55	7.0
Horizontal research activities - SMEs	73	103	7.3
Support for international cooperation	3	3	1.1
Research and innovation	13	15	1.4
Human resources and mobility	153	162	54.5
Research infrastructures	21	23	3.8
Science and society	4	5	0.5
Support for the coordination of activities	25	25	2.7
Development of R & I policies	1	1	0.2
Euratom	5	5	0.6
Total	**714**	**890**	**198.7**

In order to place the raw numbers shown in

Figure 13 in context, Irish projects, participations and EC funding have been expressed as a share of the FP6 totals for each Priority Area. The results are shown in Figure 14, and arrows (⇑⇒⇓) have been used to symbolise whether Ireland has performed comparatively strongly or less well in each area, as compared to Ireland's overall performance in FP6. For example, across FP6 as a whole Ireland participated in 7.1% of the projects, so we can say that a project participation rate of 8% in the life sciences area is 'close to average' (⇒) while involvement in 12% of nanotechnology projects is 'above average '(⇑).

The results indicate that Ireland has performed strongly in the **Nanotechnologies and nanosciences**, **Food quality and safety**, **Citizens and governance**, **Horizontal research involving SMEs**, **Human resources and mobility,** and **Support for the coordination of research** Priority Areas.

The areas of weakest performance appear to be the **Life sciences, genomics and biotechnology, Support for International cooperation**, **Research and innovation**, **Science and society**, **Development of R&I policies** and **Euratom** Priority Areas.

Given Ireland's ambitions over the past decade to significantly expand its capabilities in the **life sciences** and **IST** areas, a stronger (comparative) performance in these two areas might have been expected, or at least hoped for. In addition, it has been noted that Ireland has recently increased its investment outreach programmes and that this may go some way to addressing the relatively weak performance in the Science and Society priority area.

Figure 14 - Irish projects, participations and EC funding, expressed as a share of FP6 totals, by Priority Area

Priority	Project share	Participation share	EC funding share
1. Life sciences, genomics and biotechnology	8% ⇒	0.8% ⇓	0.6% ⇓
2. Information society technologies	11% ⇑	1.1% ⇒	1.1% ⇒
3. Nanotechnologies and nanosciences	12% ⇑	1.3% ⇒	1.4% ⇑
4. Aeronautics and space	10% ⇑	0.9% ⇓	0.8% ⇓
5. Food quality and safety	22% ⇑	2.0% ⇑	1.9% ⇑
6. Sustainable development	8% ⇒	0.8% ⇓	0.7% ⇓
7. Citizens and governance	17% ⇑	1.4% ⇑	1.2% ⇒
Policy support / S&T needs	9% ⇑	1.2% ⇒	1.2% ⇒
Horizontal research activities - SMEs	15% ⇑	1.9% ⇑	1.5% ⇑
Support for international cooperation	1% ⇓	0.1% ⇓	0.3% ⇓
Research and innovation	5% ⇓	0.8% ⇓	0.6% ⇓
Human resources and mobility	3% ⇓	1.9% ⇑	3.2% ⇑
Research infrastructures	14% ⇑	1.2% ⇒	0.5% ⇓
Science and society	2% ⇓	0.5% ⇓	0.7% ⇓
Support for the coordination of activities	25% ⇑	2.1% ⇑	0.9% ⇓
Development of R & I policies	5% ⇓	0.6% ⇓	1.1% ⇒
Euratom	6% ⇒	0.4% ⇓	0.3% ⇓
Total	**7.1%**	**1.2%**	**1.2%**

3.6.2 Involvement in FP6 Priority Areas, by organisation (activity) type

Ireland's performance across the FP6 Priority Areas can be further analysed at the level of each of the four main categories of participant described in Section 3.3 above. This permits an understanding of the relative levels of involvement of the HEIs, industry, etc, in each area of the programme.

Figure 15 shows the numbers of Irish participations and volumes of EC funding achieved by each main organisation group within each FP6 Priority Area. In volume terms the major Priority Areas are as follows:

HEIs – The **Human resources & mobility** and **Information society technologies** areas were the most significant in volume terms, together accounting for almost half (48%) of all HEI participations in FP6, and over half (58%) of the EC funding allocations

Industry – **Horizontal research activities involving SMEs** was by far the most significant area for industry in terms of the numbers of participations, but only fourth in terms of the volume of

EC funding. The main areas from the perspective of funding were **Human resources and mobility**, **Information society technologies** and **Nanotechnology and nanosciences**

Research institutes – Irish research institutes achieved the highest level of participations and funding in the **Food quality & safety** area. The **Policy support & anticipating S&T needs** and **Human resources and mobility** areas were also major areas in terms of the number of participations and volume of funding

Other – The **Information society technologies** and **Sustainable development** areas were the most significant in terms of numbers of participations and volume of funding respectively. There was also significant involvement in the **Horizontal research activities involving SMEs** and **Support for the coordination of activities** areas

Figure 15 - Irish participations and EC funding, by Priority Area, split by main organisation type

Priority	Higher education (HES)		Industry (IND)		Research (REC)		Other (OTH)	
	Participations	EC funding (€m)	Participations	EC funding (€m)	Participations	EC funding (€m)	Participations	EC funding (€m)
1. Life sciences, genomics & biotechnology	42	11.1	7	1.9	2	0.8	3	0.1
2. Information society technologies	94	31.7	19	4.8	6	0.6	37	5.4
3. Nanotechnologies and nanosciences	48	16.9	24	3.5	1	0.1	5	0.3
4. Aeronautics and space	11	4.8	12	2.7	1	0.2	7	0.9
5. Food quality and safety	24	8.1	7	0.9	22	4.7	12	0.6
6. Sustainable development	33	6.1	15	2.0	5	0.4	28	8.0
7. Citizens and governance	21	2.0	0	0.0	1	0.1	6	0.9
Policy support / S&T needs	25	3.5	2	0.1	17	2.2	11	1.3
Horizontal research activities - SMEs	14	2.0	58	3.2	6	0.4	25	1.7
Support for international cooperation	3	1.1	0	0.0	0	0.0	0	0.0
Research and innovation	3	0.2	4	0.1	0	0.0	8	1.2
Human resources and mobility	134	43.6	16	8.0	7	2.5	5	0.5
Research infrastructures	15	3.2	3	0.2	4	0.4	1	0.1
Science and society	2	0.1	1	0.4	0	0.0	2	0.1
Support for the coordination of activities	1	0.0	0	0.0	4	0.5	20	2.2
Development of R & I policies	1	0.2	0	0.0	0	0.0	0	0.0
Euratom	4	0.5	0	0.0	0	0.0	1	0.1
Total	**475**	**135.1**	**168**	**27.6**	**76**	**12.8**	**171**	**23.2**

Figure 16 compares the profile of Irish participation across the seventeen Priority Areas with the profile of all FP6 participations, and these data are then split out for each type of organisation. Arrows (⇑⇓) have been used to identify the areas where Irish participation has been significantly higher or lower (as compared to the more general FP6 profiles).

Taking the Irish participation profile as a whole, Figure 16 indicates that Ireland has performed comparatively strongly in the **Food quality and safety**, **Horizontal research activities (SMEs)**, and **Human resources and mobility** areas. Performance appears to have been least strong in the **Life sciences**, **Aeronautics and space**, **Sustainable development** and **Support for International cooperation** areas.

The profile of participation for each type of organisation (group) reveals the areas where their level of involvement is high or low (proportionately) in comparison with involvement of their 'group' within FP6 as a whole. It reveals the following:

HEIs – Irish HEIs have had higher than average levels of involvement in the **Nanotechnology and nanosciences** and **Human resources & mobility** areas. Participation by Irish HEIs in the **Life sciences**, **Sustainable development**, **Support for International cooperation**, and **Science and society** areas was relatively low in comparison with other HEIs across Europe

Industry – Irish industry had relatively high levels of participation in the **Horizontal research activities involving SMEs** and **Human resources and mobility** areas, but the level of involvement in **Life sciences**, **Information society technologies** and **Sustainable development** areas was low in comparison with overall participation levels by industry

Research institutes – Because of the low number of Irish research institutes, their involvement is more focused and so patterns of low or high involvement are much more marked. Participation in the **Food quality and safety, Policy support & anticipating S&T needs, Horizontal research activities involving SMEs, Human resources and mobility** and **Support for the coordination of activities** areas were the main areas of (relative) focus

Other – Participation in the **Food quality and safety**, **Citizens and governance**, **Policy support & anticipating S&T needs, Horizontal research activities involving SMEs** and **Support for the coordination of activities** were higher than average for Ireland's 'other' participants, but there has been relatively low levels of involvement in the **Life sciences**, **Information society technologies, Support for International cooperation, Research and innovation,** and **Science and Society** areas

Figure 16 - Comparison of profile of Irish FP6 participations with all participations, by Priority Area (overall and then by organisation type)

Priority	All FP6	Ireland	All HES	Ireland HES	All IND	Ireland IND	All REC	Ireland REC	All OTH	Ireland OTH
1. Life sciences, genomics & biotechnology	9%	6% ⇓	12%	9% ⇓	8%	4% ⇓	10%	3% ⇓	5%	2% ⇓
2. Information society technologies	19%	18%	22%	20%	26%	11% ⇓	15%	8% ⇓	28%	22% ⇓
3. Nanotechnologies and nanosciences	8%	9%	6%	10%⇑	13%	14%	7%	1% ⇓	3%	3%
4. Aeronautics and space	5%	3% ⇓	3%	2%	8%	7%	4%	1% ⇓	3%	4%
5. Food quality and safety	4%	7% ⇑	4%	5%	3%	4%	6%	29% ⇑	4%	7% ⇑
6. Sustainable development	14%	9%	10%	7% ⇓	15%	9%	16%	7% ⇓	19%	16%
7. Citizens and governance	3%	3%	5%	4%	0%	0%	3%	1% ⇓	1%	4% ⇑
Policy support / S&T needs	6%	6%	5%	5%	1%	1%	6%	22% ⇑	3%	6% ⇑
Horizontal research activities - SMEs	7%	12% ⇑	2%	3%	19%	35% ⇑	5%	8% ⇑	8%	15% ⇑
Support for international cooperation	3%	0% ⇓	4%	1% ⇓	1%	0%	5%	0% ⇓	3%	0% ⇓
Research and innovation	2%	2%	1%	1%	1%	2%	1%	0%	9%	5% ⇓
Human resources and mobility	11%	18% ⇑	20%	28% ⇑	3%	10% ⇑	12%	9% ⇓	2%	3%
Research infrastructures	2%	3%	4%	3%	1%	2%	5%	5%	2%	1%
Science and society	1%	1%	2%	0% ⇓	0%	1%	1%	0%	3%	1% ⇓
Support for the coordination of activities	2%	3%	0%	0%	0%	0%	2%	5% ⇑	7%	12% ⇑
Development of R & I policies	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Euratom	2%	1%	1%	1%	1%	0%	3%	0% ⇓	1%	1%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

3.7 FP6 participation by Type of Instrument

3.7.1 Projects, participations and EC funding, by Type of Instrument

FP6 employed a range of different types of instruments (projects and actions) to implement its priorities, with a different profile of instruments being used within each Priority Area.

Figure 17 shows the numbers of projects and participations, and the volume of EC funding, achieved by Irish participations for each of the ten main types of instrument covered by the Commission's FP6 database. As with the Priority Areas, the various Instruments were used to a greater or lesser degree across FP6 and so it is not possible to draw firm conclusions on the performance of Ireland from this table. However, in terms of numbers alone Irish participation was highest for Specific Targeted Research Projects (STREPs), Marie Curie Actions, and Integrated Projects, with over 100 projects, over 150 participations and in excess of €40 million in funding achieved by Ireland for each type of instrument.

Figure 17 - Irish projects, participations and EC funding, by Type of Instrument

Instrument	Projects	Participations	EC funding (€ million)
Networks of Excellence (NoEs)	36	46	9.87
Integrated Projects (IPs)	121	177	60.82
Specific Targeted Research Projects (STREPs)	166	205	49.41
Coordination Actions (CAs)	85	106	8.36
Specific Support Actions (SSAs)	72	84	6.33
Co-operative Research Projects (CRAFT)	51	68	4.52
Collective Research Projects (CLR)	19	32	2.34
Integrated Infrastructure Initiatives (I3)	4	4	0.63
Specific Actions to Promote Research Infrastructures (II)	10	11	2.26
Marie Curie Actions (MCAs)	150	157	54.14
Total	**714**	**890**	**198.7**

In order to place the raw numbers shown in Figure 17 in context, Irish projects, participations and EC funding have been expressed as a share of the FP6 totals for each Type of Instrument. The results are shown in Figure 18, and arrows (⇑⇒⇓) have been used to symbolise whether Ireland has performed comparatively strongly or less well for each Type of Instrument, as compared to Ireland's overall performance in FP6. For example, across FP6 as a whole Ireland participated in 7.1% of the projects, so we can say that a project participation rate of 7% within STREPs is 'close to average' (⇒) while involvement in 21% of the NoEs is 'above average' (⇑).

The results suggest that Ireland has performed comparatively strongly in terms of its share of projects, participations and funding for Coordination Actions, Co-operative research projects and Collective Research projects. Ireland has also performed comparatively well in terms of its share of participations and share of funding for Marie Curie Actions.

Ireland has performed well in terms of the overall share of IPs and NoEs in which it has been involved, but its share of participations and funding for these two instruments is lower than average. This suggests that while Ireland has participated in many of the projects, so have a large number of other partners, diluting Ireland's share of the participations and funding.

For the infrastructure instruments, Ireland has performed well in terms of the overall share of projects in which it was involved, and has achieved a proportionate share of the participations. However, its share of the funding within these instruments is comparatively small, suggesting that while Ireland has been actively involved in FP6's infrastructure work most of the funding has gone to partners from other countries.

The situation is almost reversed for the Marie Curie Actions, where Ireland's share of the projects was lower than average, but its share of participations and funding was comparatively high. These results can be explained by the fact that the number of consortia in each MCA is very low (in comparison with other instruments), so most countries' share of MCA projects is not much higher than their share of MCA participations.

Ireland's relative involvement in Specific Support Actions was also rather low across all of the indicators (projects, participations and funding).

Figure 18 - Irish projects, participations and EC funding, expressed as a share of FP6 totals, by Type of Instrument

Instrument	Project share	Participation share	EC funding share
Networks of Excellence (NoEs)	21% ⇑	0.9% ⇓	0.8% ⇓
Integrated Projects (IPs)	17% ⇑	1.0% ⇓	0.9% ⇓
Specific Targeted Research Projects (STREPs)	7% ⇒	1.0% ⇓	1.1% ⇒
Coordination Actions (CAs)	17% ⇑	1.5% ⇑	1.4% ⇑
Specific Support Actions (SSAs)	5% ⇓	1.0% ⇓	0.7% ⇓
Co-operative Research Projects (CRAFT)	13% ⇑	1.8% ⇑	1.4% ⇑
Collective Research Projects (CLR)	22% ⇑	1.9% ⇑	1.6% ⇑
Integrated Infrastructure Initiatives (I3)	36% ⇑	1.2% ⇒	0.3% ⇓
Specific Actions to Promote Research Infrastructures (II)	12% ⇑	1.2% ⇒	0.7% ⇓
Marie Curie Actions (MCAs)	3% ⇓	1.9% ⇑	3.2% ⇑
Total	**7.1%**	**1.2%**	**1.2%**

Ireland has also played an active role in the ERA-NET scheme, which was an action undertaken in the context of FP6 with the objective of stepping up the co-operation and co-ordination of research and innovation programmes carried out at national or regional level in the Member States and Associated States. The instruments used for implementing the ERA-NET Scheme were the Co-ordination Actions (CAs, for full fledged proposals) and the Specific Support Actions (SSAs, to prepare CAs). Irish organisations participated in 23 of the 106 ERA-NET projects that were selected for funding under FP6, and accounted for 2.8% of all Member State (EU-25) participations in the ERA-NET projects. A total of 12 Irish organisations participated in the ERA-NET projects, with the main participants being Enterprise Ireland (7 participations); IRCSET (3); IRCHSS (3), Marine Institute (3); Environmental Protection Agency (2).

3.7.2 Involvement in FP6 Instruments, by organisation (activity) type

Ireland's performance across the FP6 Instruments can be further analysed at the level of each of the four main categories of participant described in Section 3.3 above. This permits an understanding of the relative levels of involvement of the HEIs, industry, etc, in each type of project or action, and reveals information on the suitability of the various mechanisms for different groups of actors.

Figure 19 shows the numbers of Irish participations and volumes of EC funding achieved by each main organisation group for each type of FP6 Instrument. In volume terms the most significant Instruments used by each category of participant are as follows:

HEIs – The **MCAs**, **STREPs** and **IPs** have been the most significant Instruments for HEIs in volume terms, together accounting for almost three quarters (73%) of all HEI participations in FP6, and 87% of the EC funding allocations. Involvement in **NoEs** was at lower levels in terms of both participations and funding, but out of the four groups of actor HEIs were the only one to make significant use of this instrument (85% of Irish NoE participations and 90% of Irish NoE funding).

The same applies for the two 'infrastructure' instruments – while overall numbers of participations and funding was low, HEIs realised 80% of Ireland's participations and 92% of Ireland's funding from these two types of instrument

Research institutes – **STREPS**, **IPs**, **SSAs** and **CAs** were the most significant instruments for the Irish research institutes in terms of the number of participations. **STREPs** and **IPs** along with the **MCAs** were the most significant in terms of funding

Industry – **Co-operative research projects (CRAFT), IPs,** and **STREPS** were the most significant Instruments for industry, together accounting for almost three-quarters (72%) of industry participations. However, the CRAFT projects provided relatively low levels of funding per participation (~€55k). **MCAs** in contrast were rather significant in terms of funding to industry, averaging ~€500k per participation, though two very high outliers (Ericsson and Aughinish Alumina) have brought up the average

Other – The 'other' participants (mainly public bodies, NGOs, etc.) made good use of **CAs**, **SSAs**, **IPs**, and **STREPS**, with these four instruments together making up 85% of participations. These instruments were also the most significant in funding terms, particularly the **IPs** which alone contributed almost half (43%) of the funding to 'other' participants

Figure 19 - Irish participations and EC funding, by Type of Instrument, split by main organisation type

Instrument	Higher education (HES)		Industry (IND)		Research (REC)		Other (OTH)	
	Participations	EC funding (€m)	Participations	EC funding (€m)	Participations	EC funding (€m)	Participations	EC funding (€m)
Networks of Excellence (NoEs)	39	8.9	2	0.1	3	0.3	2	0.5
Integrated Projects (IPs)	93	38.0	38	8.9	15	3.8	31	10.1
Specific Targeted Research Projects (STREPs)	122	36.5	37	6.3	19	3.1	27	3.6
Coordination Actions (CAs)	40	2.6	5	0.2	11	1.5	50	4.1
Specific Support Actions (SSAs)	22	0.9	10	0.8	14	1.2	38	3.5
Co-operative Research Projects (CRAFT)	11	1.3	44	2.4	5	0.4	8	0.5
Collective Research Projects (CLR)	3	0.7	15	0.8	1	0.1	13	0.7
Integrated Infrastructure Initiatives (I3)	3	0.6	0	0.0	0	0.0	1	0.1
Specific Actions to Promote Research Infrastructures (II)	9	2.1	1	0.0	1	0.1	0	0.0
Marie Curie Actions (MCAs)	133	43.5	16	8.0	7	2.5	1	0.2
Total	**475**	**135.1**	**168**	**27.6**	**76**	**12.8**	**171**	**23.2**

Figure 20 compares the profile of Irish participation across the ten main Instruments with the profile of all FP6 participations, and these data are then split out for each type of organisation. Arrows (⇑⇓) have been used to identify the areas where Irish participation has been relatively high or low (as compared to the more general FP6 profiles).

Taking the Irish participation profile as a whole, Figure 20 indicates that Ireland has performed comparatively strongly in the **MCAs**, **CAs, Co-operative Research Projects (CRAFT)** and **Collective Research Projects**. These Instruments support mainly the mobility of researchers, the coordination of research, and research projects for SMEs. By comparison, Ireland has been less actively involved in the larger research Instruments (**IPs** and **NoEs**), the smaller research projects (**STREPs**) and the horizontal support measures (**SSAs**).

The profile of participation for each type of organisational group follows the overall pattern in many cases. For example, comparatively low-levels of involvement in the IPs, NoEs and STREPs for Ireland applies also to all of the four main organisational groups, rather than being concentrated in one part of the community. By the same token, Ireland's strong performance within the Co-operative and Collective Research projects is common to most of the groups. However, some variations are noted in the following areas:

Coordination Actions (CAs) – Ireland's strong overall performance is attributable mainly to the research institutes and 'other' participants

Specific Support Actions (SSAs) – Ireland's relatively low level of involvement in the SSAs is due mainly to low involvement by HEIs and 'others' – Industry and research institutes performed comparatively well in terms of their use of SSAs

Marie Curie Actions (MCAs) – The strong overall performance by Ireland here is attributable mainly to the HEIs and Industry. Involvement by Irish research institutes was lower than (the FP6) average

The numbers of infrastructure projects was too low for the analysis to be meaningful at this level of disaggregation.

Figure 20 - Comparison of profile of Irish FP6 participations with all participations, by Type of Instrument (overall and then by organisation type)

Priority	All FP6	Ireland	All HES	Ireland HES	All IND	Ireland IND	All REC	Ireland REC	All OTH	Ireland OTH
Networks of Excellence (NoEs)	7%	5% ⇓	11%	8% ⇓	3%	1% ⇓	7%	4% ⇓	3%	1% ⇓
Integrated Projects (IPs)	24%	20% ⇓	21%	20%	34%	23% ⇓	22%	19% ⇓	22%	18% ⇓
Specific Targeted Research Projects (STREPs)	29%	23% ⇓	30%	26% ⇓	31%	22% ⇓	30%	25% ⇓	22%	16% ⇓
Coordination Actions (CAs)	10%	12% ⇑	7%	8%	4%	3%	10%	14% ⇑	20%	29% ⇑
Specific Support Actions (SSAs)	11%	9% ⇓	8%	4% ⇓	4%	6% ⇑	11%	19% ⇑	25%	22% ⇓
Co-operative Research Projects (CRAFT)	5%	8% ⇑	2%	2%	15%	26% ⇑	3%	6% ⇑	2%	5% ⇑
Collective Research Projects (CLR)	2%	4% ⇑	0%	1%	5%	9% ⇑	1%	1%	4%	8% ⇑
Integrated Infrastructure Initiatives (I3)	0%	0%	0%	1%	0%	0%	1%	0%	0%	1%
Specific Actions to Promote Research Infrastructures (II)	1%	1%	1%	2%	0%	1%	2%	1%	0%	0%
Marie Curie Actions (MCAs)	11%	18% ⇑	20%	28% ⇑	2%	9% ⇑	12%	9% ⇓	1%	1%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

There has been a high degree of interest in the new FP6 instruments – NoEs and IPs, and in particular the suitability of these instruments for different groups of actors. Figure 21 shows the profile of involvement of each of the four main groups of participants in each of these two instruments, overall for FP6 and then for Ireland only.

The data reveal that the participants in **NoEs** are mainly HEIs and research institutes (85% of the participations). The profile of Irish involvement in NoEs follows this general pattern, except for the fact that Ireland has relatively few research institutes and so most of its involvement in NoEs has been through the HEI sector.

Figure 21 also shows that across FP6 as a whole the **IPs** involve all of the four main participant groups to a significant degree, although HEIs pick up a slightly higher share of the participations (31%), and the 'other' category picks up a lower share (15%). Looking at Irish involvement in IPs, again the HEIs pick up a higher share, mainly due to the low involvement of research institutes. Irish industry has participated in the IPs perhaps to a lower extent than might have been expected.

Overall it seems that when we allow for the different make up of the research base in Ireland as compared to the EU as a whole (more research-active HEIs, fewer research institutes) Ireland's overall pattern of participation in IPs and NoEs follows normal lines.

Figure 21 - Profile of involvement in NoEs and IPs, split by organisation type for all FP6 participants and Ireland only

Instrument	HES	IND	REC	OTH	Total
NoEs – all FP6 participations	56%	8%	29%	7%	**100%**
NoEs – Ireland only	85%	4%	7%	4%	**100%**
IPs – all FP6 participations	31%	27%	26%	15%	**100%**
IPs – Ireland only	53%	22%	8%	17%	**100%**

3.8 Coordination of FP6 projects

3.8.1 Overall level of coordination of FP6 projects

Participants in the Framework Programmes can occupy the role of project coordinator or are otherwise listed simply as one of the participants. Analysis of Ireland's FP6 participations reveals that the Irish partner occupied the role of project coordinator in 175 cases, or 25% of the projects in which Irish participants were involved. This level is the same as that achieved in FP5 and indicates a reasonably strong performance in FP6 since the average number of participants per project has increased, diminishing the likelihood that any given partner in a project would undertake the role of coordinator. This is confirmed by the fact that Irish participants were in a coordinating role for 20% of all Irish FP6 participations, considerably above the FP6 average of 14%.

3.8.2 Coordination of FP6 projects by organisation type

The likelihood of coordinating a project varies by type of organisation, in some cases because certain types of organisation are expected (by the Commission) to occupy this role, but more often because organisations need a certain scale and level of research management and administrative capability in order to fulfil it. The coordinator often sits at the 'centre' of the network of partners involved in a Framework Programme project, so this role is most commonly undertaken by the larger, more established and more experienced participants.

Analysis of the participation data revealed that Irish HEIs were most likely to be in the coordinator role, acting as coordinator in 28% of all HEI participations. Research institutes were next most likely to act as coordinator, occupying this role on 14% of their participations. Industry and 'Others' occupied the coordinator role in ~10% of their participations.

3.8.3 Coordination of FP6 projects by Instrument

The likelihood of being a project coordinator also varies significantly depending on the type of instrument in which organisations are involved. For example, the NoEs have an average of 30 partners and it is therefore relatively difficult to occupy a high share of coordinator roles within this type of Instrument. However, Marie Curie actions have an average of only two partners, so we would expect to identify a high share of coordinator roles for this Instrument.

Figure 22 presents the numbers and share of projects in which Irish partners occupied the coordinator role. The average FP6 coordinator to participant ratio for each type of instrument is also shown. Arrows (⇑⇒⇓) have again been used to symbolise whether Ireland's coordination levels are above, below, or in line with the overall Fp6 averages. The data indicate that Irish partners have occupied the role of coordinator to a higher degree than we might have expected within IPs, STREPs, SSAs, and MCAs, with the latter of these being primarily responsible for Ireland's overall strong performance on this indicator. Irish coordination is lower than average primarily for the infrastructure projects (I3 and II) and for CRAFT projects. It should be noted that only one legal entity is required to participate in most MCAs, which explains the unusually high coordinator to participant ratio.

Figure 22 - Irish coordination levels by type of Instrument

Instrument	**Irish coordinators**	**Share of Irish projects with Irish coordinator**	**Coordinator to participant ratio (FP6 overall)**
Networks of Excellence (NoEs)	1	3% ⇒	3%
Integrated Projects (IPs)	6	5% ⇑	4%
Specific Targeted Research Projects (STREPs)	25	15% ⇑	11%
Coordination Actions (CAs)	5	6% ⇓	7%
Specific Support Actions (SSAs)	14	19% ⇑	17%
Co-operative Research Projects (CRAFT)	3	6% ⇓	11%
Collective Research Projects (CLR)	1	5% ⇒	5%
Integrated Infrastructure Initiatives (I3)	0	0% ⇓	3%
Specific Actions to Promote Research Infrastructures (II)	0	0% ⇓	9%
Marie Curie Actions (MCAs)	120	80% ⇑	55%
Total	**175**	**25% ⇑**	**14%**

3.8.4 Coordination of FP6 projects by Priority Area

Patterns of Irish coordination by FP6 Priority Area have also been analysed, and are shown in Figure 23. It reveals higher than expected coordination rates for Ireland in the Nanotechnologies & nanosciences, Food quality & safety, Sustainable development, Citizens & Governance and Human resources & mobility areas. Some other areas show higher than average levels of Irish coordinators but the numbers of projects involved are too small for the results to be significant.

Figure 23 - Irish coordination levels by FP6 Priority Area

Priority	Irish coordinators	Share of Irish projects with Irish coordinator	Coordinator to participant ratio (FP6 overall)
1. Life sciences, genomics and biotechnology	2	4% ⇓	9%
2. Information society technologies	10	8% ⇒	8%
3. Nanotechnologies and nanosciences	9	16% ⇑	8%
4. Aeronautics and space	1	4% ⇓	7%
5. Food quality and safety	4	10% ⇑	6%
6. Sustainable development	9	17% ⇑	6%
7. Citizens and governance	3	12% ⇑	7%
Policy support / S&T needs	3	6% ⇓	11%
Horizontal research activities - SMEs	5	7% ⇓	9%
Support for international cooperation	2	67% ⇑	14%
Research and innovation	1	8% ⇓	13%
Human resources and mobility	123	80% ⇑	54%
Research infrastructures	0	0% ⇓	8%
Science and society	2	50% ⇑	16%
Support for the coordination of activities	0	0% ⇓	8%
Development of R & I policies	1	100% ⇑	11%
Euratom	0	0% ⇓	7%
Total	**175**	**25% ⇑**	**14%**

3.9 Collaboration within FP6 projects

3.9.1 Overall extent of collaboration

One of the main objectives of the Framework Programmes is to promote and support collaboration between European and International actors in the research and technological development sphere.

Through their 890 participations in 714 FP6 projects Irish actors have collaborated with a very large number of other organisations from a range of countries. Overall statistics on the extent of this collaboration are as follows:

The number of *participations* in FP6 projects with Irish involvement, *excluding the Irish participations*, was 10,700

The number of non-Irish *participants* in the projects in which Ireland was involved is calculated as 6,744. However, due to the problem of the same organisation being listed under several different names (or more accurately different spellings of the same name) we believe that this over-estimates the true figure by ~30%. We would estimate the actual number of organisations that have collaborated with Irish partners in FP6 to be closer to 5,000

The average number of partners in an FP6 project in which Ireland was involved was 16.2, more than double the average for all FP6 projects (7.3). Further analysis of the scale of collaboration within Irish projects is presented in Section 3.9.2 below

Through its FP6 projects, Irish actors have collaborated with partners from 84 different countries. Section 3.9.4 provides more detailed information on the patterns of collaboration with the member states and with other countries

3.9.2 Numbers of participants in Irish FP6 projects

As indicated above, the average number of partners in projects in which Ireland participated was 16.2, more than double the average number of participants in a 'typical' FP6 project (n=7.3). This general finding holds for all of the seventeen Priority Areas with only one exception (Support for the coherent development of research & innovation policies) and for every type of Instrument, again with only one exception (Collective Research Projects).

At first glance this suggests that when larger consortia came together Irish actors were involved but when smaller FP6 consortia were being formed Irish partners were generally not involved / invited. However, on reflection it is to be *expected* that any single country will have greater levels of involvement in the projects that involve lots of partners, and lower levels of involvement in projects that involve only a few partners. After all, only one country can be involved in a project that only contains one partner, whilst lots of countries can be involved in projects that have 50 partners. This finding may therefore not be unusual.

The only way to understand whether Ireland has tended to participate in smaller or larger projects is to compare its situation with that of other Member States. The 'average partner counts' for a selection of EU member states is shown below. There is no clear pattern to the results, though it seems that the larger countries are involved in smaller consortia than the smaller countries. However, it also seems that Ireland is not in a particularly unique position, and that the numbers of partners in Ireland's projects are in a similar range to that of other countries.

UK – 11.4 partners per project

Spain – 14.3 partners per project

Netherlands – 14.7 partners per project

Estonia – 15.9 partners per project

Ireland – 16.2 partners per project

Sweden – 16.3 partners per project

Cyprus – 19.6 partners per project

3.9.3 Collaboration between Irish organisations within FP6 projects

With 890 participations across 714 projects it is clear than in some cases more than one Irish partner was involved in the same FP6 project. In fact, there were 125 FP6 projects with more than one Irish partner involved. The profile of intra-Ireland collaboration within the 714 projects is shown in Figure 24 below. It reveals that the largest number of Irish participants in a single FP6 project was seven - in fact there were two FP6 projects counting seven Irish partners, both of which were IPs.

Figure 24 - Number and share of Irish FP6 projects with >1 Irish partners

Irish partners	Number of FP6 projects	Share of FP6 projects
1 (no intra-Ireland collaboration)	589	82.5%
2	91	12.7%
3	26	3.6%
4	4	0.6%
5	1	0.1%
6	1	0.1%
7	2	0.3%
Total	**714**	**100%**

Official data published by the Commission on the collaborative links within FP6 projects provides the basis for an assessment of how Ireland's level of 'intra-country' collaboration compares to that of

other Member States. Data published in the Final Review of FP6 (June 2008) indicated that there were 259 'links' between Irish organisations within FP6, out of a total 12,500 Ireland-EU25 links, so Ireland's intra country links made up 2.1% of its EU25 total. Figure 25 shows similar data for each EU-25 country, and reveals that Ireland's level of intra-country collaboration places it 18th out of 25, towards the bottom of the list. However, it is clear from the profile that the larger countries perform best here, which is to be expected, as there will obviously be a larger pool of possible partners 'in-country' and therefore greater opportunities for such linkages.

Figure 25 – Intra-country links as a share of all EU-25 links

Member State (EU-25)	**Intra-country links as a share of all EU-25 links for that country**
Germany	11.2%
France	9.6%
United Kingdom	8.4%
Italy	8.4%
Spain	6.3%
Netherlands	5.1%
Sweden	4.2%
Greece	4.1%
Belgium	4.0%
Austria	3.8%
Poland	3.2%
Denmark	3.1%
Luxembourg	3.1%
Finland	3.1%
Hungary	2.8%
Portugal	2.7%
Lithuania	2.6%
Ireland	**2.1%**
Slovenia	2.0%
Czech republic	2.0%
Slovakia	1.9%
Cyprus	1.6%
Estonia	1.4%
Malta	0.9%
Latvia	0.9%

Figure 26 - Irish FP6 projects with intra-Ireland collaboration, by Priority Area

Priority	Irish projects	Irish projects with >1 Irish partner	Share of projects with >1 Irish partner
1. Life sciences, genomics and biotechnology	49	5	10%
2. Information society technologies	122	27	22%
3. Nanotechnologies and nanosciences	55	17	31%
4. Aeronautics and space	23	5	22%
5. Food quality and safety	40	15	38%
6. Sustainable development	54	13	24%
7. Citizens and governance	25	3	12%
Policy support / S&T needs	48	7	15%
Horizontal research activities - SMEs	73	20	27%
Support for international cooperation	3	0	0%
Research and innovation	13	2	15%
Human resources and mobility	153	8	5%
Research infrastructures	21	2	10%
Science and society	4	1	25%
Support for the coordination of activities	25	0	0%
Development of R & I policies	1	0	0%
Euratom	5	0	0%
Total	**714**	**125**	**18%**

It might have been anticipated that the highest level of intra-Ireland collaboration would take place within the IPs and NoEs, due to the larger numbers of partners involved in those Instruments. This is to some extent the case, with around a quarter of the IPs and NoEs (with Irish involvement) involving intra-Ireland collaborations. However, it is within the SME-focused CLR projects that intra-Ireland collaboration has been highest, with almost half (52%) of the (Irish) projects involving at least two Irish partners. The CRAFT and CA projects were also associated with relatively high levels of intra-Ireland collaboration (24% and 21% respectively).

Figure 27 – Irish FP6 projects with intra-Ireland collaboration, by Type of Instrument

Instrument	Irish projects	Irish projects with >1 Irish partner	Share of projects with >1 Irish partner
Networks of Excellence (NoEs)	36	9	25%
Integrated Projects (IPs)	121	32	26%
Specific Targeted Research Projects (STREPs)	166	29	17%
Coordination Actions (CAs)	85	18	21%
Specific Support Actions (SSAs)	72	9	13%
Co-operative Research Projects (CRAFT)	51	12	24%
Collective Research Projects (CLR)	19	8	42%
Integrated Infrastructure Initiatives (I3)	4	0	0%
Specific Actions to Promote Research Infrastructures (II)	10	1	10%
Marie Curie Actions (MCAs)	150	7	5%
Total	**714**	**125**	**18%**

The organisational profile of Irish participants in the 125 projects with more than one Irish partner has been identified as follows:

HEIs account for 53% of Ireland's FP6 participations overall but make up just 38% of the participations in projects with intra-Ireland collaboration

Research Institutes account for 9% of Ireland's participations, both overall and as a share of participations involving intra-Ireland collaboration

Industry participants account for 19% of Ireland's FP6 participations overall but have made up 31% of the participations in projects with intra-Ireland collaboration

Others account for 19% of Ireland's FP6 participations overall but 22% of participations in projects with intra-Ireland collaboration

These data suggest that, compared to overall levels of participation by each group, Irish industry is much more likely to be involved in projects with more than one Irish partner, while HEIs are less likely (although HEIs have the most intra-Ireland collaborations in absolute terms).

A more detailed analysis of the links within these projects reveals the collaboration profile shown in Figure 28. It shows that the most prevalent form of intra-Ireland link is Industry-HEI (22%), followed by HEI-Other (15%) and Industry-Other (15%).

Figure 28 - Nature of intra-Ireland collaborative links within FP6 projects (n=260 links)

	HEIs	Research Institutes	Industry	Other
HEIs	12%	5%	22%	15%
Research Institutes		0%	5%	4%
Industry			12%	15%
Other				10%

An alternative perspective on the collaboration between different types of Irish organisation within FP6 projects is given in Figure 29 below. It reveals that each group has more collaborative links with Irish partners from other types of organisation (combined) than with their own group. Research institutes are least likely to collaborate within their own group (3%, or just one such collaborative

link), which again reflects the limited number of research institutes in Ireland and the fact that most are specialised in specific fields. The opportunity for Research Institute- Research Institute collaborations within Ireland are therefore fairly limited.

Figure 29 - Nature of intra-Ireland collaborative links within FP6 projects (n=260 links)

	Share of links with own organisational group	Share of links with other types of organisation
HEIs	22%	78%
Research Institutes	3%	97%
Industry	22%	78%
Other	23%	77%

3.9.4 North-South collaboration within FP6 projects

Irish participants have had 60 participation-level collaborations with partners from Northern Ireland across a total of 53 (or 7% of Ireland's) FP6 projects. This 'North-South' collaboration has mainly been with Queen's University Belfast and the University of Ulster, though there have also been collaborations with companies from Northern Ireland (x8 participations), research institutes (x3) and public agencies (x2).

The collaborations have taken place mainly within STREPS (25%), CAs (22%) and IPs (20%), though North-South collaboration has occurred within all FP6 instruments apart from the Infrastructure projects.

North-South collaboration has taken place within most FP6 Priority Areas, but has been most active within the Food quality and safety (20%), Nanotechnologies and nanosciences (15%), Information society technologies (13%) and Horizontal research activities involving SMEs (12%) Priority Areas.

3.9.5 Collaboration with actors from different countries

There were 10,695 participations by organisations from other countries in Irish FP6 projects, with the partners being drawn from a total of 84 different countries.

In volume terms the greatest number and share of collaborations took place with partners in the UK and Germany (~13% of collaborations), followed by France (~10%) and Italy (~9%). However, this reflects mainly the high levels of participation in FP6 by these countries as a whole.

A better indicator of the strength of collaboration between Ireland and other countries is shown in the final column of Figure 30, which expresses the ratio of each country's share of all participations in Irish projects to their overall share of FP6 participations. Using this indicator, the most active 'Member State' collaboration partners are Luxembourg, Portugal and Finland and the least active are the Czech republic, France and Germany.

Figure 30 – Irish collaboration with actors from different countries – EU member states and candidate countries

Country		Participations in Irish projects	Share of all participations in Irish projects	Ratio of participation in Irish projects to overall level of FP6 participation
EU Member states	Austria	276	2.6%	97%
	Belgium	448	4.2%	108%
	Bulgaria	76	0.7%	**114%**
	Cyprus	38	0.4%	**112%**
	Czech Republic	138	1.3%	**89%**
	Denmark	275	2.6%	**115%**
	Estonia	63	0.6%	**114%**
	Finland	264	2.5%	**126%**
	France	1,094	10.2%	**95%**
	Germany	1,357	12.7%	**89%**
	Greece	378	3.5%	**114%**
	Hungary	176	1.6%	102%
	Italy	929	8.7%	97%
	Latvia	34	0.3%	109%
	Lithuania	58	0.5%	**117%**
	Luxembourg	23	0.2%	**152%**
	Malta	20	0.2%	109%
	Netherlands	602	5.6%	101%
	Poland	278	2.6%	102%
	Portugal	219	2.0%	**129%**
	Romania	87	0.8%	99%
	Slovakia	63	0.6%	99%
	Slovenia	88	0.8%	98%
	Spain	742	6.9%	102%
	Sweden	407	3.8%	106%
	United Kingdom	1,421	13.3%	**111%**
Candidate countries	Croatia	20	0.2%	**89%**
	FYR of Macedonia	2	0.0%	**22%**
	Turkey	68	0.6%	100%

Figure 31 shows the numbers and share of collaborations with all other countries where the number of participations within Irish projects was 10 or more. Switzerland and Norway lead in terms of the number of participations in Irish projects, with over 250 participations each. However, the most significant collaboration partners (proportionately) are Iceland, the Ukraine and Norway, each of which collaborated with Ireland at a level at least 30% higher than might be expected given their overall levels of participation in FP6.

It should also be noted that the USA accounted for 0.58% of all FP6 participations but made up just 0.44% of the participations in Ireland's portfolio of FP6 projects. Ireland's level of collaboration with partners from the USA was therefore below average, and also perhaps below expected levels given the close links between the two countries.

Figure 31 – Irish collaboration with actors from different countries – Other countries with >10 participations in Irish projects

Country		Participations in Irish projects	Share of all participations in Irish projects	Ratio of participation in Irish projects to overall level of FP6 participation
Countries with 10+ participations in Irish projects	Switzerland	282	2.6%	97%
	Norway	251	2.3%	**133%**
	Israel	85	0.8%	**77%**
	Russian Federation	79	0.7%	**119%**
	United States	47	0.4%	**76%**
	European Union	39	0.4%	**111%**
	Iceland	29	0.3%	**151%**
	China	24	0.2%	**42%**
	Ukraine	22	0.2%	**141%**
	Canada	20	0.2%	108%
	Brazil	17	0.2%	**75%**
	Australia	14	0.1%	90%
	Serbia & Montenegro	13	0.1%	**66%**
	South Africa	13	0.1%	**71%**
	Argentina	10	0.1%	**72%**

3.9.6 Collaboration between different types of organisation

The partners in the Irish FP6 projects break down by activity type as follows: HES – 36%; IND – 18%; REC – 28%; OTH – 18%. This is broadly in line with Ireland's participation breakdown, except that Ireland has higher HES participation (53%) and lower REC participation (9%) as already discussed in Section 3.3.

3.9.7 Interaction with the stable core of European S&T organisations

The study terms of reference asked the evaluation to assess the level of collaboration between Irish partners and the 'stable core of actors' that have been identified as the most significant Framework Programme participants over time.[13] The ten most significant network partners within FP5 are listed in Figure 32, along with an indication of the number of times each institution has participated in a project involving an Irish partner.

It should be noted that due to the nature of the FP6 data relating to organisation names it has only been possible to identify whether Irish partners have collaborated with each *organisation* (rather than specific departments or groups). It should also be noted that the numbers of FP6 collaborations with Ireland shown in the table are estimates, due to the variability in the way in which organisation names are listed in the FP6 database. In each case we have listed the *minimum* likely number of collaborations.

The results clearly demonstrate that Irish actors are indeed collaborating with these 'core' network partners and at a reasonably significant level in each case.

[13] These organisations have been identified in a UNU-MERIT Working paper entitled 'R&D collaboration networks in the European Framework Programmes: Data processing, network construction and selected results'

Figure 32 – Irish collaborations with the stable core of FP actors

	Organisation / Group	Level of FP6 collaboration with Ireland
1	CNRS/MPPU	89+ Institutional level collaborations
2	Fiat/Centro Richerche	14+ Institutional level collaborations
3	CNRS/Sciences du vivant	Inc in CNRS (1) above
4	AUTH/Faculty of Technology	17+ Institutional level collaborations
5	Univ. Stuttgart/Faculty of Engineering	18+ Institutional level collaborations
6	Imperial CL/Faculty of Engineering	32+ Institutional level collaborations
7	TNO/Science and Industry	27+ Institutional level collaborations
8	VTT/Industrial Systems	17+ Institutional level collaborations
9	CNRS/INSU	Inc in CNRS (1) above
10	JRC/IES	20+ Institutional level collaborations

3.10 Irish participation in FP6 proposals and FP6 success rates

3.10.1 Irish participation in proposals submitted to FP6

Forfás obtained, from the Commission, a database containing basic information on Irish participation on proposals submitted to FP6. There were 4,053 records in the database on receipt, but some of these were subsequently identified as duplicate records (n=178), while a small number related to non-Irish participation (n=29). Therefore the actual number of Irish *participations* in FP6 proposals is taken to be 3,846. The number of discrete *proposals* in which Irish applicants were named was calculated as 3,048.

Data published by the Commission indicates that the total number of proposals submitted to FP6 was 55,597, so we can calculate that Ireland's participation rate within the proposals was 5.4%. The Commission data also indicates that there were a total of 389,737 participations in the submitted proposals received under FP6, so Ireland's share of the participations in proposals is calculated as 1.0%. These data show the level of 'demand' for participation in FP6 by Irish organisations.

We have also identified from the data that 698 Irish organisations applied to FP6. Figure 33 provides a breakdown of these by organisation type, and shows the number and share of Irish participations accounted for by each group. It indicates that the majority of the applicants were from industry, but the majority of the proposal participations were accounted for by HEIs. The average number of proposals participations among all Irish applicants was 5.5, but ranged from just over 2 per organisation for industry applicants to 65 for the HEIs. No data on participation by each group in FP6 proposals overall is available, so it is not possible to determine whether the profile of Irish demand is similar to that for all countries.

Figure 33 – Ireland's participation in FP6 proposals, by organisation type

	Number of applicants	Share of Irish applicants	Number of participations in proposals	Share of Irish proposal participations
HEIs	33	5%	2,160	56%
Research Institutes	35	5%	236	6%
Industry	440	63%	992	26%
Other	190	27%	451	12%
Total	**698**	**100%**	**3,839***	**100%**

**Note that this figure omits 7 proposal participations where the Irish participant was not named, so it has not been possible to assign an activity type*

Figure 34 shows the breakdown of Irish participation in FP6 proposals, by Priority Area, and gives an indication of the relative level of demand for involvement in each area. It shows that Ireland's proposal participation rate was highest in proposals submitted to the Support for coordination of activities, Citizens and governance, and Information society technologies areas. Irish participation rates were lowest in the Support for international cooperation and Euratom areas.

Figure 34 – Participation by Ireland in FP6 proposals, by Priority Area

Priority	All proposals	Ireland proposals	Demand - share of bids with Irish involvement
1. Life sciences, genomics & biotechnology	2442	127	5%
2. Information society technologies	7702	750*	10%
3. Nanotechnologies and nanosciences	2880	214*	7%
4. Aeronautics and space	805	41*	5%
5. Food quality and safety	1145	107	9%
6. Sustainable development	3765	135*	4%
7. Citizens and governance	886	96	11%
Policy support / S&T needs	2745	154	6%
Horizontal research activities - SMEs	3980	316	8%
Support for international cooperation	2759	37	1%
Research and innovation	762	57	7%
Human resources and mobility	23464	822	4%
Research infrastructures	514	25	5%
Science and society	1406	57	4%
Support for the coordination of activities	241	30	12%
Development of R & I policies	140	8	6%
Euratom	321	5	2%
Total	**55957**	**2981***	**5%**

**Note that this figure omits 67 proposals with Irish involvement submitted under two joint calls (Joint AERONAUTICS & SPACE and SUSTAINABLE DEVELOPMENT + Joint IST and NANOTECH) so the participation rate in proposals submitted to these areas is underestimated slightly in the above table*

It is not possible to provide an analysis of Irish participation in proposals by type of instrument, as this information was not included in the database of FP6 applicants supplied by the Commission.

3.10.2 Irish success rates in applying to FP6

As indicated above, Irish organisations participated in 3,048 FP6 proposals and in 714 FP6 projects, so Ireland's overall project-level success rate was 23.4%, significantly above the average success rate for FP6 as a whole, which was 18%. This indicates that proposals with Irish participation have performed well overall.

Figure 35 shows Ireland's participation-level success rate for each of the four categories of organisation involved in FP6. It indicates that success rates were highest for the research institutes and 'Others', in both cases significantly above the overall average of 23%. HEI success rates were very close to Ireland's average, while industry applicant success rates were below average. It is not possible to determine whether this outcome is specific to Ireland or whether it reflects a more general trend or feature of FP6.

Figure 35 – Ireland's participation success rate in FP6, by organisation type

	Proposal participations	Project participations	Participation success rate
HEIs	2160	475	22%
Research Institutes	236	76	32%
Industry	992	168	17%
Other	451	171	38%
Total	**3839***	**890**	**23%**

**Note that this figure omits 7 proposal participations where the Irish participant was not named, so it has not been possible to assign an activity type*

Figure 36 shows Irish success rates at the level of the applicant organisations, split by organisation type. It reveals that of the 698 Irish organisations that applied to FP6, 271 (or 39%) were successful and participated in one or more projects. Once again, however, we find that industry applicants suffer from much lower success rates, with less than a third (30%) of Irish companies being successful, while over half of the applicants from the other three groups managed to secure at least one award. Overall these data suggest that Irish industry participation rates in FP6 have not suffered due to a lack of demand, but from relatively low success rates when applying.

Figure 36 – Ireland's applicant success rate in FP6, by organisation type

	Organisations in FP6 proposals	Organisations in FP6 projects	Applicant success rate
HEIs	33	18	55%
Research Institutes	35	20	57%
Industry	440	133	30%
Other	190	101	53%
Total	**698**	**271**	**39%**

3.10.3 Irish success rates by FP6 Priority Area

Figure 37 shows the success rates of proposals with Irish participation and compares these to the overall success rates for all proposals submitted to FP6, by FP6 priority area. It shows that Irish proposal success rates were above the FP6 average in 12 of the 17 Priority Areas, with Ireland performing particularly well in the Food quality and safety, Sustainable development, Research infrastructures and Euratom areas, where Irish success rates were more than double the FP6 averages. Irish proposal success rates were well below average in the Support for international collaboration, Research and innovation and Science and society areas.

Figure 37 – Irish and all FP6 proposal success rates by Priority Area (overall and then by organisation type)

Priority	Ireland proposals	Ireland projects	Proposal success rate - Ireland	Proposal success rate – all FP6	Ratio of Irish success rates to FP6 success rates
1. Life sciences, genomics & biotechnology	127	49	39%	25%	157% ⇑
2. Information society technologies	750*	122	16%	14%	115% ⇑
3. Nanotechnologies and nanosciences	214*	55	26%	15%	166% ⇑
4. Aeronautics and space	41*	23	56%	30%	187% ⇑
5. Food quality and safety	107	40	37%	16%	231% ⇑
6. Sustainable development	135*	54	40%	18%	227% ⇑
7. Citizens and governance	96	25	26%	16%	158% ⇑
Policy support / S&T needs	154	48	31%	19%	164% ⇑
Horizontal research activities - SMEs	316	73	23%	12%	188% ⇑
Support for international cooperation	37	3	8%	12%	65% ⇓
Research and innovation	57	13	23%	31%	73% ⇓
Human resources and mobility	822	153	19%	20%	95% ⇓
Research infrastructures	25	21	84%	30%	280% ⇑
Science and society	57	4	7%	11%	61% ⇓
Support for the coordination of activities	30	25	83%	42%	197% ⇑
Development of R & I policies	8	1	13%	14%	92% ⇓
Euratom	5	5	100%	24%	412% ⇑
Total	**2981***	**714**	**24%**	**18.0%**	**133%** ⇑

**Note that this figure omits 67 proposals with Irish involvement submitted under two joint calls (Joint AERONAUTICS & SPACE and SUSTAINABLE DEVELOPMENT + Joint IST and NANOTECH) so the success rate in proposals submitted to these areas is over-estimated slightly in the above table*

3.10.4 FP6 success rates for selected Irish HEIs

We were asked to assess the FP6 proposal success rates for the main Irish HEIs and the results, based on the data available, are shown in Figure 38. It reveals that these 11 HEIs had just over 2,100 participations in proposals between them, representing 55% of all participations by Irish organisation in proposals submitted to FP6. The number of project participations secured by these HEIs totalled 466, an overall success rate of 22%, almost exactly the same as Ireland's overall participation success rate of 23%. At the level of each individual HEI the success rates ranged from a low of 11% to a high of 38%.

Figure 38 –FP6 proposal success rates – selected HEIs

HEI	Proposal participations	Project participations	Success rates
National University of Ireland, Cork (UCC)	463	98	21%
Trinity College Dublin (TCD)	429	92	21%
National University of Ireland, Dublin (UCD)	365	97	27%
National University of Ireland, Galway (NUIG)	253	70	28%
University of Limerick	163	25	15%
Dublin City University	134	34	25%
National University of Ireland, Maynooth (NUIM)	64	12	19%
Royal College of Surgeons in Ireland	33	10	30%
Waterford Institute of Technology	121	14	12%
Dublin Institute of Technology	56	6	11%
Cork Institute of Technology	21	8	38%
Total	**2102**	**466**	22%

4. Feedback on FP6 participation

4.1 Introduction

In this section of the report we present the results of feedback received through a questionnaire survey directed to all of Ireland's FP6 participants. In addition to the feedback gathered through the survey, interviews were carried out with 30 people, identified as either key (core) Framework Programme participants, representatives of national funding agencies or FP6 support providers. The information gained through these interviews is used to supplement the information received through the survey and reported below.

The sub-sections below provide feedback from FP6 participants in the following areas:

The relevance of FP6 to Irish organisations

The drivers and motives for FP6 participation

The impact of national funding on FP6 participation

Irish participants' roles in FP6 projects

The outputs delivered through FP6 projects

Benefits realised through FP6 participation

Wider impacts of FP6 projects

The costs and benefits of FP6 participation

Satisfaction with FP6 administration

Early feedback on FP7 participation

4.2 The relevance of FP6 to Irish organisations

4.2.1 Relevance of research topics and instruments

FP6 participants were asked whether, in comparison to FP5, they considered FP6 to be better of worse in respect of the research topics and priority areas covered and in terms of the forms of support (instruments) employed. The responses obtained are presented in Figure 39 and indicate that most respondents had either no opinion on or considered that there had been no significant change from FP5 to FP6 in terms of the relevance of the research topics and the instruments employed. Of those that did express an opinion one way or another, the vast majority considered FP6 research topics to be *more* relevant than FP5 (by a ratio of 10:1) and most considered the forms of support available to also have been an improvement (by a ratio of 4:1).

Figure 39 – Participant's views on the relevance of FP6 in comparison to FP5 (n=151)

	Worse	Same	Better	No opinion
The relevance of the research topics/priority areas covered	4%	25%	40%	32%
The relevance of the forms of support (i.e. instruments)	9%	22%	36%	33%

Participants were asked specifically about the two major new forms of instrument that were introduced for FP6 – the Networks of Excellence and the Integrated Projects – and how these had impacted on their ability to participate. The results are shown in Figure 40 and indicated that again most participants have not been seriously affected by the introduction of the new instruments, expressing either no opinion or indicating that they had no impact on their ability to participate. Again we found that a greater number of respondents felt that the new instruments were more likely

to have led to an increased rather than a decreased ability to participate, suggesting that the larger scale of the actions and the increased number of partners has exerted a positive effect overall.

In cases where respondents indicated that the introduction of the NoEs and IPs had *decreased* their ability to participate we found that in almost all cases these were from HEIs or 'Other' organisations. However, in the case of HEIs respondents were roughly twice as likely to state that the NoEs and the IPs had *increased* their ability to participate. For 'Other' participants the results were more finely balanced, with roughly equal numbers indicating that the new instruments had increased or decreased their ability to participate. In almost all cases respondents from Industry and Research Institutes expressed no opinion or stated that the new instruments had had no impact on their ability to participate.

Figure 40 – Impact of the New Instruments on Irish organisations' ability to participate (n=151)

	Decreased ability to participate	No impact	Increased ability to participate	No opinion
Networks of Excellence (NoEs)	14%	31%	23%	32%
Integrated Projects (IPs)	14%	34%	24%	27%

4.2.2 Trends in application and participation rates from FP5 to FP6

Respondents were asked whether, in comparison to FP5, their organisation or research group had increased or decreased (i) the number of applications they had submitted, and (ii) the number of projects in which they had participated. The results are shown in Figure 41 and reveal that, of those who were able to answer, most stated that their organisation or research group had increased both the number of proposals submitted and the number of projects in which they had participated. A significant minority stated that there had been no change.

Respondents signalling that their organisation had *decreased* the number of proposals submitted or had participated in fewer FP6 projects, as compared to FP5, were in most cases from HEIs and 'Other' types of organisation. However, respondents from both groups were much more likely to state that that they had increased their application and participation rates than the opposite. Industry and research institute participants in most cases signalled that they had increased both the number of proposals submitted and the number of project participations.

Figure 41 – Changes in Irish participants' level of involvement from FP5 to FP6 (n=149)

	Decrease	No change	Increase	Not known
The number of applications submitted to FP6 in comparison with FP5	8%	28%	40%	24%
The number of projects participated in within FP6 in comparison with FP5	13%	21%	42%	23%

Respondents that had increased their application or participation rate in comparison with FP5 cited reasons such as a closer fit of the priority areas with their research strategy, stronger links with other research groups that have developed over the past few years, and increased research capability and capacity to undertake significant collaborative projects at an EU-level.

The most commonly cited reason mentioned by respondents that had decreased their number of applications or participations was the low success rates for FP6 projects, which in some cases had acted as a deterrent to applying and in other cases accounted for a reduced number of projects despite no reduction in application numbers. Other reasons included the complexity of the EC administration processes, a poor fit of the research priorities with their research strategy, increased national funding acting as a distraction from the Framework Programmes, and difficulty forming collaborations with what are perceived to be 'closed' networks.

4.2.3 Feedback from interviews

The interviews carried out with key FP6 participants, support providers and funding agencies confirmed the general view presented above which shows FP6 as having been of high or good relevance to Irish participants. The participants in most cases considered Framework participation as a key component in their overall research activities and have indicated that FP6 priorities and instruments were a good fit with their requirements and have helped to facilitate their involvement in (rather than act as a barrier to) their participation in European collaborative research. The FP6 priority areas were considered to be both a little broader and easier to understand than FP5 priorities (which were based more around socio-economic objectives than research areas) and this has helped to ensure that most project ideas have been able to find a suitable home within the overall FP6 structure. As we might expect, the changes introduced in FP6 did have a negative impact on some participants, but on the whole the changes have been viewed positively rather than negatively.

The introduction of new Instruments (NoEs and IPs) within FP6 attracted more of a mixed response, with some interviewees indicating that the larger scale of these instruments had created barriers to participation among the smaller or less experienced researchers. However, a similar number of commentators felt that the larger scale of the new instruments had provided greater opportunities for Irish involvement within those projects, and had facilitated involvement in larger and broader networks than had been the case in the past. In some cases where Irish partners had been responsible for coordinating or otherwise supporting the management and administration of NoEs and IPs they reported that there had been difficulties in managing the projects, indicating that the partnerships and the work programmes were 'unwieldy' and presented a particular challenge. However, the benefits in terms of international exposure, reputation and image that came with being at the centre of a major EU project in most cases meant that the Irish participants considered this to have been a price worth paying.

4.3 The drivers and motives for FP6 participation

4.3.1 Motives for becoming involved in FP6 projects

Irish participants in FP6 projects were asked to rate a number of given factors in terms of their importance as motives for their organisation's or research group's participation in FP6.

Figure 42 – Motives for involvement in FP6 projects

Motive	Not important	Of little importance	Moderately important	Important	Very important
To develop new or improved relationships or networks	2%	1%	12%	36%	49%
To develop and extend internal knowledge and capabilities	1%	3%	13%	36%	48%
To access research funding	5%	8%	15%	27%	45%
To develop new or improved tools, methods or techniques	6%	5%	15%	45%	28%
To solve specific scientific or technical questions, problems or issues	3%	5%	20%	43%	30%
To tackle problems that have a European or international dimension	6%	9%	15%	38%	33%
To access capabilities that do not exist in Ireland	5%	14%	22%	31%	28%
To improve the coordination of research	7%	13%	33%	31%	16%
To share the costs / risks associated with the project	20%	28%	30%	14%	9%
To develop new or improved commercial products or services	24%	19%	27%	20%	10%
To access research facilities / infrastructure	14%	21%	26%	25%	14%
To provide training (e.g. for PhD students or early stage postdocs)	22%	16%	22%	22%	19%
To create new or improved facilities or infrastructure	24%	24%	24%	22%	6%
To facilitate the mobility of researchers	17%	26%	22%	22%	13%
To develop new or improved regulations or policies	27%	23%	21%	19%	11%

The ratings shown in Figure 42 have been used to identify the ranked order of each motive for each main group of participants. This was done by assigning numeric scores for each rating (Very important = 4 points; Important = 3 points; Moderately important = 2points, Of little importance = 1 point; Not important = 0 points), calculating the average ratings assigned by each group to each factor and then sorting the results in ranked order.

The results are presented in Figure 43 and indicate that there is a good degree of alignment as to the most important motives across the four groups, with all considering the development of new networks and relationships and the extension of knowledge and capabilities as a 'top 3' motive for participation. Accessing research funding was the primary motive for the HEIs, and was a 'top 5' motive for research institutes and industry, but was ranked as less important by 'Other' participants.

Figure 43 also makes it easy to see some important differences between the groups, with for example, the development of new or improved commercial products and services being a primary motive for Industry participants, but understandably not being a significant motive for other groups. We can also see that the provision of training through FP6 projects is a more important motive for the HEIs than for the other three groups, and that the development of new regulations and policies is important for the 'Others ' (mainly public sector agencies) and to a lesser extent some public research institutes, but is of little or no importance to most HEI and Industry participants. Overall these patterns make intuitive sense and indicate that on the whole the four groups share many common objectives but also retain their own specific foci in terms of what they hope to get from Framework participation.

Figure 43 – Motives for involvement in FP6 projects, in ranked order of importance, by type of organisation

Motive	HEIs	Research Institutes	Industry	Other	Overall
To develop new or improved relationships or networks	2	1	2	2	1
To develop and extend internal knowledge and capabilities	3	2	1	1	2
To access research funding	1	5	5	9	3
To solve specific scientific or technical questions, problems or issues	4	4	7	5	4
To develop new or improved tools, methods or techniques	6	3	2	4	5
To tackle problems that have a European or international dimension	5	5	6	3	6
To access capabilities that do not exist in Ireland	7	7	7	8	7
To improve the coordination of research	10	8	11	7	8
To access research facilities / infrastructure that do not exist in Ireland	11	10	9	11	9
To provide training (e.g. for PhD students or early stage postdocs)	8	13	14	14	10
To facilitate the mobility of researchers	9	11	13	15	11
To develop new or improved commercial products or services	13	12	2	12	12
To share the costs / risks associated with the project	12	14	10	13	13
To develop new or improved regulations or policies	15	9	15	6	14
To create new or improved facilities or infrastructure	14	14	12	10	15

4.3.2 Key drivers for participation in FP6 projects

Survey respondents were also asked to indicate which of the given motives were the three most important drivers for their participation in FP6 projects, in order. The responses largely confirmed the picture shown in Figure 43, although there were some differences in the outcome when participants were only permitted to identify three items from the list. The results are shown in Figure 44 and signal that, when asked to identify only the *most* important objectives, accessing research funding becomes more important, particularly for research institutes and industry. In addition, the development of new or improved tools, methods and techniques and the development of new or improved commercial products and services, which were ranked equal second by industry when considering *all factors* did not feature so significantly when industry respondents were asked to pick the 'top 3' drivers of participation. In fact, industry's top 3 drivers are the same as those of the HEIs and research institutes (though in a different order in the latter case). This is an important finding as historically many industry participants have become involved in Framework Programmes for the 'wrong' reasons, expecting certain types of outcomes or benefits when in fact the nature of the instruments means that they are more likely to deliver different sorts of benefits. While industry might hope to develop new products or services through Framework participation, this is a longer-term goal and most participants now see the projects as primarily enabling them to access research funding, develop and extend their networks, strengthen their knowledge and capabilities, and tackle specific questions, issues or problems. In time these 'benefits' are likely to lead on to the development of new products and services but these are unlikely to occur within or as an immediate result of FP participation.

Figure 44 – Drivers for involvement in FP6 projects, in ranked order of importance, by type of organisation

Motive	HEIs	Research Institutes	Industry	Other	Overall
First most important driver	Funding	Relationships / networks	Funding	Knowledge / capabilities	Funding
Second most important driver	Relationships / networks	Funding	Relationships / networks	Relationships / networks	Relationships / networks
Third most important driver	Knowledge / capabilities	Knowledge / capabilities	Knowledge / capabilities	Address EU problems	Knowledge / capabilities

4.4 The impact of national research funding on FP6 participation

FP6 coincided with a period of rapid expansion in the levels of national research funding in Ireland, and the evaluation has sought to determine whether and to what extent this has impacted on FP6 participation levels. National funding programmes like the PRTLI offer core funding to facilitate the strategic development of institutional research capabilities with investment in capital infrastructure and research programmes, and it was hoped that national funds would subsequently be used to leverage in some way involvement in the Framework Programmes.

National funding programmes, while fundamentally different to the funding on offer under the Framework Programmes, have thus helped to build capacity and capabilities necessary for researchers to participate in the Framework Programme and to provide research organisations with the resources needed to co-finance those elements of FP projects that were not covered by the Commission.

Respondents were asked whether the availability of national R&D funding from 2000-6 had impacted on (i) their desire, and (b) their ability to participate in FP6. It should be noted that in some instances national funding programmes have been targeted at the institutional level rather than at the level of individual researcher and so, impact upon individual researchers' desire to participate will vary. The responses obtained are presented in Figure 45 and reveal that in almost all cases national funding has either had no impact or a positive impact on participants' desire and ability to participate in Framework. It should be noted, however, that this result was obtained for FP6 *participants*; the group *least* likely to indicate that national funding had decreased their ability or desire to participate.

Figure 45 – Impact of national R&D funding on desire and ability to participate in FP6 (n=149)

	Decreased	No impact	Increased
Desire to participate	3%	49%	47%
Ability to participate	6%	41%	53%

The results obtained differ slightly at the level of each of the four main types of participating organisation, as shown in Figure 46. HEIs and research institutes in most cases signalled that national R&D funding had not impacted significantly on either their desire or ability to participate in FP6, though in around 40% of cases an increased desire was reported, and in around 30% of cases an increased ability was reported. Industry responses broadly followed this pattern, though industry participants were more likely to signal that national funding had increased their *ability* to participate. 'Other' participants were the group most likely to report that national funding had enhanced both their desire and ability to participate, with almost three-quarters of respondents from this group signalling that national funds had exerted a positive impact on FP6 involvement.

Figure 46 – Impact of national R&D funding on desire and ability to participate in FP6, by type of organisation (n=149)

	Group	Decreased	No impact	Increased	Total
Desire to participate	HEIs	5%	52%	43%	100%
	RIs	0%	58%	42%	100%
	Industry	0%	53%	47%	100%
	Other	3%	23%	73%	100%
Ability to participate	HEIs	6%	62%	32%	100%
	RIs	0%	70%	30%	100%
	Industry	6%	44%	50%	100%
	Other	7%	21%	71%	100%

Respondents were asked to explain their answers. Those who stated that the availability of national funding had *increased* their desire and ability to participate in FP in most cases indicated that national funds had significantly enhanced their capacity to perform research. Many mentioned that the infrastructure and equipment provided through national funding, as well as the increased numbers of researchers, had enhanced their ability to become involved in European projects. The national funding in some cases had also helped to strengthen research capabilities and improve researchers' international mobility and profile, and this had facilitated the formation of new collaborative relationships. It was also pointed out that having a diversity of funding sources gives greater stability to a research group, and provides a stronger platform for the extension and strengthening of research capabilities and networks.

Respondents who reported that national funding had *decreased* their desire or ability to participate stated that the national funds were seen as preferable due to the high administrative load of involvement in FP projects, and also that they had been giving attention to national projects which left less time for FP project participation. A small number of respondents also reported that the provision of national funding had caused them to focus their research efforts on areas of national priority and this had diminished to some extent their desire and ability to put the same effort into international collaborative projects.

Respondents that described *no impact* to either their desire or ability to participate in FP6 as a result of the availability of national funds in most cases reported that they had not in fact benefited from the national funding opportunities. In other cases respondents indicated that they were already able to access funding from a broad range of sources, including the Framework Programmes, and that increases in national funding had not had any material impact on the overall profile of research income.

Feedback from interviewees also resulted in a range of views, but in many cases supported the dominant view from the survey, which is that the Framework Programmes *complement* rather than duplicate national funding mechanisms and that a strong national funding system goes hand in hand with strong involvement in international collaborative research. For example, construction of national research infrastructure and their associated research programmes have been supported through PRTLI, while FP7's Research Infrastructures programme offers funding for activities such as networking of infrastructures and transnational access, but not for actual construction. In this way, national funding programmes and Framework Programmes offer distinct but complementary sources of research funding. In addition, we have been told that around 60% of the IRCHSS budget is used to support Postgraduate and Postdoctoral training, an area of activity that is not supported directly through the Framework Programmes.

While national-level and FP support measures are in many cases complementary, our interviews have also revealed that the higher levels of national funding introduced immediately prior to and during FP6 *have* in some cases inhibited Ireland's FP6 participation because some researchers were either too busy or simply less motivated to apply for FP funding. Some of the people that we interviewed stated that they themselves had given FP6 less attention due to the improved funding situation at a national level, with the recipients of major SFI awards being the most likely to have reduced or ceased

their FP involvement as a result of national funding. The indications from this group were that SFI funding was of significant importance nationally during the period of operation of FP6 and was easier to access than FP funding, so it was natural that it would in some respects direct attention away from FP participation.

However, we also found that where researchers have had a strong track record of FP participation in the past, the advent of SFI funding has not caused them to reject FP participation altogether. Instead, they have simply reduced the amount of time devoted to it while they established their research groups and built up the national research infrastructure. During this period the approach to FP6 participation has, for some, been more reactive than proactive with researchers choosing to get involved as partners when asked but not proactively going out and trying to form consortia and lead projects. These interviewees also indicated that FP participation has brought them significant benefits in the past, and they expect it to continue to play a significant role in future. Indeed, as the SFI research groups have become more established there are signs that the time and space has opened up for more proactive involvement in FP7. Many of these researchers developed their expertise and reputations through FP involvement and through the networks that provided access to research infrastructure when it simply wasn't available in Ireland. Those same networks will still be exploited in the future, particularly as a platform for carrying out the more applied research that may flow from SFI-funded basic research developments.

Ireland's fortunes over successive FPs have also been influenced by other factors, in particular the 'Objective 1' (developing country) status that was lost in 2001 as the Irish economy strengthened. The objective 1 status had made Ireland a favoured partner, particularly during FP4 when the Commission was trying to ensure strong participation on the part of the less well-developed economies. Participants from other EU countries expected that inclusion of Irish partners would help to enhance their chances of success within the competition, and at the same time the continued low levels of national funding meant that EU funding remained very important to Irish researchers. This resulted in a 'spike' in Irish participations during FP4 that remains unsurpassed to this day. However, most interviewees consider FP4 involvement levels to have been 'artificially' high and not a true reflection of Ireland's 'natural' research strengths or ability to participate more generally in the FPs. The integration of new Member States and the loss of the 'Objective 1' status are seen by some to have been the primary reasons as to why FP5 and FP6 participation levels have not been the same as those enjoyed in FP4, although the increases in national funding over the same period have certainly played their part.

Several commentators also firmly believe that the influence of national funding on FP participation will be very strongly positive, but that this will take some more time to reveal itself and may require additional supporting measures. The major aim of the national funding has been to significantly enhance Ireland's scientific and technological capabilities in key fields, and it is natural to expect that the large influx of new funding will take some time to 'bed down' and to reveal its effects in terms of additional research expertise, capacity and capabilities that can be exploited within international research projects. Some actors are not at all surprised that the impacts of national funding on FP participation are still unclear at this stage, and stress that it will take more time for the effects to be fully realised and recognised.

It is also worth noting that Ireland's FP6 participation levels have been broadly similar to that of FP5 on most indicators, and there is no suggestion from the data that the national funding opportunities have driven a significant downturn in applications or participation levels by Irish actors. Of course, the counterfactual – what would have happened in the absence of SFI funding – is hard to assess, and it may be that increases in national funding have already exerted both positive and negative effects on participation levels. Several commentators have indicated that it is natural for researchers to 'follow the money' and that it is inevitable that new money from any given source will 'crowd out' other pre-existing sources, particularly if the new money is allocated on more favourable conditions (e.g. fewer requirements, higher success rates). While SFI funding has dominated discussions there have been national funding increases in a range of areas over the past decade targeted at both the individual and institutional level and it remains unclear as to whether the national funding will strengthen or weaken Ireland's FP participation in the longer term.

Some interviewees have indicated that the links between national funding and FP participation were not made explicit enough during the early stages of FP6, and that SFI in particular was not 'pushing hard' for the national funding to be used as a lever for FP participation. Some researchers have argued that it would not have been appropriate for SFI to expect its research groups to go out and obtain significant amounts of FP funding in parallel to establishing themselves and establishing the

national projects, while other commentators clearly believe that this should have been a more explicit expectation or requirement from the outset. Either way, there is an acknowledgement that the capabilities and capacity that has been built up with national funds *should* be exploited within the FPs, and the national funding agencies now have a more explicit expectation that their communities will become involved in international collaborative projects as a 'default' position. It is therefore anticipated that Ireland's demand for FP7 participation and its involvement in the programme will be a better indicator of the longer-term impact of national funding than was the case in FP6.

4.5 Irish participants' roles in FP6 projects

4.5.1 Formal roles within the FP6 projects

Respondents were asked to indicate whether they acted as the coordinator of the FP6 project in which they were involved, or whether they were simply one of the partners. Among the 152 respondents who answered this question, just less than a third (30%) were coordinators, and the remainder were partners. This level of coordination is significantly above the level at which Irish participants occupied this role across FP6 as a whole (20%), indicating that our pool of questionnaire respondents is skewed towards those who had a more central role in the projects. This is to be expected.

Further analysis revealed that HEI and Research Institute participants were much more likely to respond to our survey when occupying a coordinator role in FP6 projects. Almost half (42%) of the HEI respondents signalled that they were the coordinators of the FP6 projects that they were responding in respect of, while almost a third (30%) of the research institute respondents were coordinators. In both cases these levels are well above the average level of coordinator roles found within these two groups. Conversely, responses obtained from Industry and 'Other' participants were *not* 'over-represented' by people occupying the role of coordinator.

4.5.2 Extent of involvement in different aspects of the FP6 projects

Respondents were asked to indicate the level of involvement that they had within different aspects of the design and implementation of their FP6 project. This information helps us to understand whether the Irish partners have a central role or whether they are involved more at the periphery of the activities. The results obtained are shown in Figure 47 and indicate that the majority of Irish participants have occupied either the primary role or a major role with regard to most aspects of the project, with the exceptions being (i) defining the size and membership of the consortium, (ii) negotiating the IPR arrangements, and (iii) research training. The role of the Irish partners was greatest in relation to (i) carrying out the research, (ii) disseminating the results, and (iii) defining the content and scope of the project. Irish participants have also in most cases played a full role in planning or coordinating future research.

Figure 47 – Irish participants' roles in different aspects of the FP6 projects

Aspect	Not applicable	No role	Minor role	Major role	Primary role
Carrying out research	6%	5%	15%	50%	23%
Disseminating project results / knowledge transfer	2%	2%	26%	42%	28%
Defining the content and scope of the project	2%	6%	29%	37%	27%
Planning / coordinating future research	3%	10%	27%	36%	24%
Defining the objectives of the project	3%	9%	30%	30%	28%
Exploiting the results of the project	5%	4%	40%	29%	21%
Research training	6%	17%	34%	29%	14%
Defining the size and membership of the consortium	3%	26%	33%	19%	18%
Negotiating the IPR arrangements	13%	28%	33%	10%	16%

4.6 Outputs delivered through FP6 projects

4.6.1 Outputs delivered through FP6 projects

The questionnaire survey asked participants to report on the numbers of different types of outputs that had been produced by the project team as part of or as a direct result of their FP6 project. Figure 48 lists the outputs that we asked about and shows, for each, the proportion of respondents reporting that their FP6 projects had produced at least one such output, the total number produced (across the 130 projects covered by the survey), and the average number produced per project.

The results indicate that (i) scientific conferences, seminars and workshops, (ii) publications in refereed journals, (iii) new or improved tools, methods and techniques, and (iv) other (non-refereed) publications were the most widely produced types of output, with 70% or more of the FP6 projects producing at least one such output. Publications were the most numerous type of output produced, with each project producing on average a dozen publications. Conferences, seminars and workshops were the next most prevalent form of output, with project teams running on average five such events. Around two-thirds of the projects have resulted in newly trained or qualified personnel, with on average just over two trainees per project. There was also a significant exchange of personnel within almost half of the projects, and a similar proportion have led directly to follow-on research grants being awarded to members of the project teams.

The other types of output listed have been produced by a quarter or less of the projects, suggesting that such outputs are less typically produced 'as a matter of course' through FP projects. Many of these other outputs may occur 'downstream' from the research carried out within FP6 projects, being developed subsequently by researchers, policymakers or industrial participants. Where these outputs are produced they tend to be realised in smaller numbers than the other types of output appearing towards the top of the table, and are to some extent less predictable and less easy to generate in large numbers.

Figure 48 – Outputs produced by project teams within the scope of FP6 projects (n=130)

Output	Share of projects delivering this output	Total number of outputs delivered	Average number of outputs delivered per FP6 project
Scientific conferences, seminars or workshops	89%	676	5.2
Publications in refereed journals and books	77%	688	5.3
New or significantly improved tools, methods or techniques	72%	239	1.8
Other publications	70%	966	7.4
Newly trained / qualified personnel (e.g. MSc, PhD, postdocs)	63%	303	2.3
New research grants	48%	146	1.1
Exchange of personnel (in or out)	47%	294	2.3
New or significantly improved commercial products or services	25%	49	0.4
New or significantly improved scientific or industrial processes	18%	49	0.4
New or significantly improved regulations or policies	18%	50	0.4
New or significantly improved facilities or infrastructure	17%	33	0.3
New or significantly improved technical codes or standards	16%	46	0.4
Invention disclosures	12%	23	0.2
Awards or prizes	11%	21	0.2
Other	11%	15	0.1
Patent applications	8%	14	0.1
Patents granted	2%	3	0.0
New license agreements	0%	0	0.0

While Figure 48 above provides details of the *extent* to which projects are delivering each type of output and of the quantities being produced, it gives no indication of the relative importance of these outputs to the participants. Respondents were therefore asked to indicate the three most important types of output to their organisation, from the above list. The results obtained are shown in Figure 49 below and indicate, perhaps not surprisingly, that the types of output that are most widely produced are also those that are rated as the most important to participants. In all cases the share of projects producing each type of output is higher than the share of respondents rating those outputs in their 'top 3' most important, which suggests that in most cases the projects are successfully producing the kinds of outputs that the participants expect and need.

Figure 49 – Importance of FP6 project outputs (n=123)

Output	Share of respondents rating as a top 3 output	Ranked importance*
Publications in refereed journals and books	67%	1
Newly trained / qualified personnel (e.g. MSc, PhD, postdocs)	46%	2
New or significantly improved tools, methods or techniques	28%	3
New research grants	27%	4
Scientific conferences, seminars or workshops	29%	5
Other publications	24%	6
New or significantly improved commercial products or services	14%	7
Exchange of personnel (in or out)	12%	8
New or significantly improved regulations or policies	10%	9
New or significantly improved scientific or industrial processes	7%	10
New or significantly improved technical codes or standards	7%	11
New or significantly improved facilities or infrastructure	4%	12
Patent applications	3%	13
Awards or prizes	2%	14
Patents granted	2%	14
Invention disclosures	1%	16
New license agreements	0%	17

**Outputs rated as most important were assigned a rank score of 1, the second most important outputs were assigned a rank score of 2, and the third most important outputs were assigned a rank score of 3. Average rank scores were then calculated*

It is notable that *all* types of participants – including industry - place some of the more 'commercially' oriented outputs, i.e. those relating to invention disclosures, license agreements, patent applications and patents granted towards the bottom of their 'importance' list. New or improved tools, methods and techniques, and to a lesser extent new or improved commercial products and services are rated much more highly and widely in terms of their importance, and tend to be delivered through a larger number of FP6 projects. We suspect that this is because inventions, licences and patents all tend to in some way involve IPR arrangements that would be difficult to distribute or assign within the context of a collaborative (pre-competitive) research project.

Figure 50 – Ranked importance of FP6 project outputs, by type of participant (n=123)

Output	HEIs	Research Institutes	Industry	Other
Publications in refereed journals and books	1	1	6	8
Newly trained / qualified personnel (e.g. MSc, PhD, postdocs)	2	4	9	10
New or significantly improved tools, methods or techniques	6	2	1	1
New research grants	3	8	6	6
Scientific conferences, seminars or workshops	5	3	4	3
Other publications	4	4	13	4
New or significantly improved commercial products or services	10	6	2	2
Exchange of personnel (in or out)	7	13	5	10
New or significantly improved regulations or policies	8	7	13	5
New or significantly improved scientific or industrial processes	10	11	3	13
New or significantly improved technical codes or standards	16	8	6	9
New or significantly improved facilities or infrastructure	12	13	9	10
Patent applications	9	13	13	14
Awards or prizes	15	13	12	14
Patents granted	14	13	13	14
Invention disclosures	16	12	13	14
New license agreements	16	13	13	14

4.7 Benefits realised through FP6 projects

4.7.1 Benefits of FP6 participation

Respondents were asked to indicate what scale of positive impact the project had on their organisation or research group in terms of a range of different types of given benefit, as shown in Figure 51. The results indicate that the main positive benefits realised by FP6 participants come in the form of (i) improved relationships and networks, (ii) increased understanding and knowledge, (iii) enhanced reputation and image and (iv) increased scientific capabilities. The FP6 projects also bestow significant benefits in related areas such as increased technological capabilities, improved planning of research, improved ability / capacity to carry out research / training, and improved competitive position nationally and internationally.

There is accordingly a good degree of alignment between participants' motives for FP6 participation and the kinds of benefits they are realising, with new and improved networks and new knowledge and capabilities figuring as the key motives for participation and also as the areas of greatest and most widespread impact. This suggests strongly that FP participants are increasingly becoming involved in order to realise the kinds of benefits that the FP projects are able to deliver, ensuring reasonably high levels of success as judged by the participants themselves.

The only types of benefit listed that are not realised to a medium or high degree by the majority of participants relate to (i) Increased (transnational / intersectoral) mobility of researchers, which is an area of high impact for a minority but of low /no impact for most, and (ii) Improved business opportunities and improved income / market share, which again features as an area of medium-high impact for some but is not an area of significant impact for the majority of participants. Such impacts

tend to take longer to realise than the other more 'direct' benefits accruing through collaborative research projects.

Figure 51 – Scale of positive impacts of FP6 projects on participating organisations / research groups (n=141)

Type of benefit	No impact	Low impact	Medium impact	High impact
Improved relationships and networks	1%	8%	36%	55%
Increased understanding / knowledge	1%	9%	36%	54%
Enhanced reputation and image	1%	16%	46%	37%
Increased scientific capabilities	10%	9%	49%	32%
Increased technological capabilities	11%	27%	38%	25%
Improved planning or coordination of R&D	15%	27%	33%	25%
Improved ability or capacity to conduct R&D	15%	29%	36%	21%
Improved competitive position internationally	20%	22%	35%	23%
Improved ability or capacity to provide training	17%	29%	37%	17%
Increased transnational mobility of researchers	18%	33%	27%	22%
Improved competitive position nationally	25%	21%	39%	15%
Improved ability to attract staff / increased employment	20%	27%	42%	11%
Increased intersectoral mobility of researchers	30%	41%	20%	8%
Improved business opportunities	36%	35%	22%	7%
Increased income or market share	58%	26%	12%	4%

The results above were analysed in order to determine, in ranked order, the areas of greatest benefit to each type of participating organisation. The results are presented in Figure 52 below and reveal that there is a high degree of alignment between the four types of organisation as to the main benefits they have realised. The differences, where they exist, are as follows:

HEIs dominate the overall profile of scores here due to their dominant numbers of participations and responses to our survey. However, overall they have received lower benefits in terms of improved planning or coordination of research and higher benefits in terms of the transnational mobility of researchers in comparison with the overall picture

Research institutes also match the overall profile fairly closely, but have received greater than average benefits in terms of improved business opportunities but lower than average benefits in terms of improved ability or capacity to provide training and increased transnational mobility of researchers

Industry participants have received lower benefits in terms of increased scientific and technological capabilities than the other groups, but have enjoyed greater benefits in terms of improved planning and coordination of research and improved competitive position internationally. Industry has also received greater than average benefits in terms of improved business opportunities

Other participants have received lower than average benefits in terms of increased technological capabilities but otherwise closely match the overall profile of benefits

Figure 52 – Impacts of FP6 projects on participating organisations / research groups in ranked order*, by type of organisation (n=141)

Type of benefit	HEIs	Research Institutes	Industry	Other
Improved relationships and networks	2	1	1	1
Increased understanding / knowledge	1	2	2	2
Enhanced reputation and image	4	4	2	3
Increased scientific capabilities	3	4	10	4
Increased technological capabilities	5	3	9	8
Improved planning or coordination of R&D	12	7	4	5
Improved ability or capacity to conduct R&D	8	8	8	6
Improved competitive position internationally	9	9	5	7
Improved ability or capacity to provide training	7	12	6	9
Increased transnational mobility of researchers	6	13	13	9
Improved competitive position nationally	11	11	11	11
Improved ability to attract staff / increased employment	10	10	12	13
Increased intersectoral mobility of researchers	13	13	15	12
Improved business opportunities	14	6	6	14
Increased income or market share	15	15	14	15

** Rankings were calculated by assigning 0 points to areas of no impact, 1 point to areas of low impact, 2 points to areas of medium impact and 3 points to areas of high impact. Average scores were then calculated for each type of organisation in relation to each type of benefit. The resulting scores were then converted to a ranked list*

Our discussions with interviewees explored in more depth the different types of benefits that FP participation brings to the national research community and endeavour. The feedback broadly supported the picture above, where exposure to other researchers from different countries brings significant benefits in terms of the exchange of knowledge and capabilities and in prompting or otherwise opening up new research directions or new approaches. The FPs are considered to bring very significant benefits to national researchers in terms of enhancing their scientific and technological capabilities through exchanges with researchers from abroad, and of course there is a flow of benefits in the other direction, as Irish researchers share their knowledge and skills with colleagues elsewhere. The collaborative projects also play a significant role in exchanging knowledge between academic and industrial participants, with researchers gaining a greater depth of insight into industrial problems and industry gaining an improved understanding of the opportunities provided by new research developments. These 'symbiotic' processes are at the centre of the 'added value' that the European collaborations can bring, and for most participants bring benefits that significantly outweigh the additional costs that are inevitably associated with multi-partner, multi-country collaborative projects.

Individual interviewees have provided fairly compelling accounts of the considerable benefits they have enjoyed in terms of their international reputation and image, their capacity and capabilities to carry out research, their networks and connections to other players within the industrial and academic communities. There is a sense of a growing maturity among the research community as to how to extract value from Framework participation, and an increased likelihood that participants are

becoming involved for the right reasons, and are looking for and valuing the kinds of benefits that tend to flow.

The benefits, particularly in terms of research profile, networks and reputation and image appear to be strongest when Irish partners coordinate projects. As reported above, despite the larger scale of many of the instruments and consortia, Ireland has performed well in terms of its coordination rates in many areas of FP6, and this will have contributed to the strongly positive account of the nature and scale of the benefits realised. While participating as a partner certainly implies a lower workload, some of Ireland's most established researchers have indicated that acting as coordinator brings much more significant benefits in terms of increased exposure, profile, reputation and image. It also allows you to control the direction of the research, and generates significant kudos for the institution and / or group when projects coordinated by Irish partners are successful. There are also significant benefits in terms of an increased likelihood that project leaders will be asked to join other projects led by members of the networks, meaning that in future participation levels can be maintained or enhanced without the need to always act in the role of coordinator. Indeed some key researchers have employed just such a tactic during the period when SFI funding was coming on-stream, electing to take a break from leading FP projects but still finding that past successes meant that there were lots of opportunities to become involved as a partner in projects led by others. This ability to continue to participate but with relatively little effort while national funding was given higher priority / attention, has helped them to maintain their links and should limit the extent to which they are at any kind of disadvantage as and when they choose to proactively increase their level of FP participation in future.

4.7.2 Impact on network formation

As revealed by Figure 43 and Figure 51, participants rate the creation of new networks as both the primary motive for Framework participation, and the major area of benefit. Respondents were therefore asked about the number of partners in their project, the number of these that they had worked with before FP6, and the number that they expected to collaborate with subsequently.

Overall, the results obtained indicate that the average number of partners in the FP6 projects with Irish participation was 17.3 (as given by respondents), and the average number of these that the Irish participants had collaborated with *prior* to the project was 3.1, suggesting that the FP6 projects had brought the Irish partners into contact with an average of 13.1 new partners per project participation, or over 11,500 new partners overall across the whole of FP6. The Irish participants also indicated that the average number of partners that they expected to collaborate with *after* their FP6 projects was 6.1, meaning the number of *new, enduring* partnerships formed through FP6 is more than 2,500.

There was insufficient data (i.e. more than five respondents per Instrument) to provide an analysis of network formation for all of the FP6 instruments. However, Figure 53 shows the situation for each Instrument where we had five or more responses. It shows that the Integrated Projects (IPs) appear to have been the strongest instrument in terms of bringing Irish participants into contact with new partners, with both the largest number of partners per project (n=34) and the highest share of these that are new (83%). However, other instruments perform better in terms of forging new partnerships that have already or are expected to endure *after* completion of the FP6 project. In terms of the share of new partnerships that will endure the Specific Support Actions perform best (44%) while the Networks of Excellence perform best in terms of the average number of new enduring partnerships formed (n=6.3).

Figure 53 – Network formation by type of Instrument (n=121)

Type of Instrument	Average number of partners in the project	Share of partnerships that are new	Share of partnerships expected to endure after FP6	Average number of new *enduring* partnerships
Networks of Excellence (NoEs)	29	77%	22%	6.3
Integrated Projects (IPs)	34	83%	9%	3.2
Specific Targeted Research Projects (STREPs)	12	68%	21%	2.5
Coordination Actions (CAs)	17	76%	17%	3.0
Specific Support Actions (SSAs)	9	69%	44%	3.9
Co-operative Research Projects (CRAFT)	9	79%	15%	1.4
Collective Research Projects (CLR)	17	77%	28%	4.8
Integrated Infrastructure Initiatives (I3)	*Insufficient data*			
Specific Actions to Promote Research Infrastructures (II)	*Insufficient data*			
Marie Curie Actions (MCAs)	5	52%	29%	1.5

Interviewees were asked about how the FPs have altered their patterns of cooperation in research, and most of the key researchers we spoke with stated that the FPs had a significant and positive affect on network formation. FP involvement has significantly extended the range and types of partners with whom the researchers are collaborating, and it is felt that this same level of international exposure would not have been possible without FP involvement. The networks, due to their large scale and the numbers of different types of actors involved, provide wide exposure while also facilitating the development of closer and more intensive collaborative links with selected partners from within the wider networks. One additional benefit of FP participation is that new partnerships can be forged in 'unlikely' directions and with actors that arguably would not have been considered as collaboration partners had they not been identified through these wider networks. This form of collaboration is considered to be highly additional and something that has brought, at least for some actors, unanticipated benefits in terms of new research opportunities and directions.

The impact of FP participation on strengthened networks between academia and industry is less marked, as many interviewees argued that industry involvement in the FPs is still below the levels that are desirable. However, there are some indications that this is changing under FP7, with greater levels of industry involvement and a greater emphasis on producing results that companies can exploit commercially. Industry participants were more positive about the role of the FPs in enhancing their networks and providing access to research capabilities that can be exploited subsequently in more commercially oriented (contract) research. Some of the academics consulted confirmed this latter benefit by asserting that a further benefit of the increased profile they have enjoyed as a result of FP involvement has been translated into follow-on contracts with industrial partners that they first encountered through FP projects.

Public agencies in Ireland have also seen some benefits in terms of improved network formation, with new links being created with analogous agencies abroad. These new networks appear to be less developed at this stage, with less certainty as to how and when they might be exploited outwith the context of FP projects. However, there remains a reasonably positive outlook among most of these participants that some positive benefits will flow in the fullness of time.

4.7.3 Extent to which FP6 has supported or reinforced participants' research strategies

Participants were asked to what extent FP6 had supported and reinforced their organisation's or their research group's research strategies. Of the 152 people responding, 95% stated that FP6 had exerted a positive impact on their research strategies, with 49% stating that it had supported and reinforced it to a *large* extent and 46% stating that FP6 had supported and reinforced their R&D strategy to a *small* extent. The remaining 5% of respondents indicated that FP6 had not had any role in supporting or reinforcing their R&D strategies.

The impact of FP participation on participants' individual research strategies is generally seen to be a strongly positive one, with the collaborations bringing new ideas, new capabilities and new infrastructure to bear on existing research areas, questions and problems. The FPs are considered to have impacted on national strategies by influencing the direction of participants' work, increasing the range of methods and tools available and opening up new lines of enquiry. This pooling of competencies and their application to existing and new research questions is seen to be one of the major benefits of FP participation, and is something that the actors need to value and seek from their participation. Involvement for 'narrower' reasons (e.g. simply to obtain funding for research to be carried out internally) is not seen to be an appropriate approach, nor one that is likely to be successful.

Feedback from interviewees has confirmed that those involved do indeed in most cases see a strong natural alignment between their own research priorities and the opportunities available within the FPs. If the calls being issued do not provide such a good fit it is unlikely that they would have participated to the same extent. The European research was often described as broader in scope than the national 'focus', and in other cases the national research is either more or less applied or more or less industry-focused than that being conducted within the FPs.

While there is a good alignment in most areas, it is clear that the relationship between national- and EU-level priorities has become more complex, and varies significantly across the different research and industrial fields. Interviewees have stated that during the early FPs (1-4) national research strategies were much more strongly influenced by the FPs, as EU funding vastly outweighed the volume of funds available at national level. For many researchers the only way to obtain funding during the 80s and 90s was through Framework and as such great effort was made to understand evolving FP priorities and to keep in line with these developments. It was effectively a reactive approach where participants' strategies reflected and responded to EU-level priorities. However, as national funding has increased so has the importance of national priorities - in many respects the source of the funding influences strongly where and how priorities and strategies are set. The management of these relationships is seen as an important challenge for the future.

These changes notwithstanding, FP funding is still important to most research groups and there remains awareness of the need to understand, respond to and (increasingly) to *influence* the research priorities, annual work programmes and calls of the FPs, in order to ensure that national actors are well positioned to respond.

4.7.4 Role of the FPs in relation to other international schemes

Our interviews with key participants also explored the relationship between FP participation and involvement in other international programmes. The aim was to determine whether the FPs are seen to be complementary to other programmes and whether participation in the FPs helps to facilitate involvement in other international programmes and networks.

Most respondents did not have much to say in relation to these issues, and felt that while some other international programmes such as COST and EUREKA also help to facilitate network development and mobility of researchers each international instrument occupied its own space and there was little direct overlap between them. In particular interviewees pointed out that there is no other international collaborative funding scheme of the scale of the FPs and which provides such significant amounts of funding from a centralised pot.

The FPs were *not* generally considered to be playing a major role in extending collaborative networks outside of the EU, though the analysis presented in Section 3.9.5 suggest that this does happen to a not insignificant degree. However, interviewees did believe that the FPs have been effective in acting as a stepping stone for other, related *European* initiatives such as the Competitiveness and Innovation programme (CIP) and the European Research Council (ERC). The latter of these is part of FP7 but is often discussed as a separate entity as it has a different focus from the rest of programme, supporting high quality basic research at the level of individuals and with no requirement for EU-level collaboration. However, in both cases interviewees consider that exposure through Framework

Programmes helps to further the opportunities available within other EU-level programmes and initiatives, and helps to advance individual's and research group's reputations, experience and capabilities such that they can participate effectively.

In addition, good levels of FP participation and inclusion in the key networks is considered to be crucial for involvement in the Technology Platforms and Joint Technology Initiatives that are developing roadmaps for EU research in defined areas. While also forming part of the FPs, these initiatives are seen as both reflective of and conducive to FP involvement more generally, as they bring together the major players in planning the programmes of research to be implemented through subsequent FPs. Overall there is a sense that involvement in the research projects within FP6 and FP7 and involvement in these other EU initiatives are becoming increasingly linked, with the two acting in a mutually reinforcing way. Involvement in FP projects also helps to raise awareness of the opportunities available within other parts of the FPs themselves and in related EU initiatives.

4.8 Wider impacts of FP6 projects

4.8.1 Exploitation of FP6 project results

We were interested in understanding whether and to what extent different groups have exploited the results of FP6 projects, both within Ireland and more generally across the EU. The results obtained through our survey of Irish FP6 participants is shown in Figure 54 and reveals that the majority of the projects' results have been exploited first and foremost by *researchers* in follow-on projects. European and Irish researchers have exploited the results in broadly equal measure, mainly to a large extent, while researchers from outside the EU have also exploited the results of a significant number of projects but in most cases to a small extent. Almost half of the projects have been exploited by EU-level policymakers and European companies, but mainly to a small extent. Irish companies and Irish policymakers have exploited the results of FP6 projects in around a third of cases, though in most of these instances the level of exploitation is felt to be small, with only 8% of projects with Irish participation being exploited 'to a large extent' by either group. This suggests that the main impacts of FP6 projects will be on the research community, with the benefits to Irish policy formulation and the business sector being lower in relative terms.

Figure 54 – Exploitation of FP6 project results by different communities (n=139)

Form of exploitation	Unsure	No	To a small extent	To a large extent
Exploited by European researchers in follow-on research	5%	8%	43%	44%
Exploited by Irish researchers in follow-on research	7%	13%	39%	41%
Exploited by researchers from outside the EU in follow-on research	15%	30%	42%	13%
Exploited by European-level policymakers	12%	39%	32%	17%
Exploited by European companies	7%	52%	27%	14%
Exploited by Irish policymakers	9%	56%	27%	8%
Exploited by Irish companies	7%	62%	23%	8%
Exploited by policymakers from outside the EU	20%	62%	12%	6%
Exploited by companies from outside the EU	16%	65%	17%	2%

The results shown in Figure 54 were analysed separately for each type of participant's projects, and the results in terms of the extent of exploitation by Irish researchers, companies and policy makers are summarised in Figure 55. It indicates that regardless of the type of Irish participant, exploitation of

project results is most widespread among the research community, with exploitation by industry and policymakers being lower in each case. However, projects involving Irish companies are slightly more likely than other types of project to be exploited by Irish companies.

Figure 55 – Extent of exploitation of FP6 project results by different communities, by type of Irish involvement (n=139)

Form of exploitation	Projects involving Irish HEIs	Projects involving Irish research institutes	Projects involving Irish companies	Projects involving 'Other' Irish participants
Exploited by Irish researchers in follow-on research	56% large 31% small	25% large 65% small	31% large 44% small	9% large 39% small
Exploited by Irish companies	5% large 24% small	16% large 26% small	19% large 25% small	4% large 17% small
Exploited by Irish policymakers	8% large 27% small	16% large 32% small	0% large 25% small	9% large 26% small

4.8.2 Contribution of FP6 projects to the achievement of EU objectives

Respondents were asked to indicate the scale of contribution the project has made towards the achievement of various European Union objectives associated with the Framework programmes and FP6 in particular. The results obtained are shown in Figure 56, and suggest that the main areas of impact (i.e. those where the majority of projects are claimed to have made a medium-high contribution) are on EU research networks (79%), research capabilities (80%), research planning (57%), the mobility (62%) and career development (57%) of EU researchers, and international network formation beyond the EU (52%). These are obviously areas of more immediate or 'near-term' impact from research projects.

It was a specific focus of FP6 to seek to restructure and integrate EU research in order to further the creation of a single European Research Area and to help build critical mass as a means by which to strengthen EU S&T capabilities and to advance EU competitiveness. Figure 56 indicates that most FP6 projects (79%) have made some kind of contribution to this objective, but in the majority of these cases projects have made a small or medium contribution rather than a large one.

The contribution of FP6 projects to wider EU goals (i.e. those relating less to 'research' and more to socio-economic-related goals) is understandably more limited, but here we still find that a majority of projects are claimed to have made some kind of contribution, albeit a small one, to areas such as industrial competitiveness, quality of life, social cohesion and environmental protection.

Figure 56 – Contribution of FP6 projects to the achievement of EU objectives (n=138)

EU objective	Scale of contribution			
	None	Small	Medium	Large
Improved European network formation	3%	18%	42%	37%
Increased European S&T capabilities	1%	18%	52%	28%
Increased mobility of EU researchers	10%	28%	42%	20%
Improved planning / coordination of EU research	12%	30%	36%	21%
Improved career development of EU researchers	13%	30%	39%	18%
Improved network formation beyond EU	16%	32%	36%	16%
Restructuring / integration of EU research	21%	32%	32%	15%
Increased European industrial competitiveness	26%	32%	29%	13%
Improved quality of life of European citizens	25%	34%	31%	10%
Increased social cohesion across the Member States	31%	41%	21%	7%
Improved employment situation across Europe	35%	42%	18%	5%
Improved environmental preservation or protection	50%	19%	22%	9%

Feedback from interviewees was also reasonably positive concerning the role of the FPs in ensuring that there is a critical mass of research effort focused on major problems, with the FPs allowing a scale of effort that simply would not be seen in their absence. Interviewees were mixed as to whether they believe such scale is necessary and to the kinds of benefits that it brings, with most stating that such scale is not needed in all areas but that major issues in the environmental and health fields are particularly benefited by the international comparative research that can be brought together under related large-scale FP projects.

Interviewees were less able to comment on the role played by the FPs, and particularly FP6, in integrating and restructuring the European research effort. Because of its scale the FPs clearly do exert an effect, but it is not clear what a more integrated European Research Area should or could look like or what restructuring would be necessary in order to achieve it. Notwithstanding these uncertainties, it was generally felt that the FPs have more of an impact in these areas than other mechanisms, and that they certainly foster closer collaboration between EU researchers, which help to reduce 'unnecessary' duplication of effort while advancing the possibilities for 'productive' comparative research.

There is also a perception that the FPs support a 'core' of recognised research groups and industrial players at EU level and that there is an increased focusing of resources within these core networks. It is not clear whether such a view is accurate, but there is certainly good evidence to suggest that there is a stable core of actors who do indeed account for the majority of FP participations and funding, and a long 'tail' of other participants who are involved in a one-off or occasional basis. There is a perception that the objective of 'integration' implies a greater focus of funding on this 'core' and a reduction of support for actors on the periphery, something which again would appear to be supported by the data presented above which shows that Ireland had fewer participants but a significantly increased funding allocation in FP6 as compared to either FP5 or FP4. It remains unclear as to whether such a trend is an explicit objective and whether it will continue or not, and also whether it will come to be seen as a positive or negative trend.

4.9 Costs and benefits of participation in FP6 projects

4.9.1 Overall cost:benefit ratios

Survey respondents were asked to indicate how the costs and benefits of their participation in their FP6 projects balanced out, on a seven-point scale as shown in Figure 57. It can be seen from the results that 80% of Irish participants realised a positive benefit to cost ratio, 11% indicated that the costs and benefits were evenly balanced, and 9% indicated that the costs of participation had outweighed the benefits.

Figure 57 – Costs & benefits to Irish partners of participation in FP6 projects (n=137)

Costs outweigh benefits			Costs equal benefits	Benefits outweigh costs		
-3	-2	-1	0	+1	+2	+3
3%	1%	6%	11%	16%	29%	35%

Overall this is a reasonably positive result, but one that falls slightly below the level achieved in FP5, where 87% of participants reported a positive benefit to cost ratio. However, when asked directly to make a comparison with FP5, most of the FP6 participants who expressed an opinion stated that there were no significant differences (51%). Furthermore, a slightly higher proportion (28%) said that FP6 benefit:cost ratios were better than in FP5 than signalled that they were worse (21%). Overall these results suggest that FP6 is neither significantly better nor significantly worse than FP5 in terms of the cost:benefit ratios realised by Irish participants.

4.9.2 The costs and benefits of participation for different groups

Figure 58 and reveal some significant differences between the four groups. HEIs and Research institutes enjoy the most positive benefits to cost ratios, with only 5% of respondents reporting that the costs outweighed the benefits and a similar proportion reporting that the costs expended equalled the benefits gained. In contrast, industry respondents and those from 'other' organisations were much more likely to report neutral or negative benefit to cost ratios, as follows:

Almost two-thirds (63%) of industry participants reported a positive benefit to cost ratio, but a quarter (25%) reported a neutral outcome and 13% reported that the costs had outweighed the benefits. These figures are very slightly more positive than those reported by industry participants in FP5

Only just over half (52%) of the 'other' participants reported a positive benefit to cost ratio, with almost a quarter (22%) saying that the outcome was neutral and 26% saying that the costs had outweighed the benefits. These figures suggest that the public sector organisations that dominate this category have in many cases struggled to appropriate significant benefits from their own participation in the projects. It should also be noted that some industry participants are incorrectly assigned to this category in the FP6 database, which may further explain the lower ratings assigned by this group

When asked to explain their answers those respondents reporting a negative benefit to cost ratio indicated that there were problems with the high management and administrative burden associated with participating in FP6, problems with audit requirements and in some cases delays in receiving the EC funding. A further set of comments highlighted problems with the selection of (inappropriate) partners and poor coordination of the work, which had led to the failure to achieve scientific objectives, and which had in turn limited the extent to which the participants could successfully exploit project results in either a policy or industrial setting.

Figure 58 – Costs & benefits to Irish partners of participation in FP6 projects, by type of organisation (n=137)

	Costs outweigh benefits			Costs equal benefits	Benefits outweigh costs		
	-3	-2	-1	0	+1	+2	+3
HEIs	0%	0%	5%	6%	15%	30%	43%
Research institutes	5%	0%	0%	5%	26%	21%	42%
Industry	6%	0%	6%	25%	19%	25%	19%
Other	9%	4%	13%	22%	9%	30%	13%

4.9.3 The costs and benefits of participation for different types of Instrument

Figure 59 shows how the costs and benefits of participation in FP6 projects compare for the different types of instrument. It reveals few strong differences between the Instruments, with all being reported as having realised a positive benefit to cost ratio for the majority of participants. The Marie Curie actions (mobility) appear to be 'best' at delivering a positive benefit to cost ratios for participants, with CRAFT and Collective Research projects delivering least well on this measure, though it should be noted in these two cases that the number of respondents is small so the results may not be very reliable. There is also a strong relationship between the types of organisation involved and the instrument, with industry and 'others' more likely to be involved in CLR and CRAFT projects.

It is also worth noting that while the Integrated Projects have a relatively high proportion of participants reporting a neutral or negative benefit to cost ratio (29%), most of those reporting a positive cost benefit ratio indicated that the benefits massively outweighed the costs (signified by a +3 score). In fact, 50% of all Irish participants in Integrated Projects assigned the highest possible rating for the benefits to cost ratio (+3), while only 17% of those involved in NoEs did the same.

Figure 59 – Costs & benefits to Irish partners of participation in FP6 projects, by type of Instrument (n=137)

Type of Instrument	***Number of respondents***	**Costs outweigh benefits**	**Costs equal benefits**	**Benefits outweigh costs**
Marie Curie Actions (MCAs)	*(29)*	3%	10%	86%
Coordination Actions (CAs)	*(23)*	9%	9%	83%
Specific Targeted Research Projects (STREPs)	*(29)*	10%	7%	83%
Networks of Excellence (NoEs)	*(6)*	17%	0%	83%
Specific Support Actions (SSAs)	*(13)*	8%	15%	77%
Integrated Projects (IPs)	*(24)*	13%	17%	71%
Co-operative Research Projects (CRAFT)	*(5)*	20%	20%	60%
Collective Research Projects (CLR)	*(5)*	20%	20%	60%
Integrated Infrastructure Initiatives (I3)	*Insufficient data (n=1)*			
Specific Actions to Promote Research Infrastructures (II)	*Insufficient data (n=2)*			

4.9.4 The costs and benefits of participation by role in the project

As we might expect, further analysis of the findings concerning cost:benefit ratios revealed that those with a central role in the projects on the whole enjoy more positive outcomes than those that are involved only as partners. All of the respondents reporting that the costs of participation outweighed the benefits were partners rather than coordinators. Overall Irish coordinators tended to report that the costs of managing these projects was relatively high but the benefits of having a 'central' role within the European networks meant that in most cases the benefits significantly outweighed the costs. Partners in the projects tend to incur lower costs in participation but also find it more difficult to derive value from the research, with some finding that the results and the experience overall were not particularly in tune with their own organisation's needs.

4.10 Satisfaction with FP6 administrative processes

4.10.1 Overall levels of satisfaction with FP6 processes

Irish participants were asked to indicate their level of satisfaction with various aspects of FP6 management and administrative processes. The results obtained are shown in Figure 60 with the processes listed in a form of 'chronological' order. The results indicate that the majority of respondents are either satisfied or 'neutral' with regard to all of the various FP6 procedures listed, with only a minority of respondents either 'very' satisfied or in some way dissatisfied.

Satisfaction ratings are highest in relation to (i) the management arrangements within the projects (something under the participants' control), (ii) information provided to prospective applicants about how to apply, and (iii) processes for dissemination and exploitation of project results (again something under the participants direct control). Proposal evaluation and selection also obtained reasonably high ratings overall.

Satisfaction with processes was lowest, relatively speaking, in relation to (i) contract negotiation procedures, (ii) reporting procedures, and (iii) mechanisms for payment of the Commission's contribution to the project cost. These elements are often difficult for participants to manage or can add significant delays to the projects, and so it is not surprising to find that a greater proportion of participants have had problems with these aspects.

Figure 60 – Satisfaction with FP6 processes (n=136)

Process	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied
Information provided to prospective applicants about how to apply	1%	5%	33%	50%	10%
FP6 application procedures	2%	16%	28%	47%	7%
FP6 proposal evaluation and selection procedures	3%	10%	27%	49%	10%
FP6 contract negotiation procedures	3%	18%	36%	38%	5%
Monitoring procedures	2%	11%	33%	46%	7%
Reporting procedures	5%	15%	30%	43%	7%
Management arrangements within your project	2%	7%	19%	45%	26%
Procedures for end of project assessment / completion	4%	5%	43%	40%	8%
Mechanisms for payment of EC financial contributions	7%	12%	29%	46%	6%
Processes for dissemination and exploitation of project results	0%	7%	33%	53%	8%
Evaluation at national and EC levels	2%	8%	40%	46%	4%

4.10.2 Satisfaction with FP6 processes by type of organisation

There were few significant differences between the ratings assigned by different types of organisation, though HEIs rated FP6 administrative procedures slightly more positively and the 'Other' (mainly

public sector) organisations assigned slightly less positive ratings. Key features of the ratings assigned by each group are summarised below:

HEIs assigned broadly positive ratings across the board, but were most favourable in relation to the front-end processes (information on calls and how to apply, application procedures, and proposal evaluation and selection). Management arrangements within the projects and processes for disseminating results were also highly rated. No areas attracted particularly low ratings, but of all the elements the contract negotiation procedures and the EC's reporting requirements were assigned the least positive scores

Research institutes assigned the most positive ratings to the management arrangements within the projects and in relation to the EC's proposal evaluation and selection procedures. Mechanisms for payment of the EC's financial contribution attracted the least positive ratings, but overall the differences were small

Industry participants also assigned strongly positive ratings for the management arrangements within the projects, and were more positive than the other groups about the procedures for end of project assessment and completion. The lowest ratings were assigned to the FP6 contract negotiation procedures and to mechanisms for payment on completion of the work

Other types of participant assigned the lowest average ratings of the four groups. The aspects they were least positive about were the application procedures, monitoring procedures, and mechanisms for assessing projects on completion and for payment of EC financial contributions

4.10.3 Satisfaction with FP6 processes by type of Instrument

The results shown in Figure 60 were analysed and compared for each type of Instrument used in FP6. Overall there were only relatively small differences between the ratings assigned to the different instruments, though the Networks of Excellence do stand out as having attracted the most negative (dissatisfaction) ratings. In total, 25% of the ratings assigned by NoE participants to the different administrative processes were negative (i.e. expressing that they were either dissatisfied or very dissatisfied). The management arrangements within the projects and the reporting procedures were, relatively speaking, the areas of greatest difficulty with the NoEs, though all aspects attracted lower than average satisfaction ratings from participants. Coordination actions and collective research projects also attracted lower than average ratings for their administrative processes, but to a smaller extent that the NoEs. STREPs, CRAFT projects and Specific Support Actions attracted the highest ratings overall.

4.10.4 Comparison of FP6 administrative rules with those employed in FP5

FP6 participants were also asked to compare directly their experience of FP6 with that of FP5 in terms of (i) the rules of participation and (ii) the level of administrative complexity associated with participation. The results obtained are shown in Figure 61 and suggest, where differences were identified, that FP6's rules were better than those employed in FP5 but the levels of administrative complexity are worse (i.e. higher). For some reason the research institutes appear to have suffered particularly with the changes from FP5 to FP6, being twice as likely to state that the rules / administrative complexity have become worse than was the case for the other types of participant. Most research institute participants were from the Marine Institute and Teagasc research centres and so it seems likely that FP6 rules and administrative processes presented particular difficulties for these institutes, although the precise reasons why have not been identified.

Figure 61 – Comparison of FP6 and FP5 rules and administrative complexity (n=148)

Aspect	Worse	Same	Better	No opinion
The rules of participation	7%	32%	28%	33%
The level of administrative complexity associated with participation	29%	25%	14%	32%

The new instruments introduced for FP6 - Integrated Projects and Networks of Excellence - appear to have caused particular problems in terms of the administrative complexity involved, with most respondents stating that these are more complex entities from an administrative perspective than the

kinds of actions participants were involved in during FP5. The Specific Support Actions were also rated as particularly problematic in terms of their administrative complexity. Marie Curie actions were considered to have improved slightly while there was no evidence of any changes from FP5 to FP6 with regard to the STREPs.

Our interviews with key researchers in Ireland included some individuals who have elected to no longer apply to the FPs, or at least to do so only in response mode, when asked to join consortia and projects being established by other actors. For these individuals the administrative complexity and uncertainty over the outcomes in terms of funding decisions coupled to an increased availability of national funding have led to a situation where FP is now considered to be the programme of last resort. In addition, while coordinating FP projects does bring considerable benefits in terms of increased exposure and greater likelihood of follow-on participations, for some the costs involved in administering projects is simply not worth it. Professional support for the administrative aspects of projects is seen by many as a way to help to overcome this problem, and one that may lead to an increased willingness on the part of some actors to become re-involved in FP projects.

4.10.5 Suggestions for improving FP processes and procedures

Questionnaire respondents were asked to comment on FP6 processes and procedures, with a particular emphasis on practical recommendations on how Framework Programme procedures could be improved. No specific recommendations were received in significant numbers, with most respondents choosing instead to elaborate their views on FP6's bureaucratic and complex administrative procedures, the long time that it typically takes to negotiate contracts, and the cumbersome reporting requirements. Several respondents also questioned the evaluators' expertise or suitability for undertaking the proposal evaluation process. Financial issues were also mentioned by several respondents, in particular the complex auditing and claims procedures which are proving costly to participants, and the need to ensure that participants are reimbursed in good time.

4.11 FP6 participants' views on FP7

4.11.1 Extent to which FP6 participants have applied to and participated in FP7

Participants were asked whether they have applied to and participated in FP7 to date. The responses revealed that just over half (51%) of the FP6 participants have applied to FP7 (to date) and that 46% of these (or 28% of all respondents) have actually participated in one or more FP7 projects. These are reasonably positive results, particularly the success rates among those who have applied.

4.11.2 FP6 participants' views on FP7 in comparison with FP6

Respondents were also asked to give their views on whether certain aspects of FP7 are better or worse than those of FP6, and the results are shown in Figure 62. A significant proportion of the respondents had no opinion or view either way, and the most 'popular' view of those expressed was that FP7 is much the same as FP6 in terms of the relevance of the priority topics, the relevance of the instruments, the level of administrative complexity and the rules of participation. Where respondents have considered that FP7 is either better or worse, the balance of opinion is that FP7 is an improvement on FP6 across all of the given aspects. Overall these findings suggest that while there will inevitably be some 'winners' and 'losers' with any cyclical change from one FP to the next there is no strong indication that Ireland should not be just as successful in FP7 as it has in FP6, perhaps even more so.

Figure 62 – FP6 participants' views on how FP7 compares to FP6 (n=129)

	Worse	Same	Better	No opinion
The relevance of the research topics/priority areas covered	16%	33%	24%	28%
The relevance of the forms of support (i.e. instruments)	9%	33%	26%	32%
The level of administrative complexity associated with participation	12%	45%	14%	29%
The rules of participation	8%	45%	15%	32%

This generally positive picture was confirmed through our interviews with key participants, most of which felt that FP7 was an improvement on FP6, with similarly clear priorities but improved (simpler) instruments. The introduction of the IPs and NoEs at the start of FP6 had led to the creation of much larger consortia and this was felt to have impacted negatively on the already low levels of industry participation in Framework. Under FP7 there is a sense that consortia will be smaller and this will be advantageous to smaller countries with small players. It was also felt that FP7 constituted an 'evolutionary' change over FP6, and did not contain as many radical changes as those from FP4 to FP5 or from FP5 to FP6. As such, it would be easier for actors to build on their involvement in FP6, particularly given the significantly enhanced level of support available at national level to support FP7 participation.

Another positive feature of FP7 is that it will operate for a longer period than previous Framework Programmes, and as such it is felt that its instruments and their associated administrative rules will be stable. This is considered important as applicants will have more time to understand and meet the requirements and this should help more peripheral actors (and countries) to gain a stronger foothold. It is also hoped that this will help to encourage higher levels of involvement by industry, as their ability to cope with high levels of administrative complexity and changing requirements is far below that of the major public research performers. This is particularly important for Ireland as most of its industry participants, at least to date, have been indigenous SMEs.

5. Feedback from unsuccessful applicants

5.1 Introduction

In this section of the report we present the results of feedback received through a questionnaire survey directed to individuals who participated in unsuccessful FP6 proposals.

The final count of completed questionnaires reported on here is 110, representing a response rate of ~10%. Of those responding to the survey, just over half (58%) were unsuccessful with all of their FP6 proposals, while the remainder were unsuccessful with some FP6 proposals but had managed to obtain funding for at least one project. The total number of Irish participations by respondents in proposals was 342, an average of 3.4 per respondent, and 70% of these proposals were unsuccessful in gaining FP6 funding. Just over half of the respondents (55%) had participated in previous Framework programmes.

The following sub-sections set out our findings in relation to:

Irish participants' roles in relation to the unsuccessful proposals

Reasons as to why the proposals were not successful

The fate of the project ideas that were not successful in obtaining FP6 funding

Unsuccessful applicants' ratings of FP6 administrative procedures

Impact of unsuccessful FP6 applications on FP7 participation

Unsuccessful FP6 applicants' views on FP7

5.2 Irish participants' roles in relation to the unsuccessful proposals

The unsuccessful applicants were asked about the extent of their role in relation to the unsuccessful proposals they had submitted, and the results are shown in Figure 63 below. It indicates that the Irish partners had, on the whole, a slightly smaller role in relation to the development of these unsuccessful proposals than was the case for the successful proposals covered by our main survey, and presented in Figure 47, although the differences are not particularly large. There does not, therefore, appear to be any significant issue with unsuccessful Irish applicants having too small a role in relation to the development of the unsuccessful proposals.

Figure 63 – Irish unsuccessful applicants' roles in relation to the development of the proposals (n=109)

Aspect	Not applicable	No role	Minor role	Major role	Primary role
Defining the objectives of the project	2%	16%	35%	23%	25%
Defining the content and scope of the project	1%	13%	28%	33%	26%
Defining the size and membership of the consortium	3%	22%	37%	18%	20%
Writing the proposal	1%	10%	38%	26%	26%

5.3 Reasons for the proposals being unsuccessful

Respondents were asked to indicate the main reasons for their proposal(s) being unsuccessful within the FP6 competition. The responses obtained are presented in Figure 64 and show the proportion of unsuccessful applicants citing each reason as in some way contributing to the failure of the proposal to succeed. Respondents were allowed to select multiple reasons.

The results indicate that there is a very broad spread of reasons underlying the failure of proposals, with all of the given reasons being relevant to at least some of the unsuccessful proposals. The most significant reason for proposals not succeeding was simply an insufficient budget to support all proposals that pass the required quality threshold, an issue that affected almost a third of the failed proposals. The next most significant reason, affecting around a quarter of the unsuccessful proposals, was a lack of detailed information and explanation, something which if addressed may have helped the proposal over the threshold. One in six (17%) of the proposals fell down on their overall written quality, and a similar proportion suffered from issues in relation to the end-use or exploitation of project results.

Interestingly around one in six of the proposals (17%) were allegedly not ambitious or novel enough, while almost as many were considered to be *too* ambitious or novel.

Of the listed reasons as to why proposals were unsuccessful most are to a large extent within the control of the consortium preparing the proposal, with the possible exceptions of a lack of available budget and duplication with another proposal. However, even in these cases preparing a higher quality proposal, with a strong team, clear goals, and that squarely fits within the scope of the call will increase the chances that the proposal wins out over other competing offers. The results below are not particularly instructive, as they do not provide any strong indications of *specific* areas where proposals with Irish involvement are failing. As such, the findings merely stress the importance of developing strong teams, and producing well-targeted and high quality proposals that fit well with the specific FP calls to which they are directed.

Because respondents were able to signal multiple reasons behind the failure of their proposals to secure funding, we asked them to indicate the *primary* reason. The results suggest that

25% of proposals failed due to a lack of available budget (21%) or because the proposal duplicated another proposal that was judged to be stronger (4%)

17% of proposals failed due to either the overall written quality of the proposal (10%), or due to a lack of information / detail / explanation (7%)

15% of proposals failed due to problems with the team; either the strength of the consortium (6%), the quality of the team (1%), having too many partners (4%), having too few partners (1%), or the overall management quality / structure (3%)

10% of proposals failed due to issues relating to exploitation or end-use

10% of proposals failed either because it was too ambitious / innovative / novel (6%) or not ambitious / innovative / novel enough (4%)

8% of proposals failed either because they were outside the scope of the call / did not fit with the priorities (4%) or because they did not fit with the choice of Instrument (4%)

Figure 64 – Reasons for failure of unsuccessful proposals (n=87)

Reason for failure	Share of unsuccessful proposals
Lack of available budget within the programme	30%
Lack of information / detail / explanation given in the proposal	24%
Overall quality of the written proposal	17%
Proposal not ambitious / innovative / novel enough	17%
Issues relating to exploitation or end-use	16%
Proposal too ambitious / innovative / novel	15%
The strength of the consortium	13%
Duplication with another proposal	10%
Quality of management / management structure	10%
Outside the scope of the call / lack of fit with priorities	9%
Lack of fit with the instrument	9%
The quality of the team	9%
Unclear goals	8%
Too few partners included	7%
Too many partners included	7%
Excessive or inappropriate costing in the proposal	5%
Issues with co-funding arrangements	2%

The remainder specified another main reason why their proposal failed, with most of these being very specific to the proposal although relevant to the given categories above (e.g. strength of consortium – no SMEs included or an issue with one of partners). Some claimed that they had failed on some kind of 'technicality' (e.g. not providing enough information on an aspect that was not actually required), others that their research idea wasn't 'trendy' enough or that they had not had the strength to 'lobby' their way to a successful outcome. Others pointed to identified weaknesses in the proposal that they disputed (e.g. idea duplicated research already conducted, which the Irish partner stated was not the case). Finally, one idea was deemed to be sufficiently strong to be commercially feasible without FP6 support.

5.4 The fate of the unsuccessful FP6 project ideas

Unsuccessful applicants were asked about what has happened to the planned project that did not receive FP6 funding support, focusing on the most *important* proposal if they had multiple failed bids. The results obtained are shown in Figure 65 and indicate that in the majority of cases no alternative sources of funding could be identified so the ideas have been put on hold. Roughly 20% of unsuccessful project ideas have been resubmitted to other sources of funding, successfully in most of these cases.

A significant proportion of the respondents cited some other course of action that has been followed. In the vast majority of these cases the respondent stated that the project idea has been slimmed down, broken into smaller parts or otherwise adjusted and then submitted to subsequent FP6 or FP7 calls or to other national or international programmes. In some cases this approach has been successful, in other cases not. A small number of respondents stated that the idea has simply been abandoned, while the remainder indicated that they were unable to say what has happened as they only had a minor role within the overall project.

Many of the ideas that had been resubmitted were put forward to subsequent FP6 calls or submitted under FP7, though a significant number were re-scoped for submission to national programmes. Most national funding bodies and schemes were mentioned by at least one respondent, as were a number of international programmes such as Interreg, the European Space Agency, and Eureka.

Figure 65 – Reasons for failure of unsuccessful proposals (n=87)

Fate of unsuccessful ideas submitted to FP6	Share of unsuccessful proposals
No alternative sources of funding exist, so the idea has been put on hold	56%
We have been successful in obtaining funding from alternative sources	13%
We have applied to other sources of funding, but without success	4%
We have applied to other sources of funding but have not yet received a decision	5%
Other	22%

5.5 Unsuccessful FP6 applicants' ratings of FP6 procedures

Unsuccessful applicants were asked to provide feedback on FP6 processes and procedures relating to the development, submission and evaluation of proposals. The results obtained are shown in Figure 66 66 and indicate generally high levels of satisfaction with each process or element. While few unsuccessful applicants were *very* satisfied with each aspect relatively few were *very* dissatisfied. Overall it seems that for most applicants, even the unsuccessful ones, the information provided to applicants, the templates and procedures for applying, and the time given to apply each attracts reasonably positive ratings. Responses are more neutral concerning the time taken to evaluate the proposals and the evaluation criteria used to assess them.

This leaves two areas where the balance of opinion was negative - the transparency of the evaluation and selection procedures employed and the quality of the feedback provided following a decision not to support the proposal. These are obviously the two areas that relate most closely to the decision not to support the proposal, so the higher levels of dissatisfaction in relation to these aspects is perhaps to be expected. However, we found a more general and widespread dissatisfaction with the FP proposal evaluation system, with even FP 'advocates' that have been very successful in obtaining funding stating that the quality of the evaluators is questionable and the outcomes 'erratic'. Certainly the more experienced players tend to put in a range of proposals as it is hard to predict which ones will attract the eye of the evaluators and which will not. Quality alone is not considered to be sufficient to guarantee a successful outcome, and behind the scenes 'positioning' is often considered to be as important, at least in some areas of the programme.

Figure 66 – Unsuccessful applicants' satisfaction with FP6 processes (n=97)

Process	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied
Information provided to prospective applicants about how to apply	2%	7%	26%	52%	13%
Suitability of the proposal procedures and templates	3%	18%	27%	42%	10%
Time given to applicants to prepare and submit proposals	2%	10%	27%	45%	15%
Suitability of the evaluation criteria used to judge proposals	9%	19%	31%	35%	5%
Transparency of the evaluation and selection procedures employed	12%	25%	25%	29%	9%
Time taken to evaluate proposals	3%	14%	46%	35%	2%
Quality of feedback provided to unsuccessful applicants	14%	40%	23%	18%	5%

As indicated above, some of the respondents were unsuccessful with all of their FP6 proposals while others had submitted both successful and unsuccessful proposals to FP6. The responses shown in Figure 66 above were analysed separately for these two groups to determine whether the decisions themselves are a strong determinant of levels of dissatisfaction. The results are shown in Figure 67 and show the proportion of respondents from each of the two groups that assigned negative ratings to each element of the process. The results indicate that in some areas there is a marked difference between the two groups, with respondents that were unsuccessful with all of their bids assigned far more negative ratings concerning (i) the suitability of the proposal procedures and templates, (ii) the suitability of the evaluation criteria, (iii) the transparency of the selection procedures, and (iv) the quality of the feedback given. These findings support the contention that failure to succeed with any FP6 proposal does adversely influence applicants' views of the procedures employed.

Figure 67 – Extent to which unsuccessful applicants were dissatisfied or very dissatisfied – comparison between those who were unsuccessful with all or only some FP6 proposals (n=97)

Process	Share of respondents that were dissatisfied or very dissatisfied	
	Unsuccessful with all FP6 proposals	Unsuccessful with some FP6 proposals
Information provided to prospective applicants about how to apply	6%	3%
Suitability of the proposal procedures and templates	17%	4%
Time given to applicants to prepare and submit proposals	6%	6%
Suitability of the evaluation criteria used to judge proposals	24%	4%
Transparency of the evaluation and selection procedures employed	27%	10%
Time taken to evaluate proposals	11%	5%
Quality of feedback provided to unsuccessful applicants	38%	16%

Respondents were also asked to state whether FP6 was better or worse than other similar (collaborative research) programmes in terms of the overall *complexity* of the procedures involved in preparing and submitting proposals. Of those expressing an opinion, the most popular view was that FP6 was worse than other programmes (47%) with 43% stating that it is about the same and only 10% finding FP6 better than comparable sources of research funding.

Respondents were also asked about the *quality* of the proposal submission and selection procedures employed in FP6 in comparison with other programmes. Here the balance of opinion is that FP6 is broadly the same as other programmes (55%), though more respondents stated it is worse (32%) than said it was better (14%).

5.6 Impact of unsuccessful FP6 applications on FP7 participation

5.6.1 Extent to which unsuccessful FP6 applicants have applied to and participated in FP7

The unsuccessful FP6 applicants were asked whether they have applied to or participated in FP7 to date, and the responses tell us that just less than half (47%) have applied to FP7 so far. There are very different FP7 application rates for those who were unsuccessful with all of their FP6 proposals (27% applied to FP7) and those who were unsuccessful with only some of their FP6 proposals (74% applied to FP7), indicating that a lack of success in one FP has a marked impact on willingness to apply to subsequent Programmes.

The results are rather more positive when we look at whether the unsuccessful FP6 applicants that have applied to FP7 have been successful with their proposals. Here we find that just over half (54%) of unsuccessful FP6 applicants who applied to FP7 have been successful in securing funding. Even more encouragingly, the FP7 success rates appear higher for those who were unsuccessful in all of their FP6 proposals (67% success rate in FP7) as compared to those who only failed with some of the FP6 bids (48% success rate in FP7). These findings suggest that unsuccessful FP6 applicants should not be discouraged from applying to subsequent FPs.

Unsuccessful FP6 applicants have indicated, however, that they are more likely to decrease the number of proposals they submit to FP7 in comparison with FP6 than to increase the number, although it should be noted that a significant minority of respondents are unsure as to how the two will balance out. The same holds for the number of projects that unsuccessful FP6 applicants expect to participate in within FP7, as shown in Figure 68 below.

Figure 68 – Unsuccessful FP6 applicants' FP7 application and participation rates (n=97)

	Decrease	Same	Increase	Unsure
The number of applications submitted to FP7 in comparison with FP6	34%	16%	21%	29%
The number of projects participated in within FP7 in comparison with FP6	33%	17%	19%	31%

Those expecting to increase the number of proposals and / or participations in FP7 cited a range of reasons for the increase, mainly relating to their organisation or group's increased maturity, experience, resources and networks, which are all expected to have a positive impact on FP participation. Others indicated that they now feel more able to understand what is required and are now better at forming strong teams and developing competitive proposals. Some respondents also indicated that they have found FP7 to be a better fit with their priorities or competencies. Finally, a few respondents have signalled that forthcoming reductions in the availability of national funding for R&D are acting as a driver for increased Framework participation.

Those expecting to decrease the number of proposals and / or participations in FP7 also gave a range of reasons, most of which related to the fact that the administrative burdens and complexity are too high, the outcomes too uncertain (a lottery!) and the success rates too low for them to bother. Several mentioned a sense of fatigue with regard to FP participation, citing that the effort involved in applying is simply too great in relation to the rewards on offer. Others indicated that FP7 was a less good fit with their competencies, or that they had not been invited to join consortia this time around. Finally, a number of respondents indicated that they have retired so they will not be applying or participating in future.

5.6.2 Impact of FP6 rejection on desire to participate in FP7

Respondents were then asked to indicate the extent to which their experience of being an unsuccessful FP6 applicant had impacted on their desire or intention to participate in FP7. The results indicate that almost half (45%) felt that the negative FP6 experience had had no impact on their attitudes towards FP7, while around a third (31%) indicated that it had affected their desire to a small extent. Only a quarter (24%) stated that the experience of FP6 had impacted significantly on their desire or willingness to apply to FP7. All but one of this latter group had been unsuccessful with all of their FP6 proposals.

5.6.3 Impact of FP6 rejection on approaches towards FP7

Respondents were asked whether they have made efforts to improve or change their approach to FP7 based on their experience of submitting unsuccessful proposals to FP6. A significant proportion (39%) of the respondents did not answer this question as they have not yet applied to FP7 and have no firm plans to do so. Almost two-thirds (63%) of the remaining respondents stated that they *have* taken some kind of positive steps to improve their chances of success in FP7.

Most of the steps that applicants are taking related to a general strengthening of their approach to developing ideas, forming consortia and preparing proposals, with most respondents seeing a need to become more targeted and focused and to put the necessary time and effort into building very strong proposals. This increased 'focus' on ensuring that every aspect of the idea, team and the proposal itself is as strong as it can be has come through significantly in the comments, and is a rather positive finding as it signals that many applicants believe that the outcome is in their own hands. While a small number of respondents believe that the process is something of a lottery, most are now attuned to the idea that there is a recipe for success that can be followed and while it won't guarantee a positive result every time, such an approach across several proposals means that success with one or more of them is highly likely.

Several respondents described specific strategies that their organisations have been taking to increase their chances of success, in addition to the more general improvements mentioned above. These include using successful proposals as 'templates' for other proposals, conducting 'post-mortems' on unsuccessful proposals to see what lessons can be learned and shared, employing specialists to help understand FP requirements, rules and tips for success. These very proactive measures appear to be coming more commonplace, based on the feedback obtained.

A small number of respondents also indicated that they are becoming more focused on developing ideas where the end result in terms of new products or services and the ultimate impacts in terms of industrial take-up are more clear and certain. This focus on developing proposals that not only contain strong elements of research but also tackle the 'exploitation' of the project results as an integral part of the project is seen as an increasingly important strategy, and part of a wider trend and indeed a requirement to ensure that teams do not focus solely on the pursuit of new knowledge but have a strong sense of how that knowledge will be applied and exploited within a commercial setting. The Framework Programmes are, after all, an instrument of industrial policy, and carry the goal of strengthening EU industrial competitiveness.

5.7 Unsuccessful applicants' views on FP7

Unsuccessful applicants were asked to give their views on whether certain aspects of FP7 are better or worse than those of FP6 - the same question in fact that was directed to FP6 *participants* and reported on in Section 4.11.2. The results obtained are shown in Figure 62 and are remarkably similar to those obtained through the main FP6 participant survey. Once again a significant proportion of the respondents had no opinion or view either way, and the most 'popular' view of those expressed was that FP7 is much the same as FP6 in terms of the relevance of the priority topics, the relevance of the instruments, the level of administrative complexity and the rules of participation. Where respondents considered that FP7 is either better or worse, the balance of opinion was that FP7 is an improvement on FP6 across all of the given aspects, with the exception of the level of administrative complexity where those stating that the situation has become worse slightly outnumber those who believe things have got better.

Figure 69 – Unsuccessful FP6 applicants' views on aspects of FP7 (n=97)

	Worse	Same	Better	No opinion
The relevance of the research topics/priority areas covered	17%	34%	22%	27%
The relevance of the forms of support (i.e. instruments)	9%	43%	17%	32%
The level of administrative complexity associated with participation	11%	49%	10%	30%
The rules of participation	6%	48%	11%	34%

6. Feedback on FP6 and FP7 support provision

6.1 Introduction

In this section we report on the feedback received concerning FP support provision at both national and EU levels. The findings are based on a combination of the survey directed to Irish participants in FP6, the survey of unsuccessful FP6 applicants, and the interviews with key researchers, funding agencies and support providers.

The following sub-sections report our findings in the following areas:

FP6 participants' take-up of the available (FP6) support

Unsuccessful FP6 applicants' use of support

Use and ratings of the new national FP7 support system

General recommendations for improving Irish participation in the Framework Programmes

6.2 Use of FP6 support by FP6 participants (successful applicants)

6.2.1 Extent to which participants have sought assistance

FP6 participants were asked whether their organisation or research group had consulted specific individuals, service providers or information sources to obtain information or assistance in relation to FP6. Less than half (40%) indicated that they had sought such advice, suggesting that the majority of FP6 participants in some sense chose to 'go it alone'. Of course, it should be remembered that many of Ireland's FP6 participants obtain all of the support that they require from inside their own organisation (university, research institute, company or public agency) so the extent of uptake of 'external' support is perhaps not that low. What is surprising is the fact that the HEIs (48%) and research institutes (40%) were more likely to consult external providers than are either industry (25%) or 'Other' types of organisation (21%).

6.2.2 Ratings of the various service providers and information sources used

Those who had sought assistance were asked to name (up to) three primary sources or providers that they had used, and to rate each in terms of the utility of the assistance they had received. Because a list of providers was not given and respondents were free to describe who or where the assistance had come from, a certain amount of cleaning was required in order to identify the main providers and information sources. This resulted in the ten providers or information sources shown in Figure 70 70, which also sets out the share of respondents using each source and the share of these that were dissatisfied, neutral, or satisfied with regard to the support they had received. The results show that the vast majority of the respondents were satisfied or very satisfied with the support that they had received in relation to FP6, with only CORDIS receiving anything approaching a more neutral response. These data suggest strongly that FP6 support provision, where used by FP6 participants, delivered a good level of customer satisfaction, with only 6% of users in any way dissatisfied with the service they received.

Figure 70 – FP6 participants' use of and satisfaction with FP6 support providers (n=88)

Provider / source	*Usage level (share of respondents)*	Dissatisfied or very dissatisfied	Neutral	Satisfied or very satisfied
University support office	19%	0%	12%	88%
Other national agency	15%	8%	8%	85%
Enterprise Ireland	14%	17%	17%	67%
National Contact Point (NCP)	11%	0%	10%	90%
European Commission	10%	11%	11%	78%
CORDIS	8%	14%	43%	43%
Research colleagues	7%	0%	17%	83%
Hyperion	6%	0%	0%	100%
Irish Universities Association	6%	0%	0%	100%
Other organisation	5%	0%	25%	75%
Total	**100%**	**6%**	**14%**	**81%**

6.2.3 Extent to which other actors have helped participants to get involved in FP6

Respondents were asked whether any other actors (e.g. HEIs, companies, research institutes, etc.) had facilitated or encouraged their organisation or research group to get involved in FP6 projects. The responses from FP6 participants indicated that 18% of the participants *had* been encouraged by other organisations to apply. Industry participants were most likely to have been encouraged by others to become involved (31%) in the project(s), while research institutes were least likely (5%). HEIs and 'Other' participants were equally likely to have been encouraged by others (18% respectively).

Respondents were then asked to indicate who had encouraged them and how and why they had helped to facilitate their involvement. The responses obtained are summarised below for each main type of actor:

HEIs mostly indicated that Enterprise Ireland or their own institutions had encouraged and supported their involvement in these projects, with the responses suggesting that most of these were referring to a general encouragement that they should participate in FP6 and assistance with this, rather than helping to encourage them into a specific project or consortium. However, a small number of the HEI respondents did indicate that national research institutes had sought them out as partners for specific projects, based on their expertise

Only one **research institute** participant signalled that their involvement had been encouraged by another actor, in this case a public agency in Ireland that could see benefit from the proposed project and wanted to make sure relevant Irish actors were involved

Industry respondents in most cases indicated that either an Irish HEI or research institute had contacted them and asked them to become involved in the project, mainly based on their expertise and what they could bring to the research rather than as 'beneficiaries' of the results

Other actors in some cases indicated that either an Irish HEI or research institute had contacted them and asked them to become involved, while in others referred to the general support and assistance provided by Enterprise Ireland or national contact points

These results provide good evidence that Irish involvement in specific FP6 projects, particularly by industry, has been boosted by certain actors actively seeking to partner with other Irish organisations. However, this is going on at a relatively low level, which is perhaps not surprising as Irish participants could not reasonably always expect to be able to bring other Irish partners into the projects, particularly in cases where they themselves have been invited in by other (non-Irish) partners or where they have only a peripheral role in the construction of the project idea and the proposal. However, in cases where Irish organisations are leading or centrally involved in the projects it would seem that there is good scope for additional Irish partners to be brought into the team, as and where appropriate.

6.2.4 Extent to which participants have helped other actors to get involved in FP6

The questionnaire survey also asked participants to say whether their own organisation had helped or encouraged other Irish actors to become involved in FP6. In this case 30% of the respondents stated that they had, with all four main groups of participant equally likely to say that they have in some way facilitated other actors' involvement. A summary of the information provided by each group on whom and how they had helped is presented below:

HEI respondents indicated that they have undertaken a fairly broad range of actions to support or encourage other actors to become involved. In around half of the cases this was described as participation in various events, information days and other promotional activity to help to explain to other actors about FP participation. In some specific cases HEIs have encouraged companies within their 'region' to consider becoming involved, while others have promoted specific parts of the programme (e.g. the Marie Curie-ToK scheme) to industry. Some have helped specific organisations or colleagues to find partners or to better understand 'the rules of the game'. In around a third of the cases respondents named specific project partners that they had 'brought in' to their consortium, or organisations that they had subcontracted work to within the context of their FP6 projects

Research institute respondents in all cases mentioned one or more specific organisations that they had helped to become involved in their own or other FP6 projects. In most cases these other actors were brought in based on their expertise and what they could contribute to the projects

Industry respondents also indicated that they had occupied different roles in encouraging or facilitating the involvement of other organisations, describing both general promotional activities that they had participated in and more specific actions to bring named partners into the project teams in which they were involved

Other actors also described a range of actions they had undertaken, including the bringing in of specific partners, the provision of staff members to act as national contact points, and participation in various awareness raising or information campaigns

Again these results signify that many Irish participants are actively involved in both general promotional work, the provision of assistance and support, and more specific encouragement of named organisations to become involved in their own projects. Unfortunately there is no 'baseline' data against which to test this level of support, but the results of this study in many cases indicate a growing awareness of the benefits of Framework participation nationally and increased efforts on the part of some actors to proactively increase the extent to which other Irish actors are involved.

Figure 25 above reported on the extent of 'intra-country' links within FP6 projects and showed that Ireland appears fairly low down the list of EU countries based on the number of 'same country' collaborations within FP6 projects. Smaller countries such as Ireland clearly have more limited opportunities to form such links across a large proportion of their projects (as compared to say Germany, France and the UK) but we are aware that other countries have been actively encouraging their national participants to proactively seek to bring other national partners, particularly industry, into the projects wherever possible. The results presented here can now stand as a baseline against which to review the situation under FP7, where it is hoped that the level of FP involvement overall and the level of Ireland-Ireland collaborations *within* FP projects can be improved upon over time.

6.3 Use of support by unsuccessful FP6 applicants

6.3.1 Extent to which unsuccessful applicants sought assistance

Unsuccessful FP6 applicants were asked whether their organisation or research group had consulted specific individuals, service providers or information sources to obtain information or assistance in relation to FP6. Just more than half (52%) indicated that they had sought such advice, a slightly higher proportion than reported by the successful FP6 participants. Unsuccessful applicants who had failed with all of their FP6 proposals were slightly less likely to have sough support (47%) than those who had both successful and unsuccessful applications (59%) but given that only 40% of the FP6 participants surveyed had sought support, the relationship between seeking advice and success in the FP6 competition remains rather unclear.

6.3.2 Ratings of the various service providers and information sources used

Those who had sought assistance were asked to name the three primary sources or providers that they had used, and to rate each in terms of the utility of the assistance they had received. The various service providers and information sources were again grouped in order to support the analysis. Figure 71 presents the results obtained and again demonstrates that the vast majority of respondents have been satisfied with the support they received, even though this set of respondents were unsuccessful with some or all of their FP6 proposals. The ratings are slightly less positive than those assigned by the FP6 participants (i.e. the successful applicants) but the differences in most cases are not particularly large.

Figure 71 – Unsuccessful FP6 applicants' use of and satisfaction with FP6 support providers (n=93)

Provider / source	***Usage level (share of respondents)***	**Dissatisfied or very dissatisfied**	**Neutral**	**Satisfied or very satisfied**
Enterprise Ireland	22%	15%	15%	70%
Other organisation	13%	8%	17%	75%
European Commission	11%	0%	10%	90%
National Contact Point	11%	0%	40%	60%
CORDIS	10%	0%	33%	67%
University support office	8%	14%	29%	57%
Other individual	6%	33%	0%	67%
Hyperion	5%	0%	0%	100%
Other National agency	5%	20%	20%	60%
Research colleagues	5%	0%	20%	80%
Total	**100%**	**9%**	**20%**	**71%**

6.4 Use and ratings of FP7 support

6.4.1 The new national support system for FP7

The support structure in Ireland to promote and provide help in establishing involvement in the Framework Programmes has been significantly developed by the introduction of the National Support Network (NSN) for FP7, led by Enterprise Ireland with involvement from all of the national funding agencies. This new support system has been designed to overcome a number of recognised weaknesses with the organisation and management of FP6 support, including a lack of coherence as to the involvement and roles of the different national agencies, the limited amounts of training for National Contact Points, and insufficiently clear links between national research funding and Framework participation. In addition, the new NSN has sought to strengthen the range of financial supports on offer to assist both academics and industry in becoming involved in FP7 proposals and projects.

A number of elements make up the new NSN, each of which are aimed at disseminating relevant information to relevant groups, supporting potential FP7 participants to establish networks and identify potential research projects, and supporting the development of proposals.

Dissemination of information and raising awareness of FP7 is achieved via a dedicated National Support Network website[14], and through the work of the National Contact Points (NCPs) – dedicated professionals from the major funding bodies in Ireland attached to specific areas of the programme. There is at least one NCP per thematic priority area, and one for each of the other parts of the

[14] http://www.fp7ireland.com/Page.aspx?SP=216

programme, such as the Marie Curie Actions, Research Infrastructures, Research for the benefit of SMEs, Research Potential, Science in Society, and Activities of International Cooperation.

The NCPs run information days, seminars and other promotional events to advertise FP7 opportunities and to assist prospective applicants, and are available to answer specific questions and provide dedicated assistance to individual companies and research groups. This direct support is usually focused around understanding the calls and the associated requirements, the development of partnerships and the preparation and submission of proposals. The network of NCPs introduced for FP7 draws upon experts from a wider range of national funding bodies, and ensures that each NCP attends to the needs of all types of actor within their area of the programme, rather than serving just the academic or industrial (indigenous / MNC) communities.

As part of the NSN, the National Delegates (NDs - Ireland's representatives on FP7 programme committees) also provide support to prospective participants, and are able to identify opportunities that are of importance for Irish participation in the programme. They have a potentially more strategic role in that they are more closely involved in discussions about the nature and content of forthcoming FP calls, and have closer insight into the opportunities that exist and how Ireland may maximise its strategic 'positioning' with regard to those calls and the major consortia that are expected to become involved. In some cases the same individual occupies the role of ND and NCP in relation to a particular part of the programme.

In addition to the NCPs and NDs, Enterprise Ireland has established the Irish Liaison Office in Brussels as a contact point for all Irish R&D. The office manager is a member of the Informal Group of Brussels-based R&D Liaison Offices (IGLO), which facilitates interaction, information exchange and cooperation between its members, their national research systems and the relevant European institutions on EU RTD issues, with a focus on FP7. In this way the Irish Liaison Office acts as a contact point for Irish researchers and industry with the European Commission, as well as potential collaborators.

The NSN also provides a service to applicants by reviewing and giving advice on proposals, and offers general support in all stages of the lifecycle of a project. It also assists prospective participants who do not have prior experience of existing networks or EU projects to find suitable partners both nationally and across the EU.

The NSN has also extended and improved the range of financial supports on offer to Irish applicants. The aims behind the NSN were to generate increased demand for FP7 participation and to help to facilitate increased involvement by providing assistance with partner formation and proposal development. Researchers based in Irish companies, public research bodies and higher education institutions with an ambition to participate in any FP7 project are now eligible to receive financial assistance from Enterprise Ireland, as follows:

Coordination support for academics to facilitate preparatory work for FP7 proposals where the Irish partner intends to occupy the role of coordinator. Under this support line the maximum grant for academic coordinators in any publicly funded research performing institution is €25,000. Proposals for support are evaluated by the members of the NSN according to: conformity of the proposal to the FP7 call, appropriateness and mix of proposed partners, actual costs that are necessary to prepare and submit a proposal, and the potential benefits of the proposed project to the Irish economy

Travel grants for academic researchers: researchers based in all Irish research performing organisations can apply to facilitate multiple visits abroad to meet research partners in other countries. Eligible costs include travel expenses and subsistence up to €150 per day for visits of typically 3 days duration. The funding does not cover overheads, sabbaticals, conferences, or course work. The application process is very simple and the aim has been to provide these small supports to assist as many applicants as possible, and with the minimum of administrative burden and time delays

IDA[15] supported Feasibility and Training support Scheme. The IDA provides financial support to its (multinational) client companies towards the cost of preparing an FP7 proposal. Applications for

[15] IDA Ireland has national responsibility for securing new investment from overseas in manufacturing and international services sectors and for encouraging existing foreign enterprises in Ireland to expand their businesses.

IDA funding are assessed on the proposed project's relevance under one of the FP7 themes, the importance of its scientific contribution to the community, the number and relevance of academic and industrial partners, and the strategic benefits to the company and the Irish economy[16]

Support for indigenous companies. The FP7 Feasibility Support Scheme is available to Enterprise Ireland clients (indigenous firms) and aims at financially assisting companies in preparing joint R&D proposals for submission to the EU. The grant support covers the cost of preparing an FP7 proposal up to a maximum of €25,000 (at 50% grant rate i.e. €25,000 based on a total expenditure by the company of €50,000). Prior to submission, all applications for funding must be discussed with company assigned Enterprise Ireland Development Advisors. Applicants are also asked to discuss proposed projects with the relevant National Delegate and / or National Contact Point in order to secure closeness of fit with current EU calls for proposals. Eligible costs include salaries, up to a maximum of €1,000 per week, consultancy fees (up to €1,000 per day and 50% of total expenditure), prototype expenditure (up to 25% of total grant), travel and subsistence (according to conditions), overheads and sundry expenses (up to 30% of wage/salary costs). Eligible groupings are Enterprise Ireland clients who are manufacturing and internationally traded services companies, high potential start up companies, and individuals or groups

Applications for the financial supports listed above are reviewed and assessed by Enterprise Ireland with input from the NCPs and NDs, and the aim so far at least has been to support all 'viable' applications. The aim has been to significantly enhance the level of support available in order to achieve a measurable and meaningful increase in Ireland's involvement in FP7 proposals (in comparison with FP6) and in their success rates in terms of both project participations and funding received.

In addition to the four main types of financial support listed above, the National Support Network has also recently issued five 'pilot' awards to key national research centres and groups in order to help them to develop a more strategic approach to FP7. These awards are of up to €100k and represent a slightly different tactic in helping research centres rather than individuals with regard to their approaches to FP participation. These larger awards are helping the five recipients (Teagasc, Tyndall, DERI, TSSG, and DCU) to develop their own strategies and to recruit dedicated individuals to help with implementation of those strategies.

The new National support system also includes, for the first time, an appointed Director for FP7 support, based in Enterprise Ireland, and a set of targets for Irish participation in FP7 in terms of the volume of funding that it is hoped will be secured by Irish partners. The Director and her team have been monitoring closely the early involvement of Irish participants in proposals submitted to FP7, applicant success rates within the various calls, and early levels of participation and funding received by Irish partners, and have been adjusting and extending the range and nature of support available where possible based on the emerging results.

The role of Enterprise Ireland as the coordinator of the network has also helped to facilitate a more 'joined-up' approach, wherein the network of support providers meets on a monthly basis for (i) training on new developments, (ii) the sharing of experiences, and (iii) discussions about the effectiveness of the support and ways to improve it. This 'team-based' activity helps to ensure that the network learns and improves over time and is able to offer a more coordinated approach.

Our surveys and interviews have gathered feedback on the new national FP7 support system. The findings are presented in the sub-sections below.

6.4.2 Extent to which Irish actors have sought assistance in relation to FP7

FP6 participants

FP6 participants were asked, through the questionnaire survey, whether they have sought advice or support from national service providers to assist them in applying to or participating in FP7. The results show that 41% of the FP6 participants *have* sought advice or support in relation to FP7, almost exactly the same proportion that sought help in relation to FP6. However, FP7 is still in train so it

[16] *Ireland, knowledge is in our nature* (2008) http://www.idaireland.com/business-in-ireland/research-development-and-/incentives-in-rdi/#comp000049c77aab0000001bfc44c2

would be reasonable to expect that the overall level of take-up of assistance will increase in the fullness of time and will surpass the levels seen in FP6. HEIs and research institutes again showed higher levels of take-up of support (47% and 37% respectively) than industry (33%) and Others (29%) but take-up by these latter two groups appears to be higher than was the case in FP6. This is an encouraging result.

Respondents were asked to provide a brief description of the main forms of support or assistance that they required. A significant minority of respondents named the provider, source or event they had attended rather than describing what *kind* of help they required. However, of those that did describe a need, most were seeking assistance with:

Obtaining information on specific calls, whether that be identifying which calls are relevant, understanding in more detail what the requirements and rules associated with the calls were, how the application process works, deadlines, and so on

Preparation of proposals, with participants looking mainly for advice and guidance on what information should be provided, what aspects or elements to focus on, strategies for success, and so on. Several were also seeking some kind of external 'peer review' of their proposal prior to submission, so that they could address any weaknesses or provide additional information if and where any aspects were not clear

Other more specific forms of assistance, covering financial support towards the costs of proposal development, help with finding partners, or legal advice

Unsuccessful FP6 applicants

The unsuccessful FP6 applicants who responded to our survey were also asked whether they had sought advice or support from national service providers to assist them in applying to or participating in FP7. The results show that 38% of the unsuccessful FP6 applicants *have* sought advice or support, almost the same as the proportion of FP6 *participants* that have sought help in relation to FP7.

Respondents were asked to provide a brief description of the main forms of support or assistance that they required. Most indicated that they had sought 'general information' on FP7, and had attended information days and briefing sessions that had been organised at national level. A significant proportion also sought advice and help with practical matters such as how to apply and what specific requirements have to be met, and some had asked support providers to review proposals and provide feedback on how to strengthen the offers. Several mentioned that they had applied for travel or coordinator grants to assist in the development of ideas, formation of the teams and the planning of larger project proposals. A small number also sought assistance with finding partners for specific proposals.

A number of comments were included which confirmed the generally positive view of prospective applicants on the range and quality of support now on offer within Ireland.

6.4.3 Usage levels and satisfaction ratings of the different FP7 support providers

FP6 participants

FP6 participants were asked to indicate which of a given list of national and EU service providers have been used to assist with their FP7 participation, and in each case to indicate their level of satisfaction with the support they received. The results for the most widely used support providers are shown in Figure 72 and indicate both the level of usage of each provider and the ratio of satisfied to neutral to dissatisfied ratings applied.

As we would expect the more 'generic' providers (National contact points, Enterprise Ireland, National Delegates, University Research Offices and the European Commission) are the most widely used, since they support a broad range of participants across all Priority Areas of the programmes and in relation to all types of instrument. The other providers support in most cases a narrower band of potential participants, in specific scientific fields.

As regards the ratings of the support provided, the feedback is very positive on the whole, with all of the most actively used providers satisfying the vast majority of their customers, and with only a very small minority stating that they were not satisfied with the help given. The support or assistance provided by the various public agencies appearing in the bottom half of the list attracted neutral ratings from the majority of respondents, but in all cases there was a greater number of satisfied recipients of the support than dissatisfied ones.

Figure 72 – FP6 participants' use of and satisfaction with FP7 support providers (n=114)

	Usage level (share of respondents)	Dissatisfied or very dissatisfied	Neutral	Satisfied or very satisfied
National contact points	*65%*	6%	15%	79%
University Research Offices	*57%*	14%	14%	71%
National delegates	*53%*	7%	22%	71%
Enterprise Ireland	*50%*	6%	22%	72%
European Commission	*49%*	6%	32%	62%

Other providers included the Irish Universities Association, Dept of Agriculture, Science Foundation Ireland, Environmental Protection Agency, Irish Research Council for SET, Higher Education Authority, Irish Research Council for the HSS, Dept of Environment, Health Research Board, Sustainable Energy Ireland and the Marine Institute. In all cases the vast majority of providers assigned either positive (satisfied / very satisfied) or neutral ratings for the support given.

Unsuccessful FP6 applicants

The unsuccessful FP6 applicants were also asked, via the questionnaire survey, to report back on their use of FP7 support and on their satisfaction with each of the service providers used. The results for the main (i.e. most widely used) support providers are presented in Figure 73 and largely mirror the usage levels and satisfaction ratings provided by FP6 participants, although the unsuccessful FP6 applicants appear to be a little more likely to be dissatisfied with the help that they have received. We still find, however, that the ratings assigned to the most actively used providers are very high overall, and that in no cases is there any cause for alarm with respect to the quality of service provision.

Figure 73 – Unsuccessful FP6 applicants' use of and satisfaction with FP7 support providers (n=65)

	Usage level (share of respondents)	Dissatisfied or very dissatisfied	Neutral	Satisfied or very satisfied
National contact points	*68%*	14%	7%	79%
University Research Offices	*64%*	17%	22%	61%
Enterprise Ireland	*58%*	12%	18%	71%
European Commission	*53%*	3%	35%	61%
National delegates	*42%*	18%	9%	73%

Feedback from interviewees

Interviews with key Irish participants, funding agencies and support providers confirmed that there is a high level of awareness of the new FP7 National Support Network and that it is perceived to be a far stronger system than was in place for previous FPs. The support system is seen to be more comprehensive in terms of the assistance on offer, and is more centralised, coherent and coordinated. It is also felt that the new Network has been effective in promoting itself to relevant actors and that the services available are well known to prospective participants. Some of the support providers affirmed the considerable progress that has been made nationally in terms of the quality and intensity of the support. For example, there have been coordinated attempts to increase Ireland's participation in certain parts of FP7, particularly for some of the new instruments where it was expected that Irish applicants (and indeed those from other countries) might take some time to become aware of the new opportunities and how best to exploit them. In some cases this has helped Irish applicants to be particularly successful in relation to specific calls, instruments or areas of the programmes.

The existence of a strong support system is seen to be of particular importance for the less experienced applicants who need support with finding partners, proposal development, and in understanding and complying with the various administrative rules and procedures that are in place. Some commentators were not convinced that the support is being sufficiently *targeted* on these actors, and these clearly believe that the support provision should be focused on those actors that have less experience or capability to become involved. However, it has been an explicit policy of the NSN to deliver support to all actors, irrespective of their prior level of involvement.

A related issue with the new support system concerns the shape of the network, which is felt by some to be *too* centralised (within the Dublin area) and on the established HEIs and research institutes that are already considered to be key players. These commentators would like to see more locally- and regionally-based support for less experienced actors and those who do not benefit from any form of 'in-house' assistance (e.g. a research office). Some commentators also asserted that more effective support to industry players is needed, as companies are perceived to be less inclined and less 'well-equipped' to participate and have to bring much more of their own resources to the partnerships. Low levels of industry involvement in the programme is a general problem or 'feature' of the FPs and the Commission is and needs to continue to address this problem. However, it is clear that proactive measures by individual member states can have a tangible impact on industry participation levels, and many actors believe that Ireland should do everything it can to assist Ireland's research active SMEs and MNCs to become more involved.

The support provided by the NCPs is considered to be good overall but there have been some concerns raised over the fact that each NCP has to support all actors of all types within a given area of the programme. It is felt that while some NCPs are very experienced and are able to do this, others lack the breadth of experience and understanding to offer a truly effective service, and this can mean that the support in some areas is less effective than in others. It was clear to us in talking to NCPs that there is a range of experience-levels on offer, and that in some cases NCPs lacked the same level of insight (e.g. into how the FPs operate and what are the key success factors) as exhibited by other NCPs. This is perhaps inevitable, but it is important that the support network is able in all areas to go beyond a professional signposting / information function and extend into the kinds of more intangible support (based on knowledge and experience) that can really help Irish organisations to become involved in the key networks and to succeed within both the competition and the projects. In order to support this it is important that the less experienced NCPs and NDs interact regularly with the more experienced ones, and that the NDs work as closely as possible with the NCPs concerning the development of new or adjusted FP priorities, instruments, rules, etc.

6.4.4 Recommendations for improving FP7 support provision

Questionnaire respondents and interviewees were asked whether they had any specific recommendations as to how the Irish support system for FP7 applicants and participants could be improved. While the feedback received has generally been very positive, there were many suggestions as to improvements or additional forms of assistance that could and should be provided to maximise Irish organisations' chances of success in FP7. The suggestions received are summarised below:

Improved support for identifying partners and building consortia. Various suggestions in this direction were received, with several respondents arguing that Ireland should be more strategic in its approach to building partnerships. It was felt that the major players and most successful groups nationally could do more to bring other Irish partners into project teams, and that the provision of a national website could be established to help with 'intra-Ireland' partnership formation. Others felt more could be done to build links to the leading EU research groups and consortia, with national agencies and representatives helping to build these links

More help with proposals. Several respondents argued that more financial support should be made available to assist with the preparation of proposals, given the considerable costs associated with developing a project idea and team and in dealing with the significant administrative elements of the proposals. It is also argued that more assistance and insight from experienced FP campaigners on proposal 'success factors' is required, and that a more established system for enabling draft proposals to be reviewed and commented on by others should be put in place

Dedicated management and administrative support. Several respondents have begun to employ 'professionals' to assist them in the development of proposals, the management of contracts, and in understanding and complying with both the formal rules of FP participation and the 'informal' rules that are seen as just as important in terms of success rates. Others have noted the increased use of such specialists in other countries, and believe that Ireland has not yet made full use of such

specialists, arguing that it would free up researchers time to enable to focus on the development of the ideas, the building of partnerships, and the execution of the research projects themselves, leaving the administrative aspects to professional administrators who have more experience in these areas

Improved balance of support provision. We received a range of comments suggesting that FP7 support provision is imbalanced and that it favours larger actors, those based in Dublin, and HEIs over other types of organisation. Several respondents suggest that more support should be made available to SMEs, both practical assistance and financial supports to help them become involved. Increasing industry participation in the programme should according to most actors be a major focus of the National Support Network and it is not clear that sufficient effort and resource is being devoted to this part of the community. It was also suggested that information events, seminars, etc. are only rarely held outside the capital, and that the other regions are less well served as a result. In addition it was suggested that some sub-areas of FP7 would benefit from dedicated National Contact Points, in order to improve the level of 'specialist' support available in relation to those specific areas

Extending the range and flexibility of financial support on offer. While the FP7 support Network has increased the range of financial supports on offer, it has been suggested that the existing travel supports should be made available at shorter notice or retrospectively as a lot happens very quickly when FP calls are issued and many potential beneficiaries of travel support do not have the time, at the time, to apply for these. Some respondents have also argued that there is a need for more matched funding mechanisms at national level to ensure that institutions have the necessary resources to bring their contribution to the project if successful.

Promotion of FP opportunities and the support available. Several respondents argued that not enough has been done to fully promote Framework participation or the range and types of support that are on offer, which leads to a situation where much of the support is being directed towards established players whose need is arguably lowest. It is felt that more should be done to broaden the range of Irish actors involved in Framework, and to ensure that the available support is being given to those who need it most. Related comments concerned the need to ensure that the right incentives exist for FP participation in Ireland, with commentators stressing that funding bodies should make their expectations clearer and provide the proper incentives to encourage participation, including not only support and advice but also recognising and rewarding FP success

A more strategic approach. Several commentators argued that not enough is being made of the opportunities within some FP7 areas where Ireland has strong competencies and arguably could and should do better. A more strategic approach is called for, which would see the funding agencies and major research performing institutions developing their own strategies relating to FP involvement, and which would set out both their own plans for enhancing involvement and signal what they expect their respective communities to be doing. Such a strategic approach would inevitably give greater weight to the identification of Irish research and industrial strengths and actors and the linking of these to upcoming FP calls. In this way relevant actors could receive early warnings of FP opportunities and could become better networked together. Such an approach could also be used to improve the extent to which Ireland promotes its strengths to other EU consortia, and could also be used as a platform for stronger and more proactive negotiations with the Commission as to (national) research priorities in these key areas, increasing the likelihood of alignment between national objectives and FP funding opportunities

Getting on the inside track. While the range of support on offer is considered valuable, a significant number of participants have argued that the real key to success is being on the 'inside track', which means becoming more closely involved in the inner workings of the Framework Programme itself and with the European Commission officials who develop the calls. It is argued that in all its areas of significant research and industrial strength, Ireland should be taking a stronger role in influencing the calls and in ensuring that both the Commission and EU consortia are aware of what Ireland has to offer. Gaining and sharing insight into the proposal evaluation process is also regarded by some as an invaluable experience and one that can add significantly to proposal success rates within the competition itself

More help with forthcoming calls. Several respondents argued that other actors get advance warning of upcoming calls and even get to see most of the content of those calls in advance of official publication. It is felt that the National Support System and National Delegates should ensure all

relevant actors are forewarned of upcoming calls and that any available information on their content should be made available as soon as possible. It is also hoped that Ireland's funding agencies and NDs could play a stronger role in influencing the calls, based on the identification of Ireland's own strategic priorities, which in turn should be rooted in strong dialogue with the key researchers and industrialists within each priority area

It is notable that good progress has already been made in all of the areas above where further improvements are being requested. It is therefore perhaps now a case of improving and strengthening what is already happening, rather than needing to introduce wholly new forms of support. Some of the challenges above will be difficult and costly to meet, particularly in cases where the support system tries to orient itself towards the 'behind the scenes' activities that really help the Irish actors to *position* themselves well in relation to both the core networks and the FP calls. However, such activities are seen as necessary if Ireland is to once again 'punch above its weight' within Framework, but this time on its own merits.

It is also worth noting that the 'key' researchers that we interviewed from both academia and industry tended to be actively involved not only as participants in research projects but also in FP planning committees and through dialogue with EC project officers and the relevant National Delegates. Many had also worked, or still work, as expert 'peers' evaluating proposals submitted to the FPs. This wider 'influencing' and 'experience' is seen as crucial in helping these actors to ensure that the FP calls fit with their requirements and that they really understand how the FPs 'work' and what the critical success factors are. It seems that in some cases the NCPs, NDs and the participants themselves are equipped with a very detailed knowledge and insight into what really matters and how best to maximise the chances of success, and it is considered important that the National Support Network continues to be well populated with these more experienced players, either as full time support providers or in an advisory capacity.

There also encouragingly seems to be a good level of awareness among the NDs and NCPs as to what more needs to be done within their areas and more generally to improve the functioning of the support network. Even among the less experienced NCPs there seems to be a strong sense that the aim is to move beyond the provision of information and one-to-one assistance and towards a more proactive and strategic approach. In particular it is recognised that the FPs remain very competitive and that working only in response mode, reacting to calls as they are issued, places you at a disadvantage vis-à-vis other actors who have been more involved behind the scenes. It is clear that the support network can and should do more in these areas and those involved in running the network and delivering the support appear ready to take on this challenge.

One final point concerning the new National Support Network relates to its overall effectiveness and in particular the cost-effectiveness of the financial supports being offered. Some commentators feel that it is important that the support elements are properly evaluated in order to determine their effectiveness at enhancing Ireland's involvement and the benefits derived. Impacts in terms of facilitating new organisations to become involved, particularly SMEs, and in increasing success rates and income for existing players need to be weighed against the cost of the support, both overall and in relation to the different forms of assistance provided. To that end, early feedback from the NSN suggests that the financial supports have not yet been shown to have any discernible impacts on FP7 success rates. That is, those accessing financial supports from EI do not appear to be outperforming other applicants that have not come forward for assistance, with this finding holding for comparisons between assisted and unassisted *experienced* applicants and also for assisted and unassisted *new* applicants. Further investigation is needed to explain this rather disappointing finding, but at present it seems that there is no case for continuation or expansion of the financial support (despite their popularity).

6.5 Recommendations for how future FPs could be improved

Questionnaire respondents were asked for recommendations as to how the FPs could be improved in future in order to enhance Ireland's involvement and the benefits realised. Recommendations concerning the National Support Network have already been covered in the preceding section.

There is a general sense that under FP7 the Commission has been moving in the right direction, with many interviewees and questionnaire respondents stating that the instruments, priorities, and administrative requirements are better than they were under FP6. The Commission has reduced its expectations concerning large consortia in comparison with FP6, and it is felt that this is helping Ireland's engagement with and success rates within FP7. The longer time frame for FP7 also means that participants expect that there will be greater stability and hence there will be improved

opportunities to understand how to become involved, and how to negotiate the various formal and informal rules that govern success. FP7 has also increased the funding rate for SMEs (to 75%) and has removed the need for them to provide bank guarantees, which may help to some extent with the problem of low participation by industry. We therefore received few suggestions as to changes that should be made to the FPs from the Brussels end.

Most of the suggestions that we did receive revolved around the idea of making the programme administratively simpler and making it easier to access the funding, with most suggestions revolving around some kind of relaxation of the requirements. Of course, such changes would benefit all applicants and not just those from Ireland, and would almost certainly increase demand, making any net benefit to Ireland from these changes uncertain. However, such changes would make life easier for those who have to apply and participate, albeit within a context of increased competition and lower success rates.

The FP proposal evaluation procedure has attracted a fair amount of criticism, with some commentators arguing that it remains something of a lottery, with the assessors not having the depth or breadth of experience and understanding to render 'good' decisions. It is alleged that proposal quality is not the strongest determinant of success and that strong proposals have been turned down because the assessors didn't understand them or recognise their true potential. Such challenges are often levelled at funding instruments, not just the FPs, but it is clear that the Commission has some way to go before its evaluation committees and peer selection procedures enjoy the full confidence of the wider community. It is also worth mentioning that we used to hear a lot of complaints that FP funding decisions were something of a 'stitch-up', with core groups of actors already 'lined-up' to get the funding as a result of behind the scenes negotiations that have taken place prior to calls even being issued. These days respondents are much less likely to complain about this and much more likely to accept it as a feature of the programme and argue that they also need to be on this 'inside track', influencing the shape of the calls and positioning themselves within the key networks. However, the quality of the evaluation procedure and the evaluators is still questioned by both successful and unsuccessful participants and this is an area where the national administrations should ask the Commission to improve matters.

There is a strong body of opinion that more still needs to be done nationally to increase the level of involvement, particularly by industry / SMEs. It is argued that other countries have been more effective at increasing FP involvement through proactive support measures and some have increased participation by SMEs, not by helping them to 'go it alone' but by helping to involve them in projects where other established research performers are already participating. Certainly it is felt by some that in all cases where an Irish partner is leading a project there should be a conscious effort to consider whether the inclusion of other Irish partners in the consortia would be beneficial, and if so, to seek to make this happen. Such an approach may be less feasible in projects where the Irish partners are not in a coordinating role, but it should still be something that Irish funding agencies, support providers and established participants encourage and facilitate wherever possible. A conscious public statement to this effect would be helpful for some in sending the right signals to the community, and the National Support Network should be ready to help facilitate SME involvement wherever necessary.

Related comments concerned the need for improved national strategies with regard to Framework participation, which should be set at the level of individual funding agencies and research performing institutions. Improved incentives for (and recognition of) Framework participation is required, as are improved tactical discussions about where Ireland's research strengths lie presently, how and where they should be developed in future, and the role to be played by the Framework Programmes in developing and exploiting those capabilities. It is clear that some of the research performers, NDs and NCPs have a very highly evolved understanding of where Ireland has been successful in the past and why, where its core competencies lie, and the areas in which Ireland can and should be centrally involved in the Framework Programmes. These same individuals can also see and account for areas where Irish capabilities are presently below the level needed for high levels of FP participation. This understanding should, in the view of many, be formalised into a series of strategic plans aimed at ensuring that all relevant actors are aware of who should be involved and in what areas of the programme. Such strategies are considered important if Ireland is to increase its role in influencing and shaping future priorities and calls, which should in turn provide the strongest basis for increasing Ireland's relative success rates and participation levels vis-à-vis other countries.

7. Irish Framework participation in the EU policy context

The terms of reference for this study focus on Irish participation in the mainstream instruments of the Framework Programme. Their implicit question is: How much benefit have we been able to extract at the individual project level from the Framework, compared with the effort we have put in? And how can we improve that?

However, the Framework in general–and FP6 in particular – has policy intentions that go well beyond this, aiming in various ways to 'structure' Europe's R&D activities, to create more open internal markets in R&D and to 'optimise' the performance of the European research and innovation system as a whole in global competition. It does not follow that EU-level optimisation and increased internal competition is in the short-term interests of individual member states. Rather, states need to adjust their own policies to compete for and establish competitive advantages within an EU division of labour that is likely to evolve.

7.1 The EU policy context

The Framework Programmes date from the mid-1980s: the First (FP1) in 1984-7; the Second (FP2) in 1987-91. The Framework Programmes (FPs) had roots in earlier activities, for example the Multi-Annual Programme in the field of Data Processing (MAP, running from 1979-83 and subsequently incorporated into the ESPRIT programme, part of FP1.) Over time, the Framework Programmes' scope have tended to widen, so that they now cover a very wide range of themes and the repertoire of instruments has increased from the early focus on collaborative research. One of the most startling trends in the FP is its continuous growth, so that it currently funds about 5% of state R&D and 1% of BERD in the EU[17]. A consistent theme has been their role as the 'industry policy' of the Commission, using RTD funding to try to reach competitiveness goals.

Up to and including FP4, European Added Value in the form of networking, cohesion, scale benefits and so on was largely seen as sufficient justification for the FPs. In FP5, the focus shifted towards socio-economic benefits.

FP6 was designed at the time when the Commission launched the European Research Area[18] (ERA) policy, aiming to concentrate research resources and create a European RTD system whose most excellent parts could compete readily with those of the USA and Japan. This led to increased concern with research (compared with the earlier industry policy and impact focus), which should be excellent and in which Europe should build scale. FP6 therefore included new, larger instruments. The previous industrial strand continued but was less of a focus and – especially outside ICT – involved less effort. FP6 also marked the creation of Technology Platforms and ERA-NETs, in which the Commission encouraged groupings within the union to self-organise and try to develop cross-border groupings that would drive R&D and innovation policies for their sectors or technologies. By and large, these collect together existing strong interests and the thrust of the Technology Platforms is continued in FP7's JTIs (Joint Technology Initiatives) and increased interest in Article 169 consortium arrangements.

FP6 marks a radical change in direction for the policy meaning of the Framework. As the first FP designed after the ERA Communication of 2000, its agenda has shifted from creating European Added Value (EAV) by networking the European 'knowledge collective' across the whole of society to restructuring the European Research Area. However, the early FPs were to a degree the 'industry policy' of the Commission. A growing amount of scientific and technological research has been added over time, so the increased focus of FP6 – and with the creation of the European Research Council (ERC) probably to an even greater extent FP7 – on research also represents continuity with a trend of focusing increasingly on the 'knowledge infrastructure' and less on industry. The links between some of the individual actions and the overall objectives of the FP remain less well articulated than is

[17] Commission Working Staff Document, *Impact Assessment*, Accompanying Document to Towards Joint Programming in Research (COM(2008) 468 final), SEC (2008) 2282, Brussels: European Commission

[18] *Towards a European Research Area*, COM(2000) 6 final, Brussels 19.1.2000

desirable but the connection between the new instruments and the objectives of ERA is a lot easier to see.

Article 163 of the version of the Treaty of Rome in force when FP6 was defined says, "The Community shall have the objective of strengthening the scientific and technological bases of Community industry and encouraging it to become more competitive at international level …[19]" It goes on to empower the Community to support both industry and knowledge infrastructure of research institutes and universities to this end. The Treaty empowers the Commission to define and operate the Framework Programme (Article 164). It also says, "The Community and the Member States shall coordinate their research and technological development activities so as to ensure that national policies and the Community policy are mutually consistent." (Article 165) Articles 169 and 171 respectively enable the Community to support "research and development programmes undertaken by several Member States" and to "set up joint undertakings" that exploit 'variable geometry' and therefore allow the Commission to promote the restructuring of the ERA without achieving unanimity in all matters.

There is specific enabling legislation for FP6[20]. This explains that the programme will strive towards greater integration of research in Europe by means of

Focused action in priority thematic research areas, using powerful financing instruments (integrated projects and networks of excellence) which bring together the research actors in appropriate configurations for the new challenges that these priority research areas represent, and with critical mass

Systematic and coordinated planning and execution of research to support Community policies, and to explore new and emerging scientific and technological areas, taking account of needs expressed by the relevant actors throughout the EU

Promoting the networking and joint action of national and European frameworks for research and innovation, and the opening up of national programmes, in these priority areas, including where appropriate by the use of actions under Article 169 of the Treaty, as well as in other areas where such action would be of benefit to the performance of Europe's research base

The legislation also stresses the need to involve 'third countries' in the FP, both in the thematic priorities and in "specific international cooperation activities with some groups of countries, as a support to Community external relations and development aid policies." Participation by SMEs and candidate countries were also to be encouraged.

7.2 How did FP6 do overall?

A high-level expert group recently evaluated[21] FP6 as a whole, supported by half a dozen experts and in excess of thirty specially commissioned evaluations of different aspects of the Programme. The group found that FP6's achievements were very high in terms of continuing the FPs' tradition of funding high quality, useful research but was alarmed at the continuance of the long-term pattern of declining industrial participation in the FP. The ERA-NETs and European Technology Platforms were important in helping articulate joint needs and research opportunities from the bottom up while the emergence of the European Research Council played an equivalent role in relation to researcher-initiated research. Overall, however, the progress towards implementing the ERA had been limited. The new instruments of FP6 had not had a structuring effect on the R&D community. A lot more effort was needed to use the 5% or so of EU state-funded research that was spent through the FP in a way that would create a European strategy and that would 'leverage' the national spending in such a way a to promote the ERA.

A key concern was the opaqueness of the FP design process. No one could explain how this was done, except to say that a lot of consultation and lobbying was involved. The group argued that making this clear was a precondition for devising a transparent and agreed strategy. Without such a strategy and

[19] Official Journal of the European Communities, Consolidated Version of the Treaty Establishing the European Community, C325, 24.12.2002

[20] Council decision of 30 September 2002, adopting a specific programme for research, technological development and demonstration: 'Integrating and strengthening the European Research Area (2002-2006), (2002/834/EC), OJ 29.10.2002

[21] Ernst TH Rietschel (chair), *Evaluation of the Sixth Framework Programmes for Research and Technological Development 2002-2006*, Report of the Expert Group, Brussels, European Commission, 2009

process it is difficult for member states adequately to contribute to FP design or to align their own strategies – for example, in relation to thematic specialisation – with the FP. Such alignment would depend upon building on national strengths and establishing comparative advantages in ways that complement the FP and the evolving RTD structures of the ERA. It should not involve the kind of slavish copying of FP thematic priorities, in which some new member states had engaged.

The group had a number of procedural criticisms of the FP, but its key conclusions related to the need to continue to work both top-down and bottom up to improve the evolutionary fitness of the European RTD ecology, to develop a clear, rational and complementary fit between member state and EU RTD policies. Europe needed to take a more confident and active position in global RTD cooperation and to engage with the world, not just with Europe.

The FP was launched after a period in which European R&D cooperation had blossomed on a multilateral basis, for example through CERN, EMBL, COST and ESF. In the period since then, the FP has become increasingly involved in funding aspects of these cooperations. Because the FP exists and is a simpler way to channel money than creating new multilateral organisations, there have been no significant new European R&D cooperations set up since the FP began in which the Commission is not central. The European Research Council (ERC) story serves as a useful symbol. Originally proposed as something that should belong to the scientific community and that could be based anywhere in Europe provided the Commission was not involved, it ended up as a budget line in FP7. (Much of the scientific community seems blissfully unaware that this is not the same as creating a permanent institution.) There is one historical exception to the Commission's monopoly of European action, namely Eureka, which was in effect Paris' reply to what it saw as a shift of power towards Brussels. But that was in 1985 and even Eureka has now succumbed to the funding logic and taken the Commission's money for the EUROSTARS programme. The FP6 evaluation argued that this concentration of power, and the risk of monopoly of thought that accompanies it, is problematic.

7.3 Changes in Framework Programme instruments

The sequence of new instruments introduced during and after FP6 shows clear tendencies towards larger interventions, delegating administration from the Commission to the research performers, promoting self-organisation by established interest groups, influencing member state research and innovation budgets and imposing forms of governance that involve actors at the level of member states but that often bypass the agents of the states themselves so that the member states are involved but disempowered. We can think of these instruments as belonging to four generations.

Generation 1. Integrated Projects and Networks of Excellence were introduced in FP6 to generate disequilibrium or 'creative destruction' in the fabric of the R&D infrastructure. However, their failure to do this is clear and these instruments have been discontinued in FP7. It might have been natural to replace them with something like 'competence centres' that would geographically focus R&D resources, but this step has not been taken and the FP now lacks internal instruments for restructuring.

Generation 2. The ERANET and ERANET+ schemes are becoming precursors of a form of Joint Programming that delegates agenda setting to member state agencies while the Commission retains some control of what is started and the number of organisations in the coalitions through funding competitions and its use of subsidy. The interest in the Nordic area in NoriaNets and TAFTIE's own discussions of TAFTIENets suggest that this scale of intervention is too big for some countries and that there is scope for similar initiatives at the level of Member States or networks of Member States, without necessarily involving the Commission. (In fact, many ERANETs appear to comprise an active core of participants and a larger periphery, who do not participate in calls for proposals, suggesting that in many cases a small network is the most relevant size.)

Generation 3. The European Technology Platforms launched in the latter part of FP6 allow actors – especially industry – to self-organise to define research strategies, which they naturally look to the Commission and to the member states to fund. Some are evolving into Joint Technology Initiatives (JTIs) or even Article 169 arrangements. Here the stakeholders involved do the governance but the Commission and to a more variable degree the member states hold the purse strings.

Generation 4. In the last two years, a new style of intervention has emerged through the European Institute of Technology (EIT), the Recovery Plan and the SET-Plan. These effectively invite stakeholders to build coalitions (Public-Private Partnerships – PPPs) that will co-fund R&D with FP7. They involve very large blocks of money (hundreds of millions and in some cases billions of Euros). Their governance comprises in some cases member state government representatives, in other cases

other kinds of actors from the member state level. Unlike the ERANETs they do not appear to involve the agencies.

The emerging Joint Programming Initiatives (JPIs) will be governed at the overall level by a High Level Group of representatives of national ministries, associated with CREST. They will work rather like JTIs but will be public-public research cooperations. Interestingly, the impact assessment of Joint Programming argues that the governance of individual JPIs should be done via a "strategic European process" in which experts from the national level advise on individual initiatives. This would extend the tendency to work with expert groups in FP governance – following a somewhat academic governance tradition in which those who govern do not **represent** or coordinate other interests but lend legitimacy and expertise.

The introduction of the European Research Council (ERC) in FP7 provided an extension of traditional academic self-governance into the FP and also an instance of NSF-style funding of Principal Investigators, as opposed to the consortia that have in the past been necessary in order to generate EAV. Beyond the ERC, there is little in the FP that encourages exploration of new possibilities in a way that is detached from established interest groups.

At the time of writing, FP7 is approaching its mid-term evaluation and FP8 is actively under discussion. There is background assumption that FP8 may look very different from previous FPs – that it may be defined thematically via 'grand challenges' such as climate change, ageing, HIV/AIDS that are more social than industrial in nature and that there is a distinct possibility that the thematic project 'core' of the Framework may change radically compared to its current form, or even disappear.

7.4 What does this mean for Ireland?

The story of Irish participation in the FP is described in our report as involving a large 'spike' in FP4 because of the lack of national funding and because Ireland's Objective 1 status made it a very attractive partner for those seeking to enhance the political credibility of their proposals. Irish participation in FP5 and FP6 has been at a more 'normal' level, but Ireland's relative position in exploiting the traditional core of the FP remains strong, partly because of enhancements to the size and capability of the HEI and BERD-performing sectors and partly because of national efforts to codify and exploit understanding about how to succeed in FP applications. There is no reason to believe that the competition to win projects in the FP is unfair – but to gain access to that fair competition you first have to battle your way through a lot of unwritten rules and to gain access to relevant networks.

Our interviews with researchers suggest lack of clarity about ERA and its goals – as well as lack of interest. That is perfectly reasonable – researchers tend to work within their own professional communities and incentive structures. Nonetheless, movement towards an ERA with fewer, stronger points of research critical mass would imply a greater need for national strategy. In particular, Ireland's chosen focus on (niches within) ICT and biotechnology may need re-examination in the light of the high priority these themes have in most member states' policy, the less than encouraging showing of Ireland in the Life Sciences theme in FP6 and the declining relevance of a strong European position to competition at the global level in ICT. Issues that would bear discussion include the appropriateness of a bottom-up approach to niche selection within these themes and the extent to which focused international alliances should be pursued, using some of the new opportunities such as ERA-NETs and joint programming, as well as whether there is scope for a more global strategy to act outside Europe and the FP.

The newer generations of instruments discussed above provide significant opportunities for states to devise or influence the course of policy in a group of countries within the EU. Supra-national RTD policy is therefore less 'given' than before, providing opportunities for Ireland to influence more of the European agenda. Understanding and exploiting these opportunities will involve moving beyond Ireland's excellent history of exploiting the FPs' thematic priorities and tackling the issue of policy coordination. The Nordic cooperation shows that pursuing such joint activities at the scale of less than a handful of countries can be easier (less coordination cost) and more effective than working in large groups.

The Commission itself is moving to take more of a policymaking role. In the past it provided instruments for EU cooperation. Increasingly, it is helping set wider priorities and to define the instruments that could help to implement these. This can only sensibly be done in cooperation with the member states, so there is increasing 'policy space' for countries like Ireland to interact with and influence overall EU RTD policy.

Three types of action emerge from this discussion for policy consideration

The timing of the national choice of biotechnology and ICT as research foci means that it was made without the ERA context. It appears timely to review what that choice means for Ireland in a time of evolution towards ERA

Irish policymakers need to extend their view of the opportunities provided by the FPs from the traditional pursuit of advantage through the thematic priorities to negotiating RTD agendas with groups of states that have similar interests

Ireland needs to consider the growing opportunities to influence EU-level RTD policy and organise itself to exploit these, so that Irish interests are not crowded out by those of others

8. Conclusions and recommendations

8.1 The relevance of FP6 to Irish researchers

It has not been possible to determine the relevance of FP6 to Ireland's entire public and private sector research base as our investigations have naturally focused on applicants and participants, and therefore misses those parts of the community that have not been involved. However, within the participant communities the overall conclusion is that FP6 *has* been highly relevant to Irish researchers.

The vast majority of respondents to our surveys that expressed an opinion rated FP6 research topics to be *more* relevant than those in FP5 (by a ratio of 10:1) and most considered the forms of support (Instruments) available to also have been an improvement (by a ratio of 4:1). Even the new large-scale instruments (NoEs and IPs) introduced for FP6 were rated as more likely to have increased researchers' ability to participate than to have decreased it.

The interviews carried out with key FP6 participants, support providers and funding agencies confirmed FP6 as having been of high or good relevance to Irish participants. The FP6 priorities and instruments were a good fit with most researchers' requirements and have helped to facilitate their involvement (rather than act as a barrier to it). The FP6 priority areas were considered to be both a little broader and easier to understand than FP5 priorities (which were based more around socio-economic objectives than research areas) and this has helped to ensure that most project ideas have been able to find a suitable home within the overall FP6 structure. As we might expect, the changes introduced in FP6 did have a negative impact on some participants, but on the whole the changes were viewed positively rather than negatively.

8.2 Ireland's demand levels for FP6 participation

Ireland's involvement in proposals submitted to FP6 has been reasonable, with almost 700 Irish organisations being named in just over 3,000 proposals. Ireland participated in 5.4% of all proposals submitted to FP6, accounting for 1% of the participations in proposals overall.

Industry applicants came in the greatest numbers, with 440 companies applying to FP6, making up almost two-thirds of Ireland's total applicant base. Industry, however, accounted for only a quarter of Ireland's participations in proposals. This latter indicator was dominated by the HEIs, which accounted for over half (56%) of Ireland's participations in proposals but made up only 5% of its applicant base. Research institutes constituted 5% of Irish applicants and accounted for 6% of proposal participations, while 'others' made up 27% of the applicant organisations but only 12% of the participations in proposals.

Most FP6 participants indicated that their organisation or research group had increased the number of proposals submitted to FP6 in comparison with FP5, while a significant minority stated that there had been no change. Less than 10% signalled that they had decreased the number of applications submitted.

8.3 Ireland's success rates in applying to FP6

8.3.1 Ireland's success rates

Ireland's overall proposal-level success rate in FP6 was 23%, significantly above the average success rate for FP6 as a whole (18%). Ireland's participation-level success rate was also 23%, again significantly above the overall average for FP6 (19%). These figures confirm the relatively strong performance of Irish proposals within the competition as a whole.

There were, however, markedly different success rates for the different groups of actors that have participated in FP6. Irish research institutes and 'Others' enjoyed participation success rates of 32% and 38% respectively, while Irish HEIs were successful in 22% of cases where they were named in proposals. Irish companies were successful with only 17% of their proposal participations, a success rate of just one in six. Further analysis has shown that while over half of the HEIs, research institutes and 'other' types of organisation that applied were successful in securing at least one project, less than a third of the industry applicants had any success at all within the competition.

Irish proposal success rates were above the FP6 average in 12 of the 17 Priority Areas, with Ireland performing particularly well in the Food quality and safety, Sustainable development, Research infrastructures and Euratom areas, where Irish success rates were more than double the FP6 averages. Irish proposal success rates were well below average in the Support for international collaboration, Research and innovation and Science and society areas.

8.3.2 Reasons for unsuccessful proposals

Our survey of unsuccessful applicants revealed a very broad range of reasons as to why their FP6 proposals were not successful in obtaining support. The most significant reason for proposals not succeeding was simply an insufficient budget to support all proposals that passed the required quality threshold, an issue that affected almost a third of the failed proposals. The next most significant reason was a lack of detailed information and explanation; something which if addressed may have helped the proposal over the threshold. A significant minority of proposals fell down on their overall written quality, or suffered from issues in relation to the end-use or exploitation of project results. Other proposals failed due to problems with the team - either the strength of the consortium, the quality of the team, having too many partners, having too few partners, or the overall management structure.

Most of the reasons behind non-success of proposals are to a large extent within the control of the consortium preparing the proposal, with the possible exceptions of a lack of available budget and duplication with another proposal. However, even in these cases preparing a higher quality proposal, with a strong team, clear goals, and which fits squarely within the scope of the call will increase the chances that the proposal wins out over other competing offers. There appears therefore to be scope for Ireland to further increase its proposal success rates, building on what is already a very strong position.

8.3.3 The fate of unsuccessful FP6 proposals

In most cases the unsuccessful FP6 project ideas have been put on hold as no alternative sources of funding can be found. However, in a significant minority of cases proposals have been resubmitted to other sources of funding, successfully in most of these cases. Other proposals have been slimmed down, broken into smaller parts or otherwise adjusted and then submitted to subsequent FP6 or FP7 calls or to other national or international programmes. In some cases this approach has been successful, in other cases not.

8.4 Use of FP6 support

8.4.1 Extent to which participants have sought assistance

Less than half of the FP6 participants indicated that they had consulted specific individuals, service providers or information sources to obtain information or assistance in relation to FP6 prior to applying. HEIs and research institutes were roughly twice as likely to have consulted external providers than either industry or 'Other' types of organisation. Those who had sought assistance identified the main sources of advice as University support offices, Enterprise Ireland and / or other national agencies, National Contact Points, the European Commission, though a range of other providers were also mentioned.

Unsuccessful FP6 applicants were slightly more likely to have consulted specific individuals, service providers or information sources prior to applying to FP6, with just over half indicating that they had sought such advice. Broadly the same list of 'providers' was given, though unsuccessful FP6 applicants used university support offices to a lesser extent and Enterprise Ireland to a greater extent.

8.4.2 Satisfaction with FP6 support

The vast majority of FP6 participants who had sought assistance in relation to FP6 were satisfied or very satisfied with the support they received, with only 6% of users indicating that they were in any way dissatisfied with the services. A broadly similar (and positive) perspective on the support received was obtained from the unsuccessful applicants. These findings indicate no particular problems with the information and support available during FP6, though of course it does not tell us anything about what could have been achieved had more support been provided to a broader range of prospective participants.

8.4.3 Extent to which actors have helped other participants to get involved in FP6

Our survey of FP6 participants indicated that around a third of the respondents had, in some way, facilitated other actors' involvement in FP6 projects, with all four main groups of participant equally likely to say that they had done this. The survey also revealed that around one in five of the participants stated that they had been encouraged by other organisations to become involved in their FP6 projects. Industry participants were most likely to have been encouraged by others to become involved, while research institutes were least likely.

These findings signify that many Irish participants are actively encouraging other Irish organisations to become involved in specific FP projects. Unfortunately there is no baseline data against which to test this level of 'support', but the results from the study as a whole indicate a growing awareness of the benefits of Framework participation nationally and increased efforts on the part of some actors to proactively increase the extent to which they help other Irish actors to become involved. These results also provide good evidence that this approach is working, with Irish involvement in specific FP6 projects, particularly by industry, having been boosted by other Irish actors. However, we believe there is scope for further and more conscious efforts in these directions in order to further increase the number of Ireland-Ireland collaborations within FP projects, which in FP6 were well below the level of 'intra-country' links found in other EU countries.

8.5 Participation in FP6 projects

Ireland participated in 7.1% of all FP6 projects, accounted for 1.2% of participations, and received 1.2% of FP6 funding, equivalent to almost €200m. A total of 272 Irish organisations were involved, constituting approximately 1.3% of all FP6 participants.

Taking Ireland's share of EU-25 GDP (2005) as a proxy for its contribution to the EU budget revealed that Ireland's 'target' level of income from FP6 would have been €209 million or 1.38% of EU-25 funding, calculated on a *juste retour* basis. Ireland in fact received €200 million, or 1.32% of EU-25 funding, slightly below the target figure but only very marginally so. However, this places Ireland only 15th out of the EU-25 in terms of its FP6 funding to GDP ratio. In comparison with its *population* size, however, Ireland would have been placed 7th out of the EU-25 in terms of the scale of FP6 funding received.

Overall we can conclude that Ireland's performance in securing FP6 involvement and funding has been reasonable, particularly given the large increases in national funding delivered through SFI and other bodies immediately prior to and during the implementation of FP6. The key question is whether the Irish government, funding agencies and research communities consider this level of performance to have been good enough, and whether performance at or slightly below its GDP share is something to be pleased or disappointed by. There is a sense that, as an English speaking country with a relatively advanced level of scientific and technological development, Ireland could and should be performing at a higher level, and while FP4 performance was in some respects exceptional, performance in FP5 and now in FP6 has been lower than it could or should have been.

Ireland's 'average' performance in terms of its share of FP6 funding and its share of participations is notable in the context of its 'higher than average' proposal success rates. We can deduce that Ireland's main problem in terms of FP6 participation has been one of limited demand, rather than limited success when applying to the competition. In fact, the situation is slightly more complicated than that, as there is sufficient demand from industry but its success rates have been relatively low, while demand from HEIs, Research Institutes and Others is arguably lower than it could be given the relatively high success rates enjoyed by these groups. There is, of course, other factors or possibilities to consider, in particular the question of whether Irish applicants have been more selective in choosing which proposals to get involved in during FP6 in order to maximise their returns. While we have received some indications that this has taken place, it seems that Ireland's participation in FP6 can be characterised as one of high success rates but only 'average' levels of participation, so the conclusion that there has been insufficient levels of demand is hard to avoid.

8.6 Participation in FP6 in comparison with FP5

8.6.1 Comparisons

In comparison with FP5, the number of Irish participants, participations and projects declined by between 14% and 17%, but the volume of funding received increased by 34%.

While the number of projects with Irish participation fell from FP5 to FP6 (down 17%) its project participation rate (i.e. the share of FP projects in which Ireland was involved) increased. This returned Ireland's project participation rate to FP4 levels, though FP6 featured a higher ratio of participations to projects than FP5, so the increase was mirrored in many other countries. This is confirmed by the fact that Ireland's overall share of total FP participations fell slightly from 1.3% in FP5 to 1.2% in FP6.

Ireland's share of the funding in FP6 has been maintained at the same level as FP5 (i.e. 1.2%), which as indicated above remains slightly below Ireland's share of EU GDP and its overall contribution to the EU budget.

While there has been a small decline in the numbers of participants and participations, Ireland has therefore maintained its level of involvement in FP6 at broadly similar levels to FP5. There were concerns that increases in national funding may have heralded a significant decline in FP participation, at least in the short term, and while there seem to have been some impacts in this direction the effects are not as marked as some parts of the community were expecting. It is believed that national funding has caused a hiatus in FP participation among some actors but there is an accompanying belief that this 'crowding out' will not endure and that the national funding will in future strengthen rather than diminish Irish participation in FP7 and in future Framework Programmes.

8.6.2 Turnover in participants

As found in other national FP evaluations, we have established that the level of 'churn' or turnover in Ireland's FP participant base is very high from one FP to the next. Only around a quarter of the organisations involved in FP5 also participated in FP6, and only around a third of Ireland's FP6 participants were involved in FP5. This means (in real terms) that 242 FP5 participants either did not apply or were not successful in FP6 and that 182 'new' organisations came into FP6 to take their place. This of course led to the overall fall in the number of Irish participants from FP5 to FP6.

The highest level of churn is within the long tail of mainly industry and 'other' participants that typically have only one or two participations in any given FP and either struggle or decide not to participate again. We identified just 88 Irish organisations that participated in both FP5 and FP6, and within this set there was a 'core' group of 33 organisations that had five or more participations across the two programmes. Ireland's FP6 participations and funding are very highly concentrated within this 'core' group, accounting for two-thirds of Irish participations and over three-quarters of FP6 funding.

These findings should prove interesting reading for the National Support Network, which we know is seeking not only to strengthen involvement by existing actors but also attract new participants and reduce the exit rate of previous participants. Our analyses should help the NSN to identify and differentiate the types of participant and adjust the nature of support that it provides accordingly.

8.7 Funding received by Irish organisations

Irish organisations received a total of almost €200 million in FP6 funding, an average of just over €720k per participant. This is 14% higher than the average received by all organisations across FP6 as a whole. The average volume of funding awarded per participation was just over €220k, exactly the same as the overall EU average.

Irish HEIs received €135 million in funding, 68% of Ireland's total and far higher than the overall share of FP6 funding allocated to HEIs across FP6 as a whole (37%). Research Institutes received just 6% of the funding (~ €13 million), which is well below the share assigned to research institutes through FP6 as a whole (32%), which again reflects the small number of research institutes within the Irish innovation system. Industry received just over €27 million in funding, 14% of Ireland's total and below the FP6 average of 18%. The other types of participants received €23 million in funding, 12% of Ireland's total, which is in line with the share allocated to 'Others' across FP6 as a whole.

These figures suggest that there has been a concentration of Ireland's FP6 funding within the HEIs, with this group accounting for more than two-thirds of the funding despite accounting for only around half of the participations. The funding per HEI participation was found to be 23% higher in Ireland than the average assigned to HEIs across FP6 as a whole. This 'gain' has been offset by lower than average allocations to Irish research institutes, industry and 'other' participants, with funding amounts per participation that were 34%, 25% and 21% below the FP6 averages for each of those

groups respectively. These findings provide a strong indication that the HEIs have occupied more central roles in the FP6 projects than the other groups.

8.8 Patterns of participation

8.8.1 Participation by different types of actor

HEIs and Research Institutes constituted 7% of Irish participants respectively, lower than the FP6 averages of 14% and 19%. Irish industry accounted for 49% of Ireland's participants, a higher share in proportionate terms than the FP6 average of 36%. The remaining participants were mainly public sector agencies and NGOs, making up 37% of Ireland's participant base, again above the FP6 average of 31% for these 'other' types of organisation. It has been noted that some industry participants were wrongly categorised in the database as 'others' and so Ireland's true share of participants from Industry is estimated to be closer to 59% and 'others' closer to 28%. This indicates a very good level of involvement by Irish companies, as compared to FP6 averages.

Analysis of the number of FP6 *participations* accounted for by each group paints a rather different picture, with Irish HEIs accounting for 53% of Ireland's participations, well above the FP6 average of 36%. Research institute participations accounted for just 9% of Ireland's total, well below the FP6 average of 28%. Industry participations accounted for 19% of Ireland's total, the same share as the FP6 average. However, it should be noted that misclassification of Irish industry as 'Others' within the FP6 database may mean that industry participations constituted a higher share of Ireland's total than is witnessed more generally across FP6. 'Other' actors made up 19% of Ireland's participations, slightly above the FP6 average of 17%. These figures further support the conclusion that Ireland's participations are highly concentrated within the HEI sector, though participation by HEIs and Research Institutes in combination has been very close to average EU levels. Participation rates by industry and 'other' types of organisation have been at or slightly above FP6 averages for all countries.

These findings suggest that there is no particular problem with any of the four group's participation levels in FP6, when structural differences are taken into account. It is notable that Irish industry's share of Irish participations is at or above the FP6 average level, so any concern about low levels of industry involvement need to be applied to Framework as a whole rather than to Ireland's participation within it.

8.8.2 Irish participation in FP6 Priority Areas

Ireland participated in all (17) Priority Areas of FP6. In absolute terms participation rates and funding were highest in the Information society technologies and Human resources and mobility areas, with over 100 projects, over 150 participations and in excess of €40 million in funding achieved by Ireland in each area.

In comparative terms (i.e. compared to overall FP6 participation profiles) Ireland has performed most strongly in the following areas: (i) Food quality and safety, boosted by very high performance by Irish Research Institutes and 'other' public sector organisations, (ii) Horizontal research involving SMEs, with strong performance by Irish industry, Research Institutes and 'Others', and (iii) Human resources and mobility, with a very strong performance by Irish HEIs and industry.

The areas of weakest performance were in the Life sciences, genomics & biotechnology, Aeronautics and space, Sustainable development, and Support for International cooperation areas.

Given Ireland's ambitions over the past decade to significantly expand its capabilities in the Life sciences and IST areas, a stronger (comparative) performance in these two priorities, particularly the former, might have been expected. However, it is clear that SFI funding has to some extent 'crowded out' FP participation in these two fields, at least in the short term, and participation levels in FP7 in these two areas should provide a better indication of the growing strength of Ireland's research capabilities in these fields.

Irish HEIs performed particularly strongly in the Nanotechnologies and Nanosciences area, and in the Human resources and mobility programme. Irish industry performed extremely well in the Horizontal research activities – SMEs area, and also in Human Resources and mobility. Irish research institutes performed exceptionally well in the Food quality and safety area, and strongly in the Policy support / S&T needs area, the Horizontal research activities – SMEs area, and the Support for the coordination of activities area. 'Other' Irish organisations did well in Food quality and safety,

Citizens and governance, Policy support / S&T needs, the Support for coordination of activities and Horizontal research activities – SMEs areas.

8.8.3 Irish participation in FP6 Instruments

Ireland participated in all (10) main FP6 instruments. In terms of numbers alone Irish participation was highest for Specific Targeted Research Projects (STREPs), Marie Curie Actions, and Integrated Projects, with over 100 projects, over 150 participations and in excess of €40 million in funding achieved by Ireland for each type of instrument.

In comparative terms (i.e. compared to overall FP6 participation profiles) Ireland has performed most strongly in relation to the following Instruments: (i) Co-operative Research Projects (CRAFT), boosted by high levels of Industry, research institute and 'Others', (ii) Marie Curie Actions (MCAs), with Irish Industry and to a lesser extent HEIs performing very well, (iii) Collective Research Projects, due to high levels of industry and 'Other' participations, and (iv) Coordination Actions, with Irish research institutes and 'Others' performing strongly.

Irish participation in the Networks of Excellence, Integrated Projects, STREPs and Specific Support Actions were lower than might have been expected, given overall FP6 participation profiles. All types of Irish participants had a relatively weak showing in the IPs, NoEs and STREPs, while HEIs and 'Others' had relatively low involvement in SSAs. Industry and Research Institutes performance was strong in the SSAs.

8.8.4 Irish participants' roles in the FP6 projects

Irish participants took on the role of coordinator in 25% of the projects in which they were involved and occupied the role of coordinator in 20% of their participations, well above the FP6 average of 14%. This is a very good level of performance, albeit one that is boosted by strong performance in the Marie Curie (mobility) actions where there is a high ratio of coordinators to participants. Irish HEIs were mainly responsible for boosting Irish coordinator rates, taking on this role in 28% of their participations. Other groups were coordinators for between 10% and 14% of their participations.

Irish coordination rates were higher than the FP6 averages in the Nanotechnologies and nanosciences, Food quality and safety, Sustainable development, and Human Resources and mobility areas. Irish coordination to participation rates were higher than the FP6 averages in several other areas too, but the numbers of projects and coordinator roles was relatively small so the ratios are not a very reliable indicator of performance in those other areas. In terms of the different FP6 instruments, Irish coordination rates were highest (in relative terms) for the Marie Curie Actions, STREPs, Specific Support Actions and Integrated Projects. Coordination rates were lowest for the CRAFT (Co-operative research projects) and Infrastructure-related Instruments (I1 and I3).

The majority of Irish participants in FP6 projects have indicated through our survey that they occupied either a primary role or a major role with regard to most elements of the FP6 projects in which they were involved. Irish participants' roles were greatest in relation to (i) carrying out the research, (ii) disseminating the results, and (iii) defining the content and scope of the project. Irish participants have also in most cases played a full role in planning or coordinating future research. In comparison Irish participants in most cases played only a minor role in defining the size and membership of the consortium, negotiating the IPR arrangements, and research training.

8.9 The drivers and motives for FP6 participation

8.9.1 Motives and drivers

The primary motives for Framework participation as revealed by our survey of participants are to develop new or improved relationships or networks, to develop and extend internal knowledge and capabilities, and to access research funding. Other motives rated as important or very important for most respondents are (i) to develop new or improved tools, methods or techniques, (ii) to solve specific scientific or technical questions, (iii) to tackle problems that have a European or international dimension, and (iv) to access capabilities that do not exist in Ireland.

There is a good degree of alignment as to the most important motives across the four main participant groups, with all considering the development of new networks and relationships and the extension of knowledge and capabilities as a 'top 3' motive for participation. Accessing research funding was the primary motive for the HEIs, and was a 'top 5' motive for research institutes and industry, but was

ranked as less important by 'Other' participants. We also identified that industry rated the development of new or improved commercial products and services as a primary motive, but this appears well down the list of important motives for other groups.

8.9.2 The impact of national funding in determining FP involvement levels

FP6 coincided with a period of rapid expansion in the levels of national research funding in Ireland, and our survey of FP6 participants revealed that in almost all cases the national funding situation has either had no impact or a positive impact on participants' desire and ability to participate in Framework. In most cases respondents indicated that national funds have significantly enhanced their capacity to perform research, and many mentioned that the infrastructure and equipment provided through national funding, as well as the increased numbers of researchers, has enhanced their ability to become involved in European projects.

It should be remembered, however, that our survey was focused on FP6 participants and will therefore have missed researchers who have chosen not to participate in FP6 as a result of increased national funding. Interviews with key researchers have confirmed that national funding has crowded out FP participation, but the extent to which this has happened is not known. Some researchers indicated that in recent years national funding has been much easier to access than FP funding, and that it has taken time to establish national research groups and projects, leaving less time to pursue FP involvement. For some researchers this has meant no FP participation while for others it has meant a more reactive approach, with less likelihood of leading projects but a willingness to still become involved.

The inflow of national funding has been higher in some areas than in others, and recipients of lower levels of national funding do not appear to have changed significantly their levels of FP involvement. The impact of the new money has therefore not heralded a large decrease in FP participation, but it may have interrupted attempts to increase it. While the interaction between national funding and FP participation is difficult to discern at the present time, there is a reasonably broad consensus that national funding *will* in the future enable higher levels of FP involvement, due to the enhanced research capabilities and capacity that it has brought to Ireland. With the right signals, incentives and strategies it is expected that national funding and FP funding will become more closely linked, with the former building the capacity and capabilities that can be used to leverage funding and other benefits from the latter.

8.10 Collaboration patterns within Ireland's FP6 projects

Irish participants in FP6 have 'officially' collaborated with over 6,700 non-Irish partners within the scope of the projects, though we believe that the true figure is closer to 5,000 due to problems with the coding of organisation names in the FP6 database. The average number of partners in which Irish organisations was involved was 16, which is broadly in line with other comparable countries.

8.10.1 Intra-Ireland collaboration

Irish participants collaborated with other Irish organisations within 18% of their projects. Ireland-Ireland links constituted 2.1% of Ireland's total links to EU-25 countries within FP6 projects, placing it 18th out of the EU-25 in terms of its proportion of 'intra-country' links. The data suggests that the larger countries perform best on this measure, with Germany, France, the UK, Italy and Spain heading the list, but even so there is clearly room for improvement in terms of Ireland's intra-country collaborations within FP projects.

The level of intra-Ireland collaboration was highest in absolute terms in the Information Society Technologies area, which accounted for ~20% of all intra-Ireland links. In proportionate terms the areas with the highest level of intra-Ireland collaborations within projects were Food quality and safety (38% of projects), Nanotechnologies and nanosciences (31%) and Horizontal Research Activities – SMEs (27%).

It might have been anticipated that the highest level of intra-Ireland collaboration would take place within the IPs and NoEs, due to the larger numbers of partners involved in those Instruments. This is to some extent the case, with around a quarter of the IPs and NoEs (with Irish involvement) involving intra-Ireland collaborations. However, it was within the SME-focused Collective Research Projects that intra-Ireland collaboration was highest, with almost half of the projects with Irish participation involving at least two Irish partners. The Co-operative Research Projects and Coordination Actions were also associated with relatively high levels of intra-Ireland collaboration (24% and 21% respectively).

Our analyses have shown that while HEIs account for 53% of Ireland's participations, they only account for 38% of the participations in projects with intra-Ireland collaboration. We have also found that HEIs' intra-country collaborations are just as likely to be with other HEIs as with other types of organisation. Industry is the group that has performed best in terms of Ireland's intra-country collaborations, accounting for 31% of the participations in projects with intra-Ireland collaboration but only 19% of Ireland's FP6 participations overall. Research Institutes and Others' share of participations in projects with intra-Ireland collaboration is in rough proportion to their overall share of FP6 participations.

8.10.2 North-South collaboration

Irish participants had 60 participation-level collaborations with partners from Northern Ireland across a total of 53 FP6 projects. This 'North-South' collaboration has mainly been with Queen's University Belfast and the University of Ulster, though there have also been collaborations with companies from Northern Ireland (x8 participations), research institutes (x3) and public agencies (x2). It is not easy to determine whether this level of collaboration is higher or lower than might be expected or deemed desirable, but it does stand as a benchmark against which future levels of North-South collaboration can be judged.

8.10.3 Collaboration with actors from different countries

Ireland has collaborated with partners from 84 different countries within FP6. In volume terms the greatest number of collaborations took place with partners in the UK and Germany (~13% of collaborations), followed by France (~10%) and Italy (~9%). However, this reflects mainly the high levels of participation in FP6 by these countries as a whole. Looking at the ratio of each country's share of participations in Irish projects to their overall share of FP6 participations revealed that Ireland's most active 'Member State' collaboration partners during FP6 were Luxembourg, Portugal and Finland and the least active were the Czech republic, France and Germany.

8.10.4 Collaboration with the stable core of European S&T organisations

Our analyses have shown that Irish organisations have had significant levels of collaboration in FP6 with the ten identified (non-Irish) organisations that were the most active 'network' partners in FP5. It is considered important that Irish organisations have strong links to the stable 'core' of major FP participants, and the results presented in this report indicate that they do.

8.11 Outputs delivered through FP6 projects

Our survey of FP6 participants has revealed that (i) scientific conferences, seminars and workshops, (ii) publications in refereed journals, (iii) new or improved tools, methods and techniques, and (iv) other (non-refereed) publications were the most widely produced types of output from FP6, with 70% or more of the projects producing at least one such output. Publications were the most numerous type of output produced, with each project producing on average a dozen publications. Conferences, seminars and workshops were the next most prevalent form of output, with project teams running on average five such events. Around two-thirds of the projects have resulted in newly trained or qualified personnel, with on average just over two trainees per project. There was also a significant exchange of personnel within almost half of the projects, and a similar proportion of projects have led directly to follow-on research grants being awarded to members of the project teams.

The outputs produced most regularly and widely by FP6 projects were also rated by participants as the most *important* types of output, which suggests that in most cases the projects are successfully producing the kinds of outputs that the participants expect and need. Some significant differences between the four main groups were identified, with, for example, the HEIs and research institutes rating publications and trained personnel more highly than industrial and 'other' (mainly public sector) participants. The latter two groups rate new or improved tools, methods and techniques and new or improved commercial products and services as most important, and while these are also rated fairly highly by the research institutes they figure as less significant overall for the HEIs. It seems that while there are some important differences in the priority given to different types of output by the different groups, there is a sufficient degree of alignment between them to ensure that all participants are able to realise the kinds of outputs they are seeking.

The study has found that *all* types of participants – including industry - place some of the more 'commercially' oriented outputs, i.e. those relating to invention disclosures, license agreements, patent applications and patents granted towards the bottom of their 'importance' list. New or

improved tools, methods and techniques, and to a lesser extent new or improved commercial products and services are rated much more highly and widely in terms of their importance, and tend to be delivered through a larger number of FP6 projects. It is expected that this is because inventions, licences and patents all tend to in some way involve IPR arrangements that would be difficult to assign within the context of a collaborative (pre-competitive) research project.

8.12 Benefits realised through FP6 projects

8.12.1 The main benefits of FP participation

The main positive benefits realised by FP6 participants come in the form of (i) improved relationships and networks, (ii) increased understanding and knowledge, (iii) enhanced reputation and image and (iv) increased scientific capabilities. The FP6 projects also bestow significant benefits in related areas such as increased technological capabilities, improved planning of research, improved ability / capacity to carry out research / training, and improved competitive position nationally and internationally. There is accordingly a good degree of alignment between participants' motives for FP6 participation and the kinds of benefits they are realising, with new and improved networks ands new knowledge and capabilities figuring as the key motives for participation and also as the areas of greatest and most widespread impact. This suggests strongly that FP participants are becoming involved in order to realise the kinds of benefits that the FP projects are able to deliver, ensuring reasonably high levels of success as judged by the participants themselves. Relatively few differences were noted between the four main participant groups concerning the kinds of benefits they realise through FP participation.

Our discussions with interviewees explored in more depth the different types of benefits that FP participation brings to the national research community and endeavour. The feedback received broadly supported the picture from the survey, where exposure to other researchers from different countries brings significant benefits in terms of the exchange of knowledge and capabilities and in prompting or otherwise opening up new research directions or new approaches. The FPs are considered to bring very significant benefits to national researchers in terms of enhancing their scientific and technological capabilities through exchanges with researchers from abroad, and the collaborative projects also play a significant role in exchanging knowledge between academic and industrial participants, with researchers gaining a greater depth of insight into industrial problems and industry gaining improvement understanding into the opportunities provided by new research developments. These 'symbiotic' processes are at the centre of the 'added value' that the European collaborations can bring, and for most participants bring benefits that significantly outweigh the additional costs that are inevitably associated with multi-partner, multi-country collaborative projects.

Individual interviewees have provided fairly compelling accounts of the considerable benefits they have enjoyed in term of their international reputation and image, their capacity and capabilities to carry out research, their networks and connections to other players within the industrial and academic communities. There is a sense of a growing maturity within the research community as to how to extract value from Framework, and an increased likelihood that participants are becoming involved for the right reasons, looking for and valuing the kinds of benefits that tend to flow. The benefits, particularly in terms of research profile, networks and reputation and image appear to be strongest when Irish partners coordinate projects.

8.12.2 The role of FP6 in supporting and reinforcing participants' research strategies

The vast majority of FP6 participants reported that FP6 had exerted a positive impact on their research strategies, with around half stating that it had supported and reinforced it to a *large* extent and almost half stating that FP6 had supported and reinforced their R&D strategy to a *small* extent. Only 5% of respondents indicated that FP6 had not had any role in supporting or reinforcing their R&D strategies.

Feedback from interviewees has confirmed that those involved do indeed in most cases see a strong natural alignment between their own research priorities and the opportunities available within the FPs. The impact of FP participation on participants' individual research strategies is generally seen to be a strongly positive one, with the collaborations bringing new ideas, new capabilities and new infrastructure to bear on existing research areas, questions and problems. The FPs have impacted on national strategies by influencing the direction of participants' work, increasing the range of methods and tools available and opening up new lines of enquiry.

While there is a good alignment in most areas, it is clear that the relationship between national- and EU-level priorities has become more complex, and varies significantly across the different research and industrial fields. During the early FPs (1-4) national research strategies were much more strongly influenced by the FPs, as EU funding vastly outweighed the volume of funds available at national level. However, the advent of significant levels of national funding has brought with it a new sense of national priorities as distinct from EU ones, and the relationship between the two are at present much less clear. There is certainly the possibility that national funding will, at least in the short term, have created a divergence between national priorities and those of the FPs within some parts of the community, and it is necessary for funding agencies and research performers to investigate further the extent to which this is happening, particularly in the ICT and Life sciences areas, where SFI funding has altered significantly the pattern of funding and the status of national strategies.

8.12.3 The role of FP6 in supporting the internationalisation of research

Our interviews with key participants confirmed that the Framework Programmes continue to be the most important instrument for supporting the internationalisation of research. While some other international programmes such as COST and EUREKA also help to facilitate network development and mobility of researchers, each instrument occupies its own space and there is limited direct overlap between them. There is no other international collaborative funding scheme with the same scale as the FPs and which provides such significant amounts of funding from a centralised pot. As such, FP remains the most important instrument for international collaborative research and networking.

The FPs were *not* generally considered to be playing a major role in extending collaborative networks outside of the EU, though this does happen to some degree. However, the FPs have been effective in acting as a stepping-stone for other, related *European* initiatives such as the Competitiveness and Innovation programme (CIP). Experience and profile gained through the Framework Programmes helps to further the opportunities available within other EU-level support mechanisms. In addition, good levels of FP participation and inclusion in the key networks is considered to be crucial for involvement in the European Technology Platforms, Joint Technology Initiatives and Joint Programming Initiatives that are developing roadmaps for future EU research. Such planning initiatives are seen as both reflective of and conducive to FP involvement more generally, as they bring together the recognised major players in planning the programmes of research to be implemented through subsequent FPs. Overall there is a sense that involvement in FP research projects and involvement in these related EU initiatives are becoming increasingly linked, with the two acting in a mutually reinforcing way.

8.13 Wider impacts of FP6 projects

8.13.1 Exploitation of FP6 project results

Our survey of Irish participants has revealed that researchers have been the primary 'exploiter' of the FP6 projects' results, using the information and experience gained in follow-on projects. European and Irish researchers are considered to have exploited the results to a significant extent and in broadly equal measure, while researchers from outside the EU have also exploited the results of a significant number of projects but in most cases to a small extent. Almost half of the projects have been exploited by EU-level policymakers and European companies, but mainly to a small extent. Irish companies and Irish policymakers have exploited the results of FP6 projects in around a third of cases, though in most of these instances the level of exploitation is felt to be small, with only a small minority of projects with Irish participation being exploited 'to a large extent' by either group. This suggests that the main impacts of FP6 projects will be on the research community, with the benefits to Irish policy formulation and the business sector being lower in relative terms.

8.13.2 Contribution of FP6 projects to the achievement of EU objectives

Our survey of participants has shown that the main areas of impact (i.e. those where the majority of projects are claimed to have made a medium-high contribution) are on EU research networks, research capabilities, research planning, the mobility and career development of EU researchers, and international network formation beyond the EU. These are obviously areas of more immediate or 'near-term' impact from research projects.

It was a specific focus of FP6 to seek to restructure and integrate EU research in order to further the creation of a single European research area and to help build critical mass as a means by which to strengthen EU S&T capabilities and to advance EU competitiveness. Our findings show that most FP6

projects have made some kind of contribution to these objectives, but in the majority of cases projects have made a small or medium contribution rather than a large one.

There is a perception that the FPs support a 'core' of recognised research groups and industrial players at EU level and that there is an increased focusing of resources within these core networks. It is not clear whether such a view is accurate, but there is good evidence to suggest that there is a stable core of actors who do indeed account for the majority of FP participations and funding, and a long 'tail' of other participants who are involved in a one-off or occasional basis. There is a perception that the objective of 'integration' implies a greater focus of funding on this 'core' and a reduction of support for actors on the periphery, something which again would appear to be supported by data which shows that Ireland had fewer participants but a significantly increased funding allocation in FP6 as compared to either FP5 or FP4. It remains unclear as to whether such a trend is an explicit objective and whether it will continue or not, but these appear likely.

The contribution of FP6 projects to wider EU goals (i.e. those relating less to 'research' and more to socio-economic-related goals) is understandably more limited, but here we still find that a majority of projects are claimed to have made some kind of contribution, albeit a small one, to areas such as industrial competitiveness, quality of life, social cohesion and environmental protection.

8.14 Costs and benefits of participation in FP6 projects

Most of Ireland's FP6 participants (80%) realised a positive benefit to cost ratio from their projects. The remainder were fairly evenly split between those that had realised a 'neutral' result, and those who indicated that the costs of participation had outweighed the benefits. This is a reasonably positive result, but one that falls slightly below the level achieved in FP5. However, when asked to make a direct comparison with FP5, most of the FP6 participants who expressed an opinion stated that FP6 benefit:cost ratios were better than in FP5. Overall these results suggest that FP6 is neither significantly better nor significantly worse than FP5 in terms of the cost:benefit ratios realised by Irish participants.

HEIs and Research institutes enjoy the most positive benefits to cost ratios, with industry and 'other' participants more likely to report neutral or negative benefit to cost ratios. Respondents reporting a negative benefit to cost ratio tended to indicate that there were problems with the high management and administrative burden associated with participating in FP6, problems with audit requirements and in some cases delays in receiving the EC funding. Other problems related to the selection of (inappropriate) partners and poor coordination of the work, which had led to the failure to achieve scientific objectives, and which had in turn limited the extent to which the participants could successfully exploit project results in either a policy or industrial setting.

Few strong differences in cost:benefit ratios were identified across the different FP6 instruments, though the Marie Curie actions (mobility) appear to be 'best' at delivering a positive benefit to cost ratios for participants.

Irish participants that occupied a more central role in their projects enjoyed, on the whole, more positive outcomes than those that were involved only as partners. All of the respondents reporting that the costs of participation outweighed the benefits (i.e. a negative outcome) were partners rather than coordinators. Overall Irish coordinators tended to report that the costs of managing projects were relatively high but the benefits of having a 'central' role within the European networks meant that in most cases the benefits significantly outweighed the costs. Partners in the projects tend to incur lower costs but also find it more difficult to manage value from the research, with some finding that the results and the experience overall were not particularly in tune with their own organisation's needs.

8.15 Satisfaction with FP6 administrative processes

Irish participants in FP6 projects were in most cases either satisfied or 'neutral' with regard to the various FP6 administrative processes, with only a minority of respondents either 'very' satisfied or in some way dissatisfied. Satisfaction ratings were highest in relation to (i) the management arrangements within the projects, (ii) information provided to prospective applicants about how to apply, and (iii) processes for dissemination and exploitation of project results. Procedures for proposal evaluation and selection also obtained reasonably high ratings overall, though it should be noted that several comments were received concerning low levels of expertise within the FP6 evaluation panels. Satisfaction with processes was lowest, relatively speaking, in relation to (i) contract negotiation procedures, (ii) reporting procedures, and (iii) mechanisms for payment of the

Commission's contribution to the project cost. These elements are often difficult for participants to manage or can add significant delays to the projects, and so it is not surprising to find that a greater proportion of participants have had problems with these aspects.

There was a general consensus that FP6's rules were better than those employed in FP5 but the levels of administrative complexity were worse (i.e. higher). For some reason the research institutes appear to have suffered particularly with the changes from FP5 to FP6, being twice as likely as other types of participant to state that the rules / administrative complexity have become worse. The new instruments introduced for FP6 - Integrated Projects and Networks of Excellence – also appear to have caused particular problems in terms of the administrative complexity involved.

Unsuccessful applicants were also asked about their experience of the FP6 application 'process' and, perhaps surprisingly, we also found reasonably high levels of satisfaction here. Overall it seems that for most applicants, even the unsuccessful ones, the information provided and the procedures employed attract reasonably positive ratings. There were, however, two areas where the balance of opinion was negative and these concerned the transparency of the evaluation and selection procedures employed and the quality of the feedback provided following a decision not to support the proposal. These relate closely to the decision not to support the proposal, so the higher levels of dissatisfaction in relation to these aspects are perhaps to be expected. However, we found a more general and widespread dissatisfaction with the FP proposal evaluation system, with even FP 'advocates' that have been very successful in obtaining funding stating that the quality of the evaluators is questionable and the outcomes 'erratic'. Certainly the more experienced players tend to put in a range of proposals because it is hard to predict which ones will attract the eye of the evaluators and which will not. Quality alone is not considered to be sufficient to guarantee a successful outcome, and behind the scenes 'positioning' is often considered to be as important as the inherent strength of the project idea, at least within some parts of the programme.

8.16 Preliminary findings with regard to FP7

8.16.1 Early participation rates

Our survey of FP6 participants revealed that just over half of the FP6 participants have applied to FP7 (to date) and in almost half of these cases they have already participated in one or more FP7 projects. These are reasonably positive results, particularly the success rates among those who have applied.

Somewhat inevitably, most unsuccessful applicants reported that the experience of FP6 rejection had impacted negatively on their desire to participate in FP7, but even so, almost half have already applied to FP7 – a very positive result. There were markedly different application rates among those who had been unsuccessful with only *some* of their FP6 proposals and those who had been unsuccessful with all of their FP6 proposals , confirming that success (or otherwise) in one FP does significantly affect application levels to subsequent programmes. However, the results were much more positive when we looked at unsuccessful FP6 applicants' success rates in FP7. Here we found that just over half of the unsuccessful FP6 applicants who applied to FP7 have been successful. Even more encouragingly, the FP7 success rates appear higher for those who were unsuccessful with all of their FP6 proposals as compared to those who only failed with some of their FP6 bids. These findings suggest that unsuccessful FP applicants should not always be discouraged from applying to subsequent FPs, as there is clear evidence that fortunes can be 'turned around' relatively quickly.

Despite these positive indications most unsuccessful FP6 applicants appear more likely to decrease the number of proposals they submit to FP7 in comparison with FP6 than to increase the number. The same holds for the number of projects that unsuccessful FP6 applicants expect to participate in within FP7. Most of the reasons given for a forecasted decrease in FP7 participation related to the fact that the administrative burdens and complexity are too high, the outcomes too uncertain (a lottery!) and the success rates too low for them to bother. A small number expect to increase their application and participation rates, however, and pointed to their increased understanding of what is required and their increased capabilities to meet those requirements. Some respondents also indicated that they have found FP7 to be a better fit with their priorities or competencies.

We also discovered that many unsuccessful applicants have taken some kind of positive steps to improve their chances of success in FP7. These steps include a general strengthening of their approach to developing ideas, forming consortia and preparing proposals, with most respondents seeing a need to become more targeted and focused and to put the necessary time and effort into building very strong proposals. This increased 'focus' on ensuring that every aspect of the idea, team and the proposal itself is as strong as it can be has come through significantly in the comments, and is a rather

positive finding as it signals that many applicants believe that the outcome is in their own hands. While a small number of respondents clearly still believe that the process is something of a lottery, most are now attuned to the idea that there is a recipe for success that can be followed and while it won't guarantee a positive result every time, such an approach across several proposals means that success with one or more of them is highly likely.

8.16.2 The relevance of FP7 to Irish researchers

When asked to give their views on whether certain aspects of FP7 are better or worse than those of FP6 the most 'popular' view expressed by FP6 participants is that FP7 is much the same as FP6 in terms of the relevance of the priority topics, the relevance of the instruments, the level of administrative complexity and the rules of participation. Where respondents have considered that FP7 is either better or worse, the balance of opinion is that FP7 is an improvement on FP6 across all of the given aspects. Reassuringly, unsuccessful FP6 applicants mirror this generally positive view as regards FP7.

This generally positive picture was confirmed through our interviews with key participants, most of which felt that FP7 was an improvement on FP6, with similarly clear priorities but improved (simpler) instruments. The introduction of the IPs and NoEs at the start of FP6 had led to the creation of very large consortia and this was felt to have impacted negatively on the already low levels of industry participation in Framework. Under FP7 there is a sense that consortia will be smaller and this will be advantageous to smaller countries with small players. It was also felt that FP7 constituted an 'evolutionary' change over FP6, and did not contain as many radical changes as those from FP4 to FP5 or from FP5 to FP6. As such, it would be easier for actors to build on their involvement in FP6, particularly given the significantly enhanced level of support available at national level.

Another positive feature of FP7 is that it will operate for a longer period than previous Framework Programmes, and as such it is felt that its instruments and their associated administrative rules will be stable. This is considered important as applicants will have more time to understand and meet the requirements and this should help more peripheral actors (and countries) to gain a stronger foothold. It is also hoped that this will help to encourage higher levels of involvement by industry, as their ability to cope with high levels of administrative complexity and changing requirements is far below that of the major public research performers. This is particularly important for Ireland as most of its industry participants, at least to date, have been indigenous SMEs.

8.17 The new National Support Network for FP7

The new National Support Network introduced in Ireland for FP7 is intended to provide a more comprehensive and more coordinated package of support measures to FP7 applicants and participants than has been the case in previous FPs.

Between a third and a half of the FP6 participants and unsuccessful FP6 applicants have sought advice or support from service providers, similar proportions that sought help in relation to FP6. However, FP7 is still in train so it would be reasonable to expect that the overall level of take-up of assistance will increase in the fullness of time and will surpass the levels seen in FP6. HEIs and research institutes showed higher levels of take-up of support than industry and 'others' but take-up by these latter two groups appears to be slightly higher than was the case in FP6. This is an encouraging result.

In most cases the assistance required relates to either (i) information on specific calls, with participants seeking help with identifying which calls are relevant, understanding in more detail what the requirements and rules associated with the calls are, how the application process works, deadlines, and so on, (ii) assistance with the preparation of proposals, with participants looking mainly for advice and guidance on what information should be provided, what aspects or elements to focus on, strategies for success, and so on, or (iii) other more specific forms of assistance, including financial support towards the costs of proposal development, help with finding partners, or legal advice.

The feedback received indicates that the participants that have been making greater use of the available support than was the case in FP6, with usage levels for each of the main service providers (NCPs, UROs, NDs, EI, and the EC) being much higher than in FP6, and signalling that participants are increasingly seeking support from a *range* of different providers.

Satisfaction levels with the support providers is very high, though there is some evidence that participants are becoming more demanding, possibly due to an awareness that the new support

system is supposed to have been significantly enhanced. As such, we have found higher proportions of respondents expressing dissatisfaction with the support, and higher proportions providing a neutral rating than was the case for FP6. Overall, however, the feedback received continues to be overwhelmingly positive, with ratios of satisfied to dissatisfied customers averaging somewhere between 5:1 and 10:1 for the main providers.

Discussions with senior researchers confirmed that there is a high level of awareness of the new FP7 National Support Network and that it is perceived to be a far stronger system than was in place for previous FPs. The support system is seen to be more comprehensive in terms of the assistance on offer, and is more centralised, coherent and coordinated. It is also felt that the new Network has been effective in promoting itself to relevant actors and that the services available are well known to prospective participants. The existence of a strong support system is seen to be of particular importance for the less experienced applicants who need help with finding partners, proposal development, and in understanding and complying with the various administrative rules and procedures that are in place.

While the overall feedback on the new National Support Network has been extremely positive, we received a range of suggestions as to how the system could be further enhanced. The main suggestions, all of which we support, are included within our recommendations below.

8.18 Recommendations

The overall findings of this evaluation of Ireland's participation in FP6 are broadly positive, particularly with regard to the directions that Ireland has been taking in relation to FP7. The new National Support Network has signalled Ireland's strong commitment to current and future Framework participation, and there are already indications that Ireland's performance in FP7 may be higher than under FP6 as a result.

Ireland's success rates are already high, and so the major challenge in the short term is to increase the extent of demand for FP participation. As a priority the non-involvement of key research groups and companies in FP *proposals* should be targeted. While the significant increases in national funding issued by the HEA, SFI and other agencies during the course of FP6 have undoubtedly helped to strengthen national RTD capabilities and capacity, it was perhaps unreasonable to expect to see an 'immediate' increase in Framework participation at the same time as the national funding was being absorbed. However, it is essential that in the longer-term, national investments in infrastructure and capabilities are used as a platform for strengthened participation in international RTD initiatives. We therefore see a need for the national funding agencies to reaffirm the importance of FP participation and to ensure that all of the major recipients of national funding are aware of and take seriously their responsibilities to leverage national money against other funding sources[22]. In parallel, the national funding agencies should ensure that appropriate incentive systems are in place, which encourage and give sufficient credit for FP participation.

We also recommend that the national funding agencies and their key constituents begin to develop strategies with regard to FP participation, assessing national research strengths and priorities and linking these to FP priorities and opportunities. It seems that some of the key players within the research base and the NSN already have a very good understanding of where Ireland has been making the most of the available opportunities and where it has not. Such 'tacit' understanding should be underpinned by a more formal analysis, and then converted into a series of documented strategies as to how and where FP participation can be enhanced in the future. These strategies should form the basis for improved 'positioning' of the Irish research and industrial communities with respect to Framework participation, the establishment of EU partnerships and the influencing of future policy directions.

The Commission itself is moving to take more of a policymaking role, increasingly setting wider RTD priorities and agendas in cooperation with the member states. As such there is increasing 'policy space' for countries like Ireland to interact with and influence overall EU-level RTD strategies. New

[22] Some national funding programmes such as the PRTLI have now set explicit targets in this regard. All successful applicants to PRTLI Cycle 4, regardless of size of award, are required to leverage 15% of the total PRTLI Exchequer investment (capital and recurrent) from non-Exchequer sources over the period of PRTLI Cycle 4 investment (this is subject to the Department of Finance's guidelines and National Eligibility Rules for Expenditure co-financed by the ERDF in 2007-2013).

programming instruments provide opportunities for Ireland to take a stronger role in policy coordination and to influence more of the European agenda. The findings in this report suggest that Ireland is already beginning to play such a role, but a more concerted effort may be needed to ensure that the strategies of other actors do not crowd out Ireland's national interests. Active participation in the Joint Technology Initiatives and Joint Programming Initiatives and the negotiation of RTD agendas with other Member States is therefore essential if Ireland is to build on the recent investments it has made in its RTD base.

In addition, we make the following more specific recommendations for strengthening Ireland's participation in the Framework Programmes, most of which should be taken up by the national funding agencies through the NSN:

Increase efforts to influence and provide early warnings of FP calls, with a stronger role in 'behind the scenes' negotiations in relation to FP priorities, and with National Delegates occupying a more central role within the NSN

Provide increased support for identifying partners and building consortia, with increased help in building links with established EU players and increased incentives for intra-Ireland collaboration, particularly where Irish participants are in a coordinating role

Provide increased levels of support from 'experienced campaigners' in reviewing draft proposals and advising on critical success factors

Encourage increased levels of participation by Irish researchers within the FP evaluation processes, in order to enable an improved understanding of how the process operates and how to maximise chances of success

Increase the use of dedicated (professional) management support, to assist in the development of proposals, drawing up of contracts, and management of large-scale projects

Improve the balance of support provision, with a better regional distribution and a greater focus on support to industry

Provide more flexible forms of financial assistance, including the option to claim travel grants retrospectively and selective provision of matched funding in strategically important areas to support FP participation

Strengthen the promotion of the support available, particularly to less established and new participants in order to ensure that the assistance is given to those who most need it

Evaluate on an ongoing basis the effectiveness of the support provision, in order to understand whether the increased investment is producing the desired results, overall and at the level of the different elements, particularly the financial supports

The current economic climate brings forth the serious prospect of ever more serious cutbacks in national funding for R&D, and it is therefore vital that the upgrading of Irish research capabilities that has been taking place over the last decade can quickly be exploited and further supported through FP participation. The measures set out above should provide an improved basis for ensuring that this can happen.

Our investigations have indicated that there is already a good level of awareness of the need to do 'everything possible' to increase demand for FP participation and to maintain and where possible enhance proposal success rates. Some of the recommendations above have been identified by support providers as things that are already in train or 'under consideration' and it is therefore now largely a case of improving and strengthening what is already happening. However, such activities are seen as necessary if Ireland is to fully exploit the opportunities provided by the Framework Programmes.

Appendix A

Study terms of reference

Framework Programme 6 Evaluation

Introduction

The European Union Sixth Framework Programme for Research, Technological Development and Demonstration (FP6) was a group of actions at EU level to fund and promote research. With a budget of €17.8 billion for the years 2002 – 2006, it represented around five percent of the overall expenditure on research and technological development (RTD) in the EU Member States. The main objective of FP6 was to contribute to the creation of the European Research Area (ERA) by improving the integration and co-ordination of research in Europe. The Department of Enterprise, Trade and Employment (DETE) has requested Forfás to undertake an evaluation of Irish participation in FP6.

The purpose of this evaluation is to determine the effectiveness and impact of FP6 in achieving its objectives of research integration, ERA structuring and ERA strengthening for Ireland. This evaluation will investigate the added value and relevance of FP6 to research and development in Ireland, the support structures in place, the leverage from higher education institutions in assisting and encouraging industry participation in FP6, among other issues.

Background

The main objective of FP6 was to contribute to the creation of the European Research Area (ERA) by improving the integration and co-ordination of research in Europe. It also aimed to strengthen the competitiveness of the European economy, solving major societal questions and supporting the formulation and implementation of other EU policies. Activities under FP6 were to be conducted in compliance with ethical principles and to strive both to increase the role of women in research and to improve information for, and dialogue with, society.

There were three main blocks of activity within FP6:

1. Integrating research (priority instruments being *Networks of Excellence* and *Integrated Projects*)
2. Structuring the European Research Area (research and innovation, human resources – mobility, infrastructures, science – society) and
3. Strengthening the ERA foundations (the *ERA-Net* scheme).

Ireland has been a participant in the EU Framework Programmes since they began in 1984. Information about Irish participation is provided in the tables 1 and 2 below.

Table 1: Irish Funding as Percentage of Total EU Programme[23]

FP4 1994-98	FP5 1998-02	FP6 2002-06
1.59%	0.98%	1.12%
Average = 1.23%		

Table 2: Irish Participation in the Fourth to Sixth Framework Programmes

[23] Data from the FP7 Launch Event, Royal Hospital Kilmainham, November 2006.

	FP4 1994-98 [24]	FP5 1998-02 [25]	FP6 2002-07 [26]
Drawdown (€)	€ 191 million	€148 million	€188 million
Drawdown by private sector (% of Irish Total)	€63 million (33%)	€28 million (19%)	€ 21 million (11%)
Number of Organisations	467	318	293
Number of Participations	1489	1042	816
Number of Projects	1187	865	661

Irish participation in Framework Programmes has been evaluated previously[27] at the request of the Department of Enterprise, Trade and Employment. This information will be available to the successful consultant.

The Sixth Framework programme is now reaching its final stages with all contracts signed and all budget commitments made. While not all projects are complete, some contracts only having been signed in 2007 for projects which will run for up to four years, there is sufficient data to conduct an evaluation. It is also a good time to conduct the evaluation as an input to FP7, which is being implemented but is still at an early stage.

Issues arising from previous framework programme evaluations and studies include:

- The added value of FP6 in contributing to national research and development;
- The relevance of FP6 to Irish industry, particularly SMEs;
- The lack of leverage from higher education research organisations in encouraging and assisting industry in FP involvement.
- The suitability for participants of support mechanisms in place at national and EU levels; and
- The non-financial benefits of engagement in international research collaborations such as those fostered by Framework Programmes.

This evaluation will address these and other issues.

Objectives of the Evaluation

Particular emphasis in this evaluation will be placed on the following **key** issues:

- **The added value of FP6 in contributing to national research and development and innovation output;**

[24] Ibid

[25] Data from "Evaluation of the Impacts and Operation in Ireland of the EU's Fifth Framework Programme for RTDD (1998-2002), Forfás Board (Sept 2005).

[26] Data from the EC's E-CORDA database of FP6

[27] "The Fourth Framework Programme in Ireland", Forfás (2001); "Evaluation of the Impacts and Operation in Ireland of the EU's Fifth Framework Programme for RTDD (1998-2002), Forfás Board (2005).

- **The relevance of FP6 to Irish industry, including SMEs and the extent to which new companies engaged in the programme;**

- **The leverage (or lack thereof) from higher education research organisations in encouraging and assisting industry in FP involvement;**

- **The suitability for participants of support mechanisms in place at national and EU levels.**

The evaluation of Irish participation in FP6 will determine:

- the pattern of participation by Irish organisations;
- the performance of Irish organisations relative to other countries, to Irish performance in previous Framework Programmes and to expected performance given Ireland's contribution to the EU budget;
- the nature of benefits derived by Irish participants;
- the relevance of the projects to Irish industry;
- the relevance of the new instruments and activities to Irish participants;
- the degree to which FP6 complements other funding mechanisms and the extent to which state investment is leveraging FP6 funding;
- the degree to which FP complements the R&D strategies of research organisations;
- the suitability of support structures for FP participants;
- the impact of national funding mechanisms on FP6 participation.

Based on the findings, the evaluation should identify opportunities to maximise the impact of Ireland's participation in future Framework Programmes.

Methodology

The evaluation will consist of:

1) analysing existing data on Irish participation in FP6, including unsuccessful applications;
2) analysing existing data on the participation of other countries in FP6;
3) reviewing existing data on Irish participation in previous Framework Programmes;
4) reviewing a stratified random sample of individual projects from all major Framework programmes to establish their benefits to the participant organisations including Irish industry;
5) reviewing a small sample of unsuccessful applicants, to the extent that this proves possible and determine;
    a) Experience of the FP6 application process.
    b) The reasons for unsuccessful proposals.
    c) Intent to participate in future framework programmes.
    d) Action taken to improve chances of successful proposals in the future.

6) engaging with industry and other participants to seek their views
    a) the value of Framework Programmes in enhancing technological capability and to industrial development in Ireland (may liaise with FP5 participants);
    b) on the new instruments introduced in FP6;
    c) support mechanisms for FP6 and, where applicable, FP7;
    d) to the extent possible, the commercial value of participation.

7) carrying out any other investigations relevant to the purposes of the evaluation.

Information about existing EU data is provided in the Appendix 1.

Using the above methods, the evaluation will determine:

- the pattern of participation by Irish organisations in terms of
    - type and sector of organisation;
    - nature of participation (co-ordinator, partner);
    - the priority technology areas;
    - the type of instruments and programmes;
    - the funding the Irish participants are contracted to receive;
    - the nationality of partners;
    - the legal status and activity type of partners;
    - the contribution of the Irish organisation to the partnership;
    - involvement in national research programmes;
    - interaction with stable core of actors in science and technology at European level.
- the performance of Irish organisations relative to
    - comparable organisations in other countries;
    - Irish performance in previous Framework Programmes (FP4, FP5);
    - expected performance given Ireland's contribution to the EU budget;
- awareness of and relevance to participants of the support structures for FP6 and the new supports for FP7 including
    - the EI National Support and Information Office;
    - National Delegates;
    - National Contact Points:
    - University Research Offices;
    - European Commission mechanisms to assist participants;
- effectiveness and efficiency of the reporting procedures and administrative mechanisms for FP including
    - Interactions with the European Commission (e.g. re contracts, reporting, accounts);
    - Data reporting at national level;
    - Data reporting at European Commission level; and
    - Evaluation at national and EC levels.
- the nature of benefits derived by Irish participants, including intangible benefits such as the creation of new networks;
- the benefits to participants who conduct their research abroad (and are therefore not included in the budgetary figures for Ireland) e.g. Irish recipients of Marie Curie funding;
- the relevance of the projects to Irish industry, including the mechanisms by which enterprises got involved in FP6, and the business drivers for doing so;

- insight into the importance of FP6 for internationalisation of research for researchers, institutions and nationally in comparison to other funding mechanisms which might include:
  - other EU funding programmes (e.g. COST[28], EUREKA[29])
  - national initiatives in support of research, development and innovation;
  - bilateral agreements;
  - international programmes in support of research, development and innovation (e.g. Wellcome, US National Institutes of Health);
  - informal R&D networks;
  - any issues of deadweight;
- the relevance of the new instruments (Networks of Excellence, Integrated Projects) and activities (ERA-Nets, Technology Platforms, Research Infrastructures) to Irish participants; and
- the degree to which FP6 complements and reinforces the research strategies of organisations such as universities, institutes of technology and public research organisations.
- The degree to which FP6 has supported the mobility of researchers

The key output of the evaluation will be a report of the results obtained, with recommendations on the relevance of FP6 to the enhancement of technological capability and to industrial development in Ireland. The consultants will comment where possible from their discussions with stakeholders on issues and patterns arising in FP7 to date.
8.18.1.1

[28] COST: Framework for scientific and technical cooperation, allowing the coordination of national research on a European level. COST Actions consist of basic and pre-competitive research as well as activities of public utility.
[29] EUREKA: Pan-European framework for research and development cooperation through which industry and research institutes from 35 European countries and the European Union develop and exploit the technologies crucial to global competitiveness and a better quality of life.

Appendix 1

EU FP6 Contracts and Participation Database

The EU FP6 Contracts and Participation Database can be searched for:

- Country (region, NUTS code)
- Legal status (government, private non profit, etc.)
- Activity type (HE, industry, research)
- Year of contract signing
- Programme (EURATOM, Strengthening the ERA, etc)
- Priority (e.g. Information society, nano, science and society)
- Instrument (integrated project, network of excellence, etc.)

The results are exported from Microsoft Access to a Microsoft Excel spreadsheet.

The information contained the database about contracts is as follows:

- Total cost and EC contribution
- EC sign date, contract start and end date, duration of contract
- Specific programme, priority and call
- Contract number
- Instrument
- Acronym and title of the project
- Number of contractors
- Activity codes

The information contained the database about participants is as follows:

- Contract number and number of participants
- For each of the participants:
    - ID number
    - role
    - organisation name
    - abbreviated organisation name
    - eligible costs
    - requested contribution
    - address
    - country and NUTS code
    - legal status
    - activity type (SMEs are specifically identified)
    - contact person (name and email)

Appendix B

FP6 participant questionnaire

INTRODUCTION

This questionnaire is aimed at all Irish participants in the European Union's Sixth Framework Programme (FP6).

The data collected through the survey will form an integral part of an evaluation of FP6 in Ireland being managed by Forfás, on behalf of the Department of Enterprise, Trade and Employment. The overall objectives of the study are to assess the relevance to Ireland of FP6 and its impact on scientific & technological capability and industrial development. The results of the survey will be used to inform national research and innovation policy, current approaches to FP7 support and negotiations on future Framework Programmes, and we would therefore ask all FP6 participants from Ireland to complete the questionnaire.

When answering the questions we are asking respondents to represent the views of their research group or organisation as appropriate. We would expect most participants from HEIs, research institutes and large companies to answer on behalf of their research group, while participants from small businesses are more likely to answer from the perspective of their organisation as a whole. We would ask respondents to make their own choice as to what they consider an appropriate level at which to respond. Respondents may answer from their own personal perspective if they feel unable to talk on behalf of their organisation or research group.

The survey consists of 29 questions and we estimate that it will take around 20 minutes to complete. Your answers will be saved automatically, and you can leave the questionnaire at any time and return to it later via the URL contained in the email that we sent you. If you are unable or do not wish to answer any of the questions please leave these blank and move on to the next question.

We would be grateful if you could complete the questionnaire by Friday 27th February 2009.

All individual answers and comments will be treated as strictly confidential and non-attributable.

Thank you in advance for your participation and input to this study. If you have any questions or comments please do not hesitate to contact us via email on ireland-fp6@technopolis-group.com

BASIC DETAILS

1. Please provide the following basic information:

Your name ☐

Organisation ☐

Research Group ☐

Telephone number ☐

FP6 project title or acronym ☐

2. What was your role in the project?

☐ Coordinator ☐ Partner

RELEVANCE OF FP6 TO YOUR ORGANISATION / RESEARCH GROUP

3. In comparison with FP5, do you believe that FP6 was better or worse in respect of the following factors:

	Worse	Same	Better	No opinion
The relevance of the research topics/priority areas covered	☐	☐	☐	☐
The relevance of the forms of support (i.e. instruments)	☐	☐	☐	☐
The rules of participation	☐	☐	☐	☐
The level of administrative complexity associated with participation	☐	☐	☐	☐
The cost/benefit ratio associated with participation	☐	☐	☐	☐

4. How did the introduction of the major new instruments impact on your organisation / research group's ability to participate in FP6?

	Increased ability to participate	No impact	Decreased ability to participate	No opinion
Networks of Excellence	☐	☐	☐	☐
Integrated Projects	☐	☐	☐	☐

5. Did your organisation / research group increase or decrease…

	Increase	Same	Decrease	Unsure
The number of applications it submitted to FP6 in comparison with FP5	☐	☐	☐	☐
The number of projects it participated in within FP6 in comparison with FP5	☐	☐	☐	☐

Please explain the main reasons for any changes above

☐

6. To what extent did FP6 support and reinforce your organisation or research group's research strategy?

☐ Not at all ☐ To a small extent ☐ To a large extent

NATIONAL RESEARCH FUNDING

7. What was your organisation / research group's main source of national research funding in the period 2000-2006 (e.g. SFI, PRTLI, IDA, etc.)?

☐

8. How did the availability of <u>national</u> R&D funding in the period 2000-2006 impact upon your organisation or research group's desire or ability to participate in FP6?

	Increased	No impact	Decreased
Desire to participate	☐	☐	☐
Ability to participate	☐	☐	☐

Please explain your answers

☐

DRIVERS AND MOTIVES OF PARTICIPATION

9. Please rate each of the following factors in terms of their importance as motives for your organisation or research group's participation in this FP6 project

	Not important	Of little importance	Moderately important	Important	Very important
a. To access research funding	☐	☐	☐	☐	☐
b. To develop and extend internal knowledge and capabilities	☐	☐	☐	☐	☐
c. To develop new or improved relationships or networks	☐	☐	☐	☐	☐
d. To solve specific scientific or technical questions, problems or issues	☐	☐	☐	☐	☐
e. To access capabilities that do not exist in Ireland (complementary expertise)	☐	☐	☐	☐	☐
f. To share the research facilities / infrastructure that do not exist in Ireland	☐	☐	☐	☐	☐
g. To share the costs / risks association with the project	☐	☐	☐	☐	☐
h. To tackle problems that have a European or international dimension	☐	☐	☐	☐	☐
i. To improve the coordination of research	☐	☐	☐	☐	☐
j. To provide training (e.g. for PhD students or early stage postdocs)	☐	☐	☐	☐	☐
k. To facilitate the mobility of researchers	☐	☐	☐	☐	☐
l. To develop new or improved tools, methods or techniques	☐	☐	☐	☐	☐
m. To develop new or improved commercial products or services	☐	☐	☐	☐	☐
n. To develop new or improved regulations or policies	☐	☐	☐	☐	☐
o. To create new or improved facilities or infrastructure	☐	☐	☐	☐	☐
p. Other (specify) ☐	☐	☐	☐	☐	☐

10. Which of the motives above were the most important drivers for your participation in this FP6 project? ***(please enter the relevant letters a-p)***

Most important ☐ Second most important ☐ Third most important ☐

PROJECT PARTNERS AND YOUR ROLE IN THE PROJECT

11. Please indicate below the number of partners within your project, the number of these that you have collaborated with before FP6 and the number you have worked with since

Total number of partners within the project ☐
- Number that you had collaborated with before FP6 ☐
- Number that you expect to collaborate with after the FP6 project ☐

12. To what extent did your organisation / research group play a role in the following aspects of the project?

	No role	Minor role	Major role	Primary role	Not applicable
Defining the objectives of the project	☐	☐	☐	☐	☐
Defining the content and scope of the project	☐	☐	☐	☐	☐
Defining the size and membership of the consortium	☐	☐	☐	☐	☐
Negotiating the IPR arrangements	☐	☐	☐	☐	☐
Research training	☐	☐	☐	☐	☐
Carrying out research	☐	☐	☐	☐	☐
Disseminating project results / knowledge transfer	☐	☐	☐	☐	☐
Exploiting the results of the project	☐	☐	☐	☐	☐
Planning / coordinating future research	☐	☐	☐	☐	☐

DELIVERY OF R&D AND INNOVATION OUTPUTS

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13. For each of the following types of output, please indicate the numbers produced by your project team <u>within the scope of, or as a direct result of</u>, your FP6 project.

	Number produced by project team
a. Publications in refereed journals and books	☐
b. Other publications	☐
c. Newly trained / qualified personnel (e.g. MSc, PhD, postdocs)	☐
d. Exchange of personnel (in or out)	☐
e. Awards or prizes	☐
f. Scientific conferences, seminars or workshops	☐
g. New research grants	☐
h. Invention disclosures	☐
i. Patent applications	☐
j. Patents granted	☐
k. New license agreements	☐
l. New or significantly improved tools, methods or techniques	☐
m. New or significantly improved commercial products or services	☐
n. New or significantly improved scientific or industrial processes	☐
o. New or significantly improved technical codes or standards	☐
p. New or significantly improved regulations or policies	☐
q. New or significantly improved facilities or infrastructure	☐
r. Other (specify) ☐	☐

14. Which of the outputs above were the most important to your organisation / research group? (please enter the relevant letters a-r)

Most important ☐ Second most important ☐ Third most important ☐

REALISATION OF TANGIBLE AND INTANGIBLE BENEFITS

15. Please indicate what scale of positive impact the project has had on your own organisation / research group in terms of each of the following types of benefit:

	No impact	Low impact	Medium impact	High impact
Increased understanding / knowledge	☐	☐	☐	☐
Increased scientific capabilities	☐	☐	☐	☐
Increased technological capabilities	☐	☐	☐	☐
Improved planning or coordination of R&D	☐	☐	☐	☐
Improved ability or capacity to conduct R&D	☐	☐	☐	☐
Improved ability or capacity to provide training	☐	☐	☐	☐
Improved ability to attract staff / increased employment	☐	☐	☐	☐
Improved relationships and networks	☐	☐	☐	☐
Increased transnational mobility of researchers	☐	☐	☐	☐
Increased intersectoral mobility of researchers	☐	☐	☐	☐
Improved business opportunities	☐	☐	☐	☐
Improved competitive position nationally	☐	☐	☐	☐
Improved competitive position internationally	☐	☐	☐	☐
Increased income or market share	☐	☐	☐	☐
Enhanced reputation and image	☐	☐	☐	☐

WIDER IMPACTS

16. Please indicate what scale of contribution the project has made towards the achievement of the following European Union objectives:

	No contribution	Small contribution	Medium contribution	Large contribution
Increased European scientific and technological capabilities	☐	☐	☐	☐
Increased European industrial competitiveness	☐	☐	☐	☐
Improved European network formation	☐	☐	☐	☐
Improved international network formation (beyond EU)	☐	☐	☐	☐
Increased mobility of EU researchers	☐	☐	☐	☐
Improved career development of EU researchers	☐	☐	☐	☐
Improved planning / coordination of EU research	☐	☐	☐	☐
Restructuring / integration of EU research	☐	☐	☐	☐
Improved employment situation across Europe	☐	☐	☐	☐
Increased social cohesion across the Member States	☐	☐	☐	☐
Improved preservation or protection of the environment	☐	☐	☐	☐
Improved quality of life and health of European citizens	☐	☐	☐	☐

17. Please state whether the project results have been used in the following ways:

	No	Yes, to a small extent	Yes, to a large extent	Unsure
Exploited by Irish researchers in follow-on research	☐	☐	☐	☐
Exploited by Irish companies	☐	☐	☐	☐
Exploited by Irish policymakers	☐	☐	☐	☐
Exploited by European researchers in follow-on research	☐	☐	☐	☐
Exploited by European companies	☐	☐	☐	☐
Exploited by European-level policymakers	☐	☐	☐	☐
Exploited by researchers from outside the EU in follow-on research	☐	☐	☐	☐
Exploited by companies from outside the EU	☐	☐	☐	☐
Exploited by policymakers from outside the EU	☐	☐	☐	☐

COSTS AND BENEFITS OF PARTICIPATION

18. Overall, how do the costs and benefits associated with your own organisation / research group's participation in this project balance out?

(+3) Benefits outweigh costs ☐
(+2) ☐
(+1) ☐
(0) Costs equal benefits ☐
(-1) ☐
(-2) ☐
(-3) Costs outweigh benefits ☐

Please explain you answer.

☐

USE AND SUITABILITY OF NATIONAL AND EU SUPPORT MECHANISMS FOR FP6

19. Did your organisation / research group consult specific individuals, service providers or information sources to obtain information or assistance in relation to FP6?

☐ Yes ☐ No

8.18.1.2 *If yes, please name up to three primary service providers / information sources consulted*

Provider / source 1 ☐
Provider / source 2 ☐
Provider / source 3 ☐

8.18.1.3 *Please also indicate how useful you found the assistance provided by each of those mentioned above*

	1 – Not at all useful	2	3	4	5 – Very useful
Provider / source 1	☐	☐	☐	☐	☐
Provider / source 2	☐	☐	☐	☐	☐
Provider / source 3	☐	☐	☐	☐	☐

20. Did any other Irish actors (e.g. HEIs, companies, research institutes) help to facilitate or encourage your organisation / research group to get involved in FP6?

☐ Yes ☐ No

If 'YES', please list this/these other actor(s) and provide a brief explanation of how and why they facilitated your involvement

☐

21. Did your organisation / research group help or encourage any other Irish actors (e.g. HEIs, companies, research institutes) to get involved in FP6?

☐ Yes ☐ No

If 'YES', please list this/these other actor(s) and provide further details of how and why you facilitated their involvement

☐

FEEDBACK ON FP6 ADMINISTRATION / REPORTING

22. Based on your experience of applying to and participating in FP6, please indicate your level of satisfaction with the following aspects:

	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Information provided to prospective applicants about how to apply	☐	☐	☐	☐	☐
FP6 application procedures	☐	☐	☐	☐	☐
FP6 proposal evaluation and selection procedures	☐	☐	☐	☐	☐
FP6 contract negotiation procedures	☐	☐	☐	☐	☐
Monitoring procedures	☐	☐	☐	☐	☐
Reporting procedures	☐	☐	☐	☐	☐
Management arrangements within your project	☐	☐	☐	☐	☐
Procedures for end of project assessment / completion	☐	☐	☐	☐	☐
Mechanisms for payment of EC financial contributions	☐	☐	☐	☐	☐
Processes for dissemination and exploitation of project results	☐	☐	☐	☐	☐
Evaluation at national and EC levels	☐	☐	☐	☐	☐

23. Please provide below any comments you have on the EC's administrative mechanisms and reporting procedures. We are particularly interested in specific recommendations you have for how processes can be improved

☐

FP7 PARTICIPATION

24. Have you applied to or participated in FP7 to date?

Applied ☐ Yes ☐ No Participated ☐ Yes ☐ No

25. Based on your experience, do you believe that FP7 is better or worse than FP6 in respect of the following factors:

	Worse	Same	Better	No opinion
The relevance of the research topics/priority areas covered?	☐	☐	☐	☐
The relevance of the forms of support (i.e. instruments)?	☐	☐	☐	☐
The level of administrative complexity associated with participation?	☐	☐	☐	☐
The rules of participation?	☐	☐	☐	☐

ADVICE AND ASSISTANCE WITH FP7 PARTICIPATION

26. Have you sought any advice or support from national providers to assist you in applying or participating in FP7?

☐ Yes ☐ No

If 'YES', please provide a brief description of the main type(s) of support or assistance you required

27. Which of the following support providers have you used to assist you with FP7 participation, and how satisfied were you with the support they provided?

	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	Not used
European Commission	☐	☐	☐	☐	☐	☐
National contact points	☐	☐	☐	☐	☐	☐
National delegates	☐	☐	☐	☐	☐	☐
University Research Offices	☐	☐	☐	☐	☐	☐
Enterprise Ireland	☐	☐	☐	☐	☐	☐
Irish Universities Association	☐	☐	☐	☐	☐	☐
Science Foundation Ireland	☐	☐	☐	☐	☐	☐
Higher Education Authority	☐	☐	☐	☐	☐	☐
Health Research Board	☐	☐	☐	☐	☐	☐
Sustainable Energy Ireland	☐	☐	☐	☐	☐	☐
Environmental Protection Agency	☐	☐	☐	☐	☐	☐
Irish Research Council for the Humanities and Social Sciences	☐	☐	☐	☐	☐	☐
Irish Research Council for Science, Engineering & Technology	☐	☐	☐	☐	☐	☐
Dept of Agriculture	☐	☐	☐	☐	☐	☐
Dept of Environment	☐	☐	☐	☐	☐	☐
Other (specify)	☐	☐	☐	☐	☐	☐

28. If you have any specific recommendations as to how the Irish support system for FP7 applicants / participants could be improved, please set these out below:

RECOMMENDATIONS

29. Please provide any recommendations you have for how the Framework Programmes could be improved to enhance the extent of Ireland's participation and/or the benefits realised?

THANK YOU FOR COMPLETING THE QUESTIONNAIRE

Appendix C

Unsuccessful FP6 applicant questionnaire

INTRODUCTION

This questionnaire is aimed at all Irish applicants to the European Union's Sixth Framework Programme (FP6) who were unsuccessful with a proposal, regardless of whether they were also successful with another proposal.

The data collected through the survey will form an integral part of an evaluation of FP6 in Ireland being managed by Forfás, on behalf of the Department of Enterprise, Trade and Employment. The overall objectives of the study are to assess the relevance to Ireland of FP6 and its impact on scientific & technological capability and industrial development. The results of the survey will be used to inform national research and innovation policy, current approaches to FP7 support and negotiations on future Framework Programmes, and we would therefore ask all unsuccessful FP6 applicants from Ireland to complete the questionnaire.

The survey consists of 21 questions and we estimate that it will take around 15 minutes to complete. Your answers will be saved automatically, and you can leave the questionnaire at any time and return to it later via the URL contained in the email that we sent you. If you are unable or do not wish to answer any of the questions please leave these blank and move on to the next question.

We would be grateful if you could complete the questionnaire by 29th May 2009.

All individual answers and comments will be treated as strictly confidential and non-attributable.

Thank you in advance for your participation and input to this study. If you have any questions or comments please do not hesitate to contact us via email on ireland-fp6@technopolis-group.com

BASIC DETAILS

1. Please provide the following basic information:

Your name ☐

Organisation ☐

Research Group ☐

Telephone number ☐

2. We have asked you to complete this questionnaire because we believe that you applied to FP6 but your proposal(s) were not funded, i.e. were unsuccessful. Please could you confirm whether our information is correct by selecting one of the following options:

I was unsuccessful with all my FP6 proposals	☐	*Go to 'Success of your wider organisation' section*
I was unsuccessful with some of my FP6 proposals	☐	*Go to 'Unsuccessful proposals' section*
I was *successful* with all my FP6 proposals	☐	*Go to 'Successful applicants' section*

SUCCESS OF YOUR WIDER ORGANISATION

You have indicated that you were unsuccessful with all of your FP6 proposals.

Did anyone else from your organisation (company, university, agency, etc.) receive funding from FP6, i.e. submit a successful application?

Yes ☐
No ☐
Don't know ☐

UNSUCCESSFUL PROPOSALS

The following questions relate to your experience as an unsuccessful applicant

Where questions refer to your unsuccessful proposal and you were involved in multiple unsuccessful bids, please answer for the one in which you were most centrally involved or which was considered most important to your organisation / research group

3. Had you participated in any Framework Programme projects before FP6?

☐ Yes ☐ No

4. Please provide the following information about proposal(s) to FP6:

How many FP6 proposals did you participate in? ☐

How many of these proposals were not successful in receiving FP6 funding (i.e. were rejected)? ☐

5. Thinking about your most important unsuccessful proposal, to what extent did your organisation / research group play a role in the following aspects?

	No role	Minor role	Major role	Primary role	Not applicable
Defining the objectives of the project	☐	☐	☐	☐	☐
Defining the content and scope of the project	☐	☐	☐	☐	☐
Defining the size and membership of the consortium	☐	☐	☐	☐	☐
Writing the proposal	☐	☐	☐	☐	☐

USE AND SUITABILITY OF NATIONAL AND EU SUPPORT MECHANISMS FOR FP6

6. Did your organisation / research group consult specific individuals, service providers or information sources to obtain information or assistance in relation to FP6?

☐ Yes ☐ No

Please provide a brief description of the main type(s) of support or assistance you required

☐

7. Please name up to three primary service providers / information sources consulted

Provider / source 1 ☐
Provider / source 2 ☐
Provider / source 3 ☐

8.18.1.4 *Please also indicate how useful you found the assistance provided by each of those mentioned above*

	1 – Not at all useful	2	3	4	5 – Very useful
Provider / source 1	☐	☐	☐	☐	☐
Provider / source 2	☐	☐	☐	☐	☐
Provider / source 3	☐	☐	☐	☐	☐

EXPERIENCE OF FP6 PROPOSAL PROCESS

8. Based on your experience of applying to FP6, please indicate your level of satisfaction with the following aspects:

	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Information provided to prospective applicants about how to apply	☐	☐	☐	☐	☐
Suitability of the proposal procedures and templates	☐	☐	☐	☐	☐
Time given to applicants to prepare and submit proposals	☐	☐	☐	☐	☐
Suitability of the evaluation criteria used to judge proposals	☐	☐	☐	☐	☐
Transparency of the evaluation and selection procedures employed	☐	☐	☐	☐	☐
Quality of feedback provided to unsuccessful applicants	☐	☐	☐	☐	☐
Time taken to evaluate proposals	☐	☐	☐	☐	☐

9. How did FP6 compare with other similar programmes in the following respects?

	FP6 was better	FP6 was the same	FP6 was worse	Unsure
The overall **complexity** of project proposal procedures	☐	☐	☐	☐
The overall **quality** of project proposal / selection procedures	☐	☐	☐	☐

REASONS FOR NON-SUCCESS

10. What were the main reasons for your proposal(s) being unsuccessful? (please tick all that apply)

a. Overall quality of the written proposal ☐
b. Lack of information / detail / explanation given in the proposal ☐
c. Unclear goals ☐
d. Issues relating to exploitation or end-use ☐
e. Outside the scope of the call / lack of fit with priorities ☐
f. Lack of fit with the instrument ☐
g. Duplication with another proposal ☐
h. Lack of available budget within the programme ☐
i. Excessive or inappropriate costing in the proposal ☐
j. Issues with co-funding arrangements ☐
k. Too few partners included ☐
l. Too many partners included ☐
m. The strength of the consortium ☐
n. The quality of the team ☐
o. Quality of management / management structure ☐
p. Proposal too ambitious / innovative / novel ☐
q. Proposal not ambitious / innovative / novel enough ☐
r. Other (please specify) ☐
s. Other (please specify) ☐

Which of the reasons selected above do believe is the main reason for the non-success of your proposal(s)? (please select a letter a-s): ☐

FATE OF YOUR UNSUCCESSFUL PROPOSAL

11. Thinking about your most important unsuccessful proposal, please provide details below of what has happened to the planned project?

No alternative sources of funding exist, so the idea has been put on hold	☐
We have applied to other sources of funding, but without success	☐
We have applied to other sources of funding but have not yet received a decision	☐
We have been successful in obtaining funding from alternative sources	☐
Other (please specify)	☐

Please tell us which other sources of funding, if any, you have applied to with your FP6 proposal(s)?

☐

FP7 PARTICIPATION

12. Have you applied to or participated in FP7 to date?

Applied ☐ Yes ☐ No Participated ☐ Yes ☐ No

13. Did your organisation / research group increase or decrease…

	Increase	Same	Decrease	Unsure
The number of applications it submitted to FP7 in comparison with FP6	☐	☐	☐	☐
The number of projects it participated in within FP7 in comparison with FP6	☐	☐	☐	☐

Please explain the main reasons for any changes above

☐

14. To what extent has your experience of an unsuccessful proposal(s) to FP6 impacted negatively on your desire / intention to participate in future Framework Programmes?

Not at all	☐
A little	☐
A lot	☐

15. Have you made efforts to improve / change anything about your approach towards FP7 proposals based on your experience in FP6?

Yes	☐
No	☐
N/a	☐

If yes, please explain these changes

☐

16. Based on your experience, do you believe that FP7 is better or worse than FP6 in respect of the following factors:

	Worse	Same	Better	No opinion
The relevance of the research topics/priority areas covered?	☐	☐	☐	☐
The relevance of the forms of support (i.e. instruments)?	☐	☐	☐	☐
The level of administrative complexity associated with participation?	☐	☐	☐	☐
The rules of participation?	☐	☐	☐	☐

ADVICE AND ASSISTANCE WITH FP7 PARTICIPATION

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17. Have you sought any advice or support from national providers to assist you in applying or participating in FP7?

☐ Yes ☐ No

If 'YES', please provide a brief description of the main type(s) of support or assistance you required

☐

18. Which of the following support providers have you used to assist you with FP7 participation, and how satisfied were you with the support they provided?

	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	Not used
European Commission	☐	☐	☐	☐	☐	☐
National contact points	☐	☐	☐	☐	☐	☐
National delegates	☐	☐	☐	☐	☐	☐
University Research Offices	☐	☐	☐	☐	☐	☐
Enterprise Ireland	☐	☐	☐	☐	☐	☐
Irish Universities Association	☐	☐	☐	☐	☐	☐
Science Foundation Ireland	☐	☐	☐	☐	☐	☐
Higher Education Authority	☐	☐	☐	☐	☐	☐
Health Research Board	☐	☐	☐	☐	☐	☐
Sustainable Energy Ireland	☐	☐	☐	☐	☐	☐
Environmental Protection Agency	☐	☐	☐	☐	☐	☐
Irish Research Council for the Humanities and Social Sciences	☐	☐	☐	☐	☐	☐
Irish Research Council for Science, Engineering & Technology	☐	☐	☐	☐	☐	☐
Dept of Agriculture	☐	☐	☐	☐	☐	☐
Dept of Environment	☐	☐	☐	☐	☐	☐
Other (specify) ☐	☐	☐	☐	☐	☐	☐

19. If you have any specific recommendations as to how the Irish support system for FP7 applicants / participants could be improved, please set these out below:

☐

RECOMMENDATIONS

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20. Please provide any recommendations you have for how the Framework Programmes could be improved to enhance the extent of Ireland's participation and/or the benefits realised?

THANK YOU

Thank you for completing the questionnaire

Your responses have been saved automatically

Click DONE to close the survey

Appendix D

Interview guide

Introduction

1. Name of Interviewee
2. Organisation
3. Position / role within organisation

Background

4. What is your role in relation to the Framework programmes?
   - Participant
   - Provider of advice / support to applicants and participants
   - Coordinator of national RTD policy / funding body
   - Other
5. When did your role or involvement in the FPs begin (i.e. which FP)?
6. How and why did you become involved in the FPs in the first place?

Relevance of FP6 to Irish researchers

7. How relevant was FP6
   - To Irish academics / scientists?
   - To Irish industry?
   - To Ireland's public agencies?
8. What was the impact of changes to research priorities introduced in FP6 on the ability of Irish researchers to participate?
9. What was the impact of the new Instruments (IPs and NoEs) introduced in FP6 on Ireland's ability to participate?
10. Were any other changes introduced in FP6 that have influenced levels of involvement? What were those changes and what impacts have they had?

Changing patterns of FP involvement

11. How has the changing structure and focus of the FPs over time (going back to FP3 if possible) impacted on its relevance and utility to Irish research and technological development? What have been the major shifts in emphasis and how has this affected Irish participation and benefits derived? Who have been the winners and losers?
12. Why do you think that Irish involvement in the FPs has declined over recent years (FP4 to FP5 to FP6)? What could or should be done to address this?

Relationship between FP projects and wider R&D strategies / portfolios

13. Where do your FP projects fit within your wider research project portfolio?
14. What are the main differences between your FP projects and those conducted at national levels?
15. What are the main differences between your FP projects and other international collaborative projects?
16. Do the FPs fit well with and support your existing scientific and technological strategies?

17. To what extent does implementation of your research or technological strategy rely on FP projects as compared to national R&D projects?
18. Have the FPs had an influence on your research or technological strategy?
    - Have they influenced your decisions as to where to focus scientifically or technologically?
    - Have the FPs led you to move into new research areas or to branch out into other technology fields?
    - Have the FPs prompted you do different types of R&D (e.g. more basic, more applied)?

<u>FPs and national funding mechanisms</u>

19. To what extent do the FPs complement or duplicate national funding mechanisms?
20. Do national funding mechanisms help to facilitate and support FP participation? How?
21. Has participation in the FPs displaced participation in other programmes, or is FP participation additional to participation in national programmes?

<u>FPs and other international funding mechanisms</u>

22. To what extent do the FPs complement other international funding mechanisms (e.g. COST, EUREKA, Eurocores)?
23. What drives decisions as to where to apply for international collaborative funding (i.e. on what bases are alternative funding sources judged to be more / less useful for different types of activity)?
24. Does FP participation help to facilitate involvement in other international programmes? How?
25. Has your participation in the FPs displaced participation in other international programmes, or is your FP participation additional to your participation in other international programmes?
26. Have the FPs acted as a stepping-stone for other European initiatives, Technology Platforms (TP) or Joint Technology Initiatives (JTI)?

<u>Framework programme benefits</u>

27. What are the main benefits realised by your organisation / research group through FP involvement? How do these benefits compare to those realised through other (non-FP) RTD projects?
28. Have the FPs helped to enhance your scientific and / or technological capabilities? If yes, how have hey done this?
29. Have the FPs enhanced industrial development in Ireland in the areas in which you work? If yes, can you point to specific developments that are particularly noteworthy?
30. Has there been an increase in research contracts / income as a result of your FP participation?
31. Have you recruited researchers or student that you worked with in FP projects?
32. Have the FPs altered the pattern of your cooperation in research?
    - Has participation in the FPs given rise to more national and/or international collaborations?
    - Are the networks of collaboration you participate in larger than they used to be?
    - Have the FP given rise to different types of collaboration, for example industry-academia collaborations?
    - Intensity or quality of networking (social network analysis – bigger instrument, bigger networks, but less intensive, (breadth and depth)
    - Have collaborations shifted from some (sub-) disciplines to other (sub-) disciplines due to the FPs?
    - Have the FPs strengthened the networks between academia and industry nationally? Internationally?
33. To what extent do the FPs help to bring scale, for instance to address major problems?
34. To what extent have the FPs facilitated integration and restructuring of research? How has this happened? What benefits does this bring?

National support structure for FP involvement

35. What are the main types of support necessary at national level to facilitate and enhance Irish participation in the FPs? To what extent is this support available?
36. Are there any significant gaps in the types of support being made available?
37. Are applicants and participants being kept well informed as to what support is available?
38. What is the overall quality of the support being provided to applicants and participants?
39. Are you seeing any improvements in the national support structure? If so, what improvements do you see?
40. What recommendations do you have for further improving the support being offered nationally?

Future

41. What are your plans with regard to future FP involvement (e.g. increase / decrease) and what are the reasons for any change?
42. What are your views on FP7 as compared to previous programmes?
    a. Relevance of research priorities
    b. Relevance of instruments
    c. Ease of access to funding
    d. Other major differences
43. What would be your main recommendations for ways to improve the FPs to increase their effectiveness?
44. What steps could / should be taken nationally to increase Irish involvement and benefits derived from future FPs?

Appendix E

List of acronyms

BERD	Business Expenditure on Research and Development
CA	Coordination Action
CERN	European Organisation for Nuclear Research
CIP	Competitiveness and Innovation Programme
CLR	Collective Research Project
COST	European Cooperation in Science and Technology
CRAFT	Co-operative Research Project
CREST	EU Scientific and Technical Research Committee
DCU	Dublin City University
DERI	Digital Enterprise Research Institute
EAV	European Added Value
EC	European Commission
EI	Enterprise Ireland
EIT	European Institute of Technology
EMBL	European Molecular Biology Laboratory
ERA	European Research Area
ERC	European Research Council
ERDF	European Research Development Fund
ESF	European Science Foundation
EU	European Union
FP	Framework Programme
GDP	Gross Domestic Product
GNP	Gross National Product
HEA	Higher Education Authority
HEI	Higher Education Institute

HRM	Human Resources and Mobility
HRM	Human Resources and Mobility
I3	Integrated Infrastructure Initiatives
ICT	Information Communication Technology
IDA	Industrial Development Agency of Ireland
II	Specific Actions to Promote Research Infrastructures
IP	Integrated Project
IPR	Intellectual Property Rights
IRCHSS	Irish Research Council for the Humanities and Social Sciences
IRCSET	Irish Research Council for Science, Engineering and Technology
IST	Information Society Technologies
IUA	Irish Universities Association
JPI	Joint Programming Initiative
JTI	Joint Technology Initiative
MCA	Marie Curie Action
MNC	Multi-National Company
NCP	National Contact Point
ND	National Delegate
NoE	Network of Excellence
NORIA	Nordic Research and Innovation Area
NSF	National Science Foundation
NSN	National Support Network
NUIG	National University of Ireland, Galway
NUIM	National University of Ireland, Maynooth
OST	Office of Science & Technology
PRTLI	Programme for Research in Third-Level Institutions
R&D	Research and Development
R&I	Research and Innovation
RD&I	Research, Development and Innovation

RTD	Research and Technological Development
S&T	Science and Technology
SFI	Science Foundation Ireland
SME	Small and Medium-Sized Enterprise
SSA	Specific Support Action
STREP	Specific Targeted Research Project
TAFTIE	The association for Technology Implementation in Europe(The European Network of Innovation Agencies)
TCD	Trinity College Dublin
UCC	National University of Ireland, Cork
URO	University Research Office

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