

Enhancing the Effectiveness of Nordic Research Cooperation

Nordic participation in the EU Framework Programmes
– Best practices and lessons learned



norden

NordForsk



NordForsk

NordForsk Policy Briefs 1–2011

Enhancing the Effectiveness of Nordic Research Cooperation
Policy Brief 1

Nordic participation in the EU Framework Programmes
– Best practices and lessons learned

NordForsk, 2011
Stensberggata 25
N-0170 Oslo
www.nordforsk.org
Org.nr. 971 274 255

Design: Millimeterpress AS
Printed by: BK Grafisk

ISSN 1504-8640



TABLE OF CONTENTS

Preface	6
1. Executive Summary	7
1.1 Introduction	7
1.2 Nordic participation in FP6 and FP7	7
1.3 Nordic collaboration in FP6 and FP7	8
1.4 Outcomes of participation	9
1.5 Main challenges and success criteria	9
1.6 Best practices and lessons learned	9
1.7 Nordic participation in related instruments	9
1.8 Policy implications and recommendations	10
2. Introduction	11
3. Methodological approach	13
3.1 Analysis of Nordic participation in FP6 and FP7 to date	13
3.2 Questionnaire survey of Nordic FP6 and FP7 participants	14
3.3 Appendix to Policy Brief 1 report	17
4. Results	18
4.1 Extent of Nordic participation in FP6 and FP7	18
4.2 Nature of Nordic participation in FP6 and FP7	27
4.3 Drivers for Nordic participation in the FPs	29
4.4 Nordic demand for participation and success within the FP competitions	38
4.5 Nordic collaboration in the Framework Programmes	48
4.6 Benefits and impacts	57
4.7 Main challenges and success criteria	64
4.8 Best practices and lessons learned	68
4.9 Nordic participation in related instruments and initiatives	74
5. Conclusions and recommendations	88
5.1 Nordic participation in FP6 and 7	88
5.2 Outcomes of FP participation (benefits and impacts)	92
5.3 Nordic collaboration in FP projects	93
5.4 Main challenges associated with FP participation	94
5.5 Strategies for successful involvement in the FPs (best practices)	95
5.6 Suggestions for improving the FPs and strengthening Nordic involvement	96
5.7 Nordic participation in related 'new' instruments	97
5.8 Policy implications and recommendations	98

TABLE OF FIGURES

Figure 1 Survey contacts by country	15
Figure 2 Share of possible and actual survey responses, by country	16
Figure 3 Share of participations and survey responses, by country	16
Figure 4 Share of responses, by respondent's field of research	17
Figure 5 Nordic participation in FP6 – overall statistics	18
Figure 6 Nordic participation in FP7 – overall statistics	19
Figure 7 Nordic funding achieved from FP6 – factored by GDP	20
Figure 8 Nordic funding achieved from FP7 – factored by GDP	20
Figure 9 Nordic projects, participations and EC funding, by Priority Area	22
Figure 10 Nordic FP6 projects, participations and EC funding, expressed as a share of FP6 totals, by Priority Area	23
Figure 11 Nordic countries' (ranked) share of all FP6 participations, by Priority Area	24
Figure 12 Nordic FP7 projects, participations and EC funding, by FP7 Priority Area	25
Figure 13 Nordic FP7 projects, participations and EC funding, expressed as a share of FP7 totals, by Priority Area	26

Figure 14	Nordic countries' (ranked) share of all FP7 participations, by Priority Area	27
Figure 15	Nordic project coordination rates in FP6 and FP7, by country	28
Figure 16	Nordic participants' roles in aspects of their FP projects (n=811-919)	28
Figure 17	Relevance of features of FP6 and FP7 (n=944-992)	30
Figure 18	'Average' relevance of features of FP6 and FP7, by country	30
Figure 19	'Average' relevance of features of FP6 and FP7, by type of organisation	31
Figure 20	Alignment between FP priorities/instruments and research strategies	31
Figure 21	Extent to which FP6/7 supported participants' research strategies, by country	32
Figure 22	Extent to which research strategies have been adjusted to better align with FP, by country	32
Figure 23	Use of mechanisms to influence FP6/7 work programmes (n=458-537)	33
Figure 24	Effectiveness of mechanisms (where used) to influence annual work programmes	34
Figure 25	Extent to which Nordic agencies / representatives have been successful in influencing the FPs	35
Figure 26	Motives for involvement in FP projects (n=944-971)	35
Figure 27	Drivers for involvement in FP projects (n=909)	37
Figure 28	Extent to which different forms of support were received in order to take part in FP6/7 projects	37
Figure 29	Effectiveness of support received	38
Figure 30	Nordic participation in FP6 proposals, by country	39
Figure 31	Nordic participation in FP6 proposals, by Activity Type	40
Figure 32	Nordic participations in FP6 proposals, by Priority Area	40
Figure 33	Nordic FP6 participation-level success rates, by country	41
Figure 34	Nordic FP6 proposal participation success rates by Activity Type	41
Figure 35	Nordic and all FP6 participation-level success rates by Priority Area	42
Figure 36	Nordic FP6 participation explained by relative success and demand, by priority area	43
Figure 37	Nordic participation in FP7 proposals, by country (to date)	44
Figure 38	Nordic participation in FP7 proposals, by Activity Type (to date)	44
Figure 39	Nordic participations in FP7 proposals, by Priority Area	45
Figure 40	Nordic FP7 participation-level success rates, by country	46
Figure 41	Nordic FP6 proposal success rates by Activity Type	46
Figure 42	Nordic and all FP7 participation-level success rates by Priority Area	47
Figure 43	Nordic participation: a comparison between Nordic relative success and demand in FP6 by priority area	48
Figure 44	Comparison of actual Nordic project involvement rates to normalised Nordic project involvement rates within each Nordic country's FP6 projects	49
Figure 45	Intra-Nordic FP6 links, by Nordic country	51
Figure 46	Main Nordic intra-project collaboration patterns, by FP7 Priority Area	52
Figure 47	Comparison of actual Nordic project involvement rates to normalised Nordic project involvement rates within each Nordic country's FP7 projects	53
Figure 48	Intra-Nordic FP7 links, by Nordic country	54
Figure 49	Main Nordic intra-project collaboration patterns, by FP7 Priority Area	55
Figure 50	The location of Nordic participants' most important (foreign) collaboration partners	56
Figure 51	The location of participants' most important (foreign) collaboration partners, for each Nordic country	56
Figure 52	Most important FP project outputs (n=852)	58
Figure 53	Extent to which projects have delivered outputs compared with expectations	59
Figure 54	Extent to which the 'most important' outputs are produced at a level 'below expectations'	60
Figure 55	Scale of positive impacts of FP6/7 participation on participating organisations	61
Figure 56	Exploitation of project results by different communities	62
Figure 57	Costs & benefits to Nordic partners of participation in FP6/7 projects (n=930)	63
Figure 58	Participants' satisfaction with FP6/7 administration and reporting (n=1,038)	66
Figure 59	Nordic involvement as founding members of JTIs	76
Figure 60	Partner composition of the KICs	78
Figure 61	Involvement in ERA-NETs, by country	79
Figure 62	Involvement in ERA-NET Plus, by country	81
Figure 63	Nordic participation in Article 169 initiatives	82
Figure 64	Awareness and participation in new instruments - JTIs	85
Figure 65	Awareness and participation in new instruments - PPPs	85
Figure 66	Awareness and participation in new instruments - JPIs	85
Figure 67	Awareness of, participation in, and future plans for involvement in new instruments, by type of organisation	86
Figure 68	Nordic participation in FP7 evaluation panels, by country	87

PREFACE

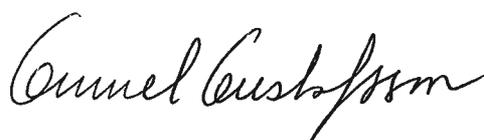
NordForsk is a platform for joint Nordic research and research policy development. Our aim is to contribute to the development of the knowledge society in the Nordic region, and consequently to a globally competitive European Research Area (ERA). To implement this, our strategic actions are inter alia developing the knowledge basis for sound Nordic research- and research policy coordination, and promoting cooperation that adds value to national initiatives in the Nordic region.

The main framework for research priorities in Europe are set in the EU, and EU research policy has wide-ranging implications for Nordic researchers and policymakers. Participation in EU research cooperation is therefore a main political priority in all the Nordic countries. The EU Framework Programme for Research and Technological Development (FP7) is, for the time being, the main instrument to respond to Europe's needs in terms of growth and European competitiveness. FP 7 covers the entire range from basic to applied research, and represents a key pillar in the establishment of the ERA. This represents substantial opportunities for Nordic researchers. At the same time, the size and complexity of FP7 represents challenges for actors from small countries, when it comes to influencing relevant decision-making processes and mobilizing sufficient resources to fully participate.

Against this background, NordForsk has commissioned three reports to describe and analyse key aspects of Nordic research cooperation in a European context, both at the research policy and – strategy level (research responsible ministries and research councils) and the research-performing level (researchers, universities and institutes). The reports have all been developed by NIFU-Step and Technopolis in cooperation with NordForsk. This second report looks into Nordic researchers' participation in FP 7 compared to FP 6, the outcome of participation, as well as main challenges and success criteria for participation. The report provides us with some very interesting findings, and concludes with a set of policy implications and recommendations to NordForsk for Nordic level actions.

I would like to thank the author, James Stroyan from the Technopolis group, as well as the rest of the project group^I for the work on this report. Furthermore, let me also express special thanks to the Advisory Board^{II} for their very valuable input to the reports.

Oslo April 2011



Gunnel Gustafsson
Director NordForsk

I Erik Arnold (project manager), Göran Melin, Tommy Jansson from the Technopolis group, Aris Kaloudis (coordinator), Inge Ramberg and Lisa Scordato from NIFU. Marianne Røgeberg has been NordForsk's main responsible for the project.

II Carl Jacobsson (Swedish Research Council), Unni Nikolaysen (Norwegian Ministry of Research and Higher Education), Hans Müller Pedersen (Danish Agency for Science, Technology and Innovation), Eili Ervela- Myreen (Finland)

1. EXECUTIVE SUMMARY

1.1 INTRODUCTION

This report presents the findings of an analysis of Nordic participation in the EU Sixth Framework Programme (FP6) and the EU Seventh Framework Programme (FP7), focusing on the research-performing level¹. The analysis has involved the following two main elements:

A detailed analysis of the nature and extent of Nordic participation in the two FPs, based on official data provided by the European Commission. The analyses have covered levels of Nordic demand, success rates and participation within the different priority areas of the programmes. A particular focus of the analysis has been on intra-Nordic collaboration within the FPs. We have also investigated Nordic participation in new related initiatives such as Joint Technology Initiatives (JTIs), Public-Private Partnerships (PPPs) and Joint Programming Initiatives (JPIs)

A questionnaire survey of all Nordic participants in FP6 and FP7 to date, covering their motives for involvement, the benefits they have derived, their views on various features of the programmes, problems they have encountered, and strategies they have for successful participation. The questionnaire survey also explored participants' knowledge of, and involvement in, related initiatives (JTIs, PPPs, JPIs)

Analyses have been carried out at both the Nordic level and the individual country level, and by type of participating organisation. Wherever possible the data has been normalised to adjust for the different sizes of the five countries and the different scales of the programme areas in which Nordic participants have been active. This allows us to see more easily where Nordic participation has been relatively strong or weak, and which of the five countries have contributed most to that performance, given their relative size and overall level of involvement.

1.2 NORDIC PARTICIPATION IN FP6 AND FP7

The results of the study have shown that the Nordic countries have had a strong and active involvement in FP6 and FP7 to date (see Section 4.1). They have taken part in almost a third of the projects, and have accounted for almost 10% of the participations and just over 10% of the EC funding allocations. Normalising the Nordic share of funding to take account of the relative size of the Nordic countries and their RTD bases has further confirmed that performance has been strong, with the Nordic countries featuring as among the most successful when general scale factors (such as GDP and population) are used. FP funding returns to the Nordic countries appear to be less strong when RTD-related measures are used to normalise the data (e.g. GERD and FTE researchers), due to the relatively high levels of investment in RTD in the Nordic region.

Within the different FP priority areas (research fields) the Nordic countries' relative involvement rates have been highest in the Sustainable development / environment; Food; Life sciences / health; Coordination of activities; Euratom / nuclear fission; Security; and Science in Society areas (see Sections 4.1.4 and 4.1.5). The study has identified which of the Nordic countries have contributed most to the level of performance in each area. The study has also identified whether performance in each area is primarily driven by high / low levels of demand or high / low success rates within the competition (see Section 4.4). Nordic success rates have been above the FP6 and FP7 averages, overall and in most of the priority areas. This information should be of utility to Nordic and national-level policymakers in judging whether demand, success rates and involvement levels are above or below the expected levels, given their own understanding of national and Nordic research strengths, and should enable them to take

1 Analyses carried out at the policy and strategy levels and the results of interviews with FP participants at the research level are presented in Policy Brief 2.

corrective action where necessary.

Nordic participants in FP6 and FP7 have taken an active, often central or major role, in their FP projects (see Section 4.1.5). Nordic coordinator rates are above the overall averages for FP6 and FP7 and the amount of EC funding received per participation is higher for the Nordic countries than the average amounts received across all FP projects and by other participants in Nordic projects.

Nordic participants have signalled that both FP6 and FP7 priority areas, calls and instruments have been of high relevance (see Section 4.3). In most cases the FPs have helped to support the implementation of participants' institutional research strategies, and most participants have adjusted their own research strategies to some extent in order to bring them more into alignment with the opportunities offered through the FPs. Almost half of Nordic participants have also taken steps to influence the work programmes and calls to ensure a good alignment with their own interests. A range of mechanisms for doing this have been identified and judged, based on the feedback obtained, on their relative effectiveness. Most of the actions taken were rated as of medium-high effectiveness. Conversely, a majority of Nordic FP participants feel that Nordic agencies' and representatives' efforts to influence the programmes have been either not effective or only effective to a small extent. Furthermore, many participants are not aware of actions being taken by Nordic representatives to influence the programmes, so it is clear that more could be done to raise the visibility and possibly also the effectiveness of measures in this area. Many commentators believe that steps should be developed to improve coordination and communication between relevant agencies, and significant numbers believe that a coordinated Nordic strategy for FP engagement should be developed and implemented. This should be based around collective action in areas of Nordic strength, and go hand in hand with better alignment between national, Nordic and EU-level RTD funding and support. It also appears necessary for Nordic-level agencies and representatives to raise their visibility.

1.3 NORDIC COLLABORATION IN FP6 AND FP7

A focus of the study has been on Nordic collaboration within the FPs and we have found that there is a very high level of Nordic collaboration, well above the 'normalised' levels (see Section 4.4.6). Almost half of the FP6 and FP7 projects with Nordic participation involved Nordic collaboration, and Nordic collaboration levels between each pairing of countries runs at between two and three times the normalised rate. For some of the countries (e.g. Iceland and Norway) the collaboration rates were far higher (up to six times the normalised level). Based on these analyses Norway and Iceland collaborate most strongly, followed by Sweden and Finland, as compared to normalised levels of collaboration. Our analyses have also highlighted the strongest relative collaboration patterns (i.e. pairings) between the Nordic countries in each of the FP6 and FP7 priority areas. This information should be useful in determining whether the patterns of collaboration meet expectations and whether any expected strong collaborations are not present, possibly prompting the need for further investigation / action.

Nordic participants' most important collaboration partners tend to be based in Germany, the United Kingdom and France, although Sweden, Finland, Denmark and Norway all feature among the 'top ten' country of origin for each of the Nordic countries' most important collaboration partners. Almost half of the Nordic participants in FP6 and FP7 have actively sought out other Nordic partners for their projects, citing cultural factors, geographic proximity, expertise and shared (often Nordic) interests as their primary motives for doing this. However, a minority of participants believe that a Nordic focus is not desirable, as the best (i.e. most capable) partners should be sought no matter where they are based.

The vast majority of Nordic participants in FP6 and FP7 have accessed some form of support at the institutional or national-level. A wide range of suggestions have been put forward as

ways in which such support can be enhanced, many of which ask for improvements to existing services. There appears to be good potential for Nordic agencies to play a role in identifying and sharing good practice in support provision across the Nordic region.

1.4 OUTCOMES OF PARTICIPATION

The findings of the study have shown that the motives for participation in the FPs are broadly the same across the different countries and the different participant groups, and relate primarily to the acquisition of research funding, the strengthening and expansion of networks and the development of new knowledge. The more commercial motives for involvement are emphasised by only a minority of participants.

Nordic actors achieve significant benefits from the programme, largely in line with expectations (see Section 4.6). The major benefits enjoyed by participants come in the form of new and improved relationships and networks, the transfer and development of skills, capabilities, knowledge and tools, enhanced reputation and image and increased competitiveness both internationally and nationally.

For most participants the benefits of FP involvement outweigh the costs. Positive outcomes are attributed to the significant networking and knowledge benefits enjoyed, while negative outcomes tend to be attributed to the high transaction and administrative costs associated with participation.

1.5 MAIN CHALLENGES AND SUCCESS CRITERIA

The main challenges associated with FP involvement revolve around the complexity of the rules and procedures and the high administrative burden associated with the management of FP projects (see Section 4.7). These aspects attract widespread criticism but it should be noted that the majority of Nordic FP participants are either neutral or positive as regards FP procedures. The aspects that attract the most criticism include project monitoring and reporting procedures and audits, although many participants also expressed dissatisfaction with application procedures, contract negotiations, end of project sign-off and mechanisms for payment of the EC's financial contributions. It is felt that the more regular and larger participants can learn (and afford) to cope with these complexities but that small organisations and new entrants struggle disproportionately. As a result, support should be mainly focused on these groups. There appears to be a good case for Nordic agencies to (i) apply further pressure on the Commission to simplify the arrangements and (ii) explore mechanisms by which the national support systems in the Nordic countries can share and evolve best practices.

1.6 BEST PRACTICES AND LESSONS LEARNED

The study has also identified a range of strategies that participants employ to maximise the benefits of their involvement and ensure a successful outcome from their projects. These are detailed in the report (see Section 4.8) but in particular include (i) ensuring that projects are of high relevance to the programme calls and to the participants, (ii) establishing a strong team that can manage both the research and administrative aspects, (iii) ensuring strong coordination and management of the project with a clear division of labour, (iv) maintaining good communication throughout, and (v) taking all opportunities to derive value from the knowledge creation and networking opportunities presented. There is scope for Nordic agencies to ensure that such strategies are disseminated as widely as possible so that all Nordic participants can benefit from this collective experience.

1.7 NORDIC PARTICIPATION IN RELATED INSTRUMENTS

Nordic involvement in the newer initiatives such as Joint Technology Initiatives (JTIs), Joint Programming Initiatives (JPIs) and Public-Private Partnerships (PPPs) appears strong,

although the evidence as to the extent of Nordic involvement is not clear in all cases (see Section 4.9). Based on feedback obtained from FP6 and FP7 participants, their awareness of these new initiatives appears to be rather low and so it follows that more could be done to notify Nordic researchers about the opportunities that exist and provide advice and support in order to assist their involvement. Actions to raise awareness at the Nordic level could therefore be useful.

1.8 POLICY IMPLICATIONS AND RECOMMENDATIONS

In overall terms we can conclude that the Nordic countries have played and continue to play a full and active role in the Framework Programmes and perform at a good level. The main suggestions for action at the Nordic level to build on this success and maximise Nordic involvement in the FPs and the benefits derived are as follows:

- The development of a joint Nordic strategy for FP participation, identifying the areas of common interest and using this as a basis for influencing the programmes (to enhance alignment) and as the basis for promoting Nordic research capabilities in FP priority areas
- The development of improved information on Nordic-level activities and capabilities as the basis for action to strengthen Nordic collaboration. This should involve the creation and ongoing support of Nordic networks and related network activities (workshops, planning meetings, etc.) in order to boost collaborative efforts
- Increased Nordic-level representation in Brussels, in order to exert greater Nordic influence on FP planning, work programmes, calls, etc. and to increase the visibility of Nordic capabilities. Nordic agencies should use this platform as a means to apply further pressure on the Commission to simplify the administrative arrangements and to remove non-value-adding administrative and reporting requirements
- General improvement in the prioritisation and reward / incentive systems for participation in the Framework Programmes. This could include improved funding arrangements to support FP participation, involving (i) Nordic or national-level funding that is aligned to FP priorities and that can support capability-building and the subsequent continuation, dissemination and exploitation of FP activities, (ii) improved availability of matching funding for FP participation, and (iii) financial support towards the costs of proposal preparation and partnership formation
- Increased sharing of good practice between national and institutional-level support providers, and the provision of more targeted national support to new and smaller participants that lack their own institutional-level support
- Improved identification and sharing of information on successful strategies for FP participation, building on the significant experience built up by participants and national representatives

In addition we recommend that the Nordic agencies and representatives take action to increase their visibility to Nordic research communities, including clarification of their respective roles, responsibilities and activities.

Finally, we recommend that the Nordic agencies work with national agencies to increase awareness of the opportunities offered by the new instruments (JTs, JPIs, PPPs) and to share good practices and lessons learned.

2. INTRODUCTION

This paper presents the principal findings of an analysis of two key sets of data and information relating to Nordic participation in the EU Sixth Framework Programme and the EU Seventh Framework Programme (to date):

- Factual data on Nordic participation in the main FP6 and FP7 programmes, taken from the European Commission's E-CORDA database and supplemented by data from the DG RTD on Nordic participation in proposals submitted under the two FPs
- Feedback and testimony collected through a questionnaire survey of all Nordic participants in FP6 and FP7 to date

The information contained in these two data sets has been used insofar as possible to investigate, analyse and assess the key aspects of Nordic participation in FP6 and FP7 at the research-performing level. We have focused on addressing the following main areas of enquiry:

Nordic participation in the EU Sixth and Seventh Framework Programmes

Our analyses have focused on the **extent of Nordic participation in FP6 and FP7** to date, looking at project involvement rates, participation rates and funding received. The analyses have considered Nordic performance overall, by individual country, and by type of participating organisation, and have investigated relative levels of performance within the different priority areas of both FP6 and FP7 (Section 4.1)

- Analysis of the **nature of Nordic participation in FP6 and FP7**, assessing the roles played by the Nordic participants in their projects in order to judge the extent to which Nordic actors are playing a central or more peripheral role in the various activities (Section 4.1.5)
- Analysis of the **drivers for Nordic participation in the FPs**, investigating participants' motives for becoming involved, the relevance of the programmes, alignment with institutional research strategies and mechanisms for influencing the work programmes and calls. We have also gathered feedback on the use and utility of national support systems directed towards Nordic applicants and participants (Section 4.3)
- Analysis of **Nordic success rates** within the competitive bidding processes employed by the FPs. The analysis begins by looking at levels of **demand for participation** as revealed by Nordic participation in proposals and goes on to provide details of the relative success rates of the Nordic applicants in each priority area of FP6 and FP7. Levels of actual participation in FP6 and FP7 projects are then explained with reference to the interplay between levels of demand and levels of success within the appraisal and selection process (Section 4.4)
- Analysis of **Nordic collaboration within FP6 and FP7** projects, investigating the extent to which Nordic collaboration occurs above 'normalised' levels based on each country's relative level of involvement overall. The main priority areas of FP6 and FP7 where Nordic collaboration is strongest are identified, and the main features of those collaborative relationships are explored (Section 4.4.6)
- Wherever possible we have sought to place Nordic participation in FP6 and FP7 in context, by normalising the data to account for the different sizes of the countries involved, the different scales of the priority areas, and the different levels of involvement of specific groups. The full analysis of Nordic participation in FP6 and FP7 and the full results of our questionnaire survey have been written up and provided to NordForsk as an appendix to this report.

The outcomes realised as a result of participation in FP6 and FP7

- Analysis of the **principal outcomes (benefits and impacts) of FP participation**, covering the outputs sought and produced through the projects, the benefits realised, the exploitation of project results and overall cost:benefit ratios realised by Nordic participants (Section 4.6)

The main challenges and success criteria associated with FP6 and FP7

- Analysis of the main **challenges and success criteria associated with FP participation**, as revealed by Nordic participants through responses to our questionnaire survey (Section 4.7)

Best practices and lessons learned in relation to participation and achievement of outcomes

- Analysis of the **lessons learned and best practices** identified and the main recommendations put forward by Nordic participants, based on their experience of FP participation (Section 4.8)

Nordic participation in new, related instruments (EIT, JTIs, etc.)

- In addition to the analysis of Nordic participation in FP6 and FP7, information and data on **Nordic participation in related initiatives** (or ‘New instruments’) has been collected and analysed, and the key findings are presented in Section 4.9. It should be noted however that the data on Nordic participation is in some cases patchy and in others is simply not available at this point in time. The related initiatives that we have looked at include the European Institute of Technology (EIT), European Technology Platforms (ETPs), Joint Technology Initiatives (JTIs), Joint Programming Initiatives (JPIs, ERA-NETs, ERA-NET Plus, Article 169 initiatives), and Public-Private Partnerships (PPPs)

We then go on to present our conclusions and recommendations concerning Nordic participation in the EU Framework Programmes and related initiatives, based on the results obtained (Section 5).

3. METHODOLOGICAL APPROACH

The results presented in this document are based on two main elements of the work programme, namely (i) analysis of factual data on Nordic participation in the main FP6 and FP7 programmes, and (ii) design and implementation of a questionnaire survey of Nordic FP6 and FP7 participants. Further details of the methodological approach to these two elements are presented below.

3.1 ANALYSIS OF NORDIC PARTICIPATION IN FP6 AND FP7 TO DATE

Our analysis of Nordic participation in FP6 and FP7 is based primarily on data contained in the European Commission's E-CORDA database. Access to the database is provided to national authorities, and NordForsk sought permission from the Commission to use the database for this study. Once approval had been granted the full databases were transferred to Technopolis / NIFU STEP for processing.

The databases were provided in Microsoft Access format and provided complete listings of FP6 and FP7 projects and participations as follows:

- **Project lists** – All funded FP6 and FP7 projects were listed, showing the project title; acronym; contract number; specific programme; priority area; type of instrument; number of contractors; total project cost (€); EC contribution (€); contract signature date; start date; end date; duration; and activity code(s)
- **Participation lists** – All participations in FP6 and FP7 projects were listed, showing the contract number (enabling a link to project-level fields); participant organisation name; organisation ID number; role in the project; eligible costs (€); EC contribution requested (€); postal address; country code; organisation legal status; organisation activity type; organisation NUTS code; contact person name; contact person email address

In addition the FP7 E-CORDA data set provided a full list of proposals submitted under FP7 calls along with full lists of all participations in these proposals. Equivalent data for FP6 was not available through the E-CORDA database but the Commission provided a full list of Nordic participations in FP6 proposals along with summary tables on the numbers of proposals (and participations in proposals) for FP6 as a whole. These data allowed us to investigate levels of demand for participation in FP6 and FP7 by Nordic actors and to calculate their success rates within the competitions.

The data sets on the main FP6 and FP7 programmes were supplemented by data and other information on a number of related instruments / initiatives (such as ETPs, JTIs, PPPs, etc.) taken from websites. Information on Nordic participation in these initiatives was requested from the Commission but in response it was stated that such data were not available. We have therefore relied on whatever data is available from Cordis and other initiative-specific websites in order to compile a picture of Nordic involvement in these 'new' instruments.

The data sets at our disposal were transferred to Excel spreadsheets and analysed in order to produce simple statistics that show the level of Nordic participation from a number of perspectives. In most cases simple counts and frequency distributions were sufficient to reveal the extent of Nordic involvement and identify any significant differences by country. Wherever possible the Nordic participation was placed in the context of FP participation as a whole, so that the Nordic shares could be revealed. Wherever the data was used to support judgements about the relative 'performance' of the Nordic countries within the programmes the data was 'normalised' to take account of the different sizes of the countries involved, the priority areas, and so on.

3.2 QUESTIONNAIRE SURVEY OF NORDIC FP6 AND FP7 PARTICIPANTS

3.2.1 Questionnaire development

The study methodology was required to include a survey, directed to Nordic participants in FP6 and FP7. It was agreed that the questionnaire should be directed to *all* Nordic participants in the two Framework Programmes, but that these participants would only be asked to complete one copy of the questionnaire, answering on behalf of themselves or their organisation / research group, rather than in relation to a specific project.

Technopolis developed a preliminary draft of a questionnaire survey, with the question set being designed to address the various information requirements necessary for the study, 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. A copy of the full survey questionnaire can be found in the appendix to this report. It consisted of 30 core questions, covering the following main areas:

- Levels of involvement in FP6 and FP7 projects and proposals
- The relevance of FP6 and FP7 and their alignment with research strategies
- Nordic / institutional strategies for influencing the Framework Programmes and their effectiveness
- The importance of different drivers and motives for participation
- The importance of R&D and innovation outputs, and their successful delivery
- The realisation of tangible and intangible benefits / impacts, plus any negative impacts of participation
- The exploitation of project results
- Costs and benefits of participation and reasons for the (im)balance
- Project partners and roles in projects
- The international orientation of research and role of Nordic collaboration
- Feedback on FP6/7 administration and reporting
- Use and effectiveness of national FP support
- Recommendations (e.g. for influencing the FP and increasing its relevance, improving processes and national / institutional support, successfully managing involvement and maximising the benefits derived)

A draft questionnaire was submitted to NordForsk in March 2010 for comment and a small number of revisions were then made based on the feedback received. The revised questionnaire was then uploaded to a professional online survey facility and final checks and adjustments to formatting were made.

Danish participants

Technopolis had also recently undertaken a national evaluation relating specifically to Danish involvement in the Framework Programmes. This evaluation included a questionnaire survey of Danish participants, covering some of the same topics to those listed above and duplicating some questions to be used in the Nordic survey. As such, a second version of the Nordic FP questionnaire was developed for those participants in Denmark that had recently completed the Danish FP questionnaire. This shorter version covered only those questions (n=15) that had not already been posed in the previous national questionnaire.

3.2.2 Preparation of contact databases

In parallel with the development of the questionnaire, Technopolis analysed and prepared the contact information relating to Nordic participants in FP6 and FP7. The FP6 and FP7 databases showed that Nordic countries had 10,018 participations in total across the two Framework

Programmes. In most but not all cases (~8,600) the database included the name and email address of the participant. Roughly 23% of these cases related to ‘multiple’ participations by the same person, so there were in fact 6,615 individuals (or ‘participants’) who could receive the survey request. Figure 1 below shows the breakdown of numbers of contacts by Nordic country.

FIGURE 1 – SURVEY CONTACTS BY COUNTRY

	FP6 participations	FP7 participations	Total participations	Participations with email	Participants with email
Denmark	1,641	599	2,240	1,924	1,460
Finland	1,440	632	2,072	1,792	1,352
Iceland	132	60	192	172	122
Norway	1,299	467	1,766	1,484	1,175
Sweden	2,648	1,100	3,748	3,195	2,506
Nordic Total	7,160	2,858	10,018	8,567	6,615

3.2.3 Survey implementation

On Wednesday, 14 April 2010, emails were sent to the 6,615 Nordic FP6 and FP7 participants that had been identified, with a request to participate in the survey (including 348 Danish participants who had previously completed the Danish FP questionnaire and were therefore sent a request to complete the shorter version). The deadline for completion of the questionnaire was set at 7 May 2010, giving respondents nearly four weeks in which to provide a response.

Within the first few hours of the mailout a number of ‘undeliverable’ messages were received as well as several ‘out of office’ messages. In addition, some of the targeted individuals were identified as having already ‘opted out’ of receiving questionnaires distributed through our online survey tool. Taking the undeliverable and ‘opt out’ messages together, we can estimate that our request failed to reach 1,480 people, leaving us with a pool of possible respondents numbering 5,135 (including 287 possible short-survey Danish respondents).

Response rates were tracked over the period the survey was live and reminder emails were sent a few days before the deadline to all of the participants that had not responded to the survey or had not ‘opted out’ by those dates. The reminder emails restated 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.

3.2.4 Survey response rates

A total of 937 respondents provided a *useable* questionnaire return, giving an overall response rate of just over 18% (based on the 5,135 possible respondents). Figure 2 shows the number of possible and actual responses for each country and the resulting response rate. A response rate of at least 15% was achieved in each case.

FIGURE 2 – SHARE OF POSSIBLE AND ACTUAL SURVEY RESPONSES, BY COUNTRY

	Participants emailed	Possible respondents	Responses	Response rate
Denmark*	1,460	1,069	221	21%
Finland	1,352	1,045	154	15%
Iceland	122	99	24	24%
Norway	1,175	940	212	23%
Sweden	2,506	1,981	326	17%
Nordic Total	6,615	5,135	937	18%

*In addition, there were 224 responses to the original Danish survey from individuals not included in the above table (i.e. they did not respond to the new survey). Including these responses increased the total number of Danish responses to 445 and the total number of Nordic responses to 1,161 (but only for a sub-set of questions).

Although the *number* of responses varies quite considerably by country, the *distribution* of responses between countries is broadly in line with their overall share of all Nordic participations in FP6/7, as can be seen in Figure 3 below.

FIGURE 3 – SHARE OF PARTICIPATIONS AND SURVEY RESPONSES, BY COUNTRY

	FP6/7 participations	Respondents	% of all participations	% of all respondents
Denmark	2,240	221	22%	24%
Finland	2,072	154	21%	16%
Iceland	192	24	2%	3%
Norway	1,766	212	18%	23%
Sweden	3,748	326	37%	35%
Nordic Total	10,018	937	100%	100%

3.2.5 Survey analysis

The survey responses were downloaded from the online survey tool and checked prior to analysis. The responses from the three surveys (Nordic, Nordic-short, Danish) were also combined into a single set of results. The number of responses received was slightly higher than shown in the figures above, but a number of respondents were found to have only completed basic information about themselves and had not answered any of the main survey questions. These were removed prior to analysis and are not included in the numbers presented. It is also important to note that some respondents skipped certain questions and so the sample size varies between questions. The *actual* number of respondents providing an answer to a question is used as the basis of calculations within the analysis and is indicated in the heading or final column of the relevant figure.

When answering the questionnaire, respondents were asked to represent the views of their research group or organisation, as appropriate. Most participants from universities (HEIs), research institutes and large companies will therefore have answered on behalf of their research group or unit, while participants from small businesses are more likely to have answered from the perspective of their organisation as a whole. Respondents were asked to make their own choice as to what they considered as an appropriate level at which to respond. Finally, respondents were asked to answer from their own personal perspective if they felt unable to talk on behalf of their organisation or research group.

The questionnaire data was analysed in order to determine the pattern of responses for each question. In a small number of cases separate analyses were carried out by certain sub-groups of respondents. In the case of open questions, where a large number of (often 300+) detailed qualitative responses were given, we have presented summaries of this information in the

main results and then presented the comments in full under group headings in an appendix to this report.

Basic information on survey respondents

At the start of the survey questionnaire, respondents were asked to provide some basic information about themselves (their field of research), their organisation (the organisation type) and their own personal level of involvement in FP6 and FP7 (number of proposals submitted and projects participated in). A brief analysis of the responses provided is presented below.

Field of research

Respondents were asked which of a list of 10 broad areas best described their field of research and the results are presented in Figure 4 below. The figure shows that a broad range of individuals responded to the survey, covering each of the 10 fields shown. However, while some fields are well-represented (e.g. life sciences and environmental sciences, with 16%+ of respondents each), relatively few respondents classified themselves to certain other fields (e.g. mathematical sciences and humanities).

FIGURE 4 – SHARE OF RESPONSES, BY RESPONDENT’S FIELD OF RESEARCH

	Count	% of total
Life sciences (biology, biotechnology, etc.)	199	18%
Environmental sciences (earth sciences, marine science, etc.)	178	16%
IT and computer science	138	13%
Materials science and mechanical engineering	136	13%
Social sciences	126	12%
Medical sciences	116	11%
Physics and related sciences	94	9%
Chemistry and chemical engineering	59	5%
Humanities	23	2%
Mathematical sciences	16	1%
Total	1,085	1,085

Organisation type

The questionnaire also asked respondents to indicate which of a list of six organisation types best described the organisation to which they are affiliated, or to provide an alternative classification. The spread of responses showed that HEIs accounted for the largest share (41%), followed by research institutes (19%) and companies (15%). Other respondents are affiliated to public authorities or agencies (6%) and other types of organisation (4%). The distribution of responses by organisation type is broadly in line with the profile of Nordic participants in FP6 and FP7.

3.3 Appendix to Policy Brief 1 report

An appendix to this report has been prepared and includes an extended set of information developed through our analyses of the participation databases and the questionnaire results. This appendix, which stands at ~200 pages in length, has been provided to NordForsk as accompanying material to this report.

4. RESULTS

4.1 EXTENT OF NORDIC PARTICIPATION IN FP6 AND FP7

This section presents factual information about Nordic participation in FP6 and FP7, based on the European Commission's E-CORDA database.

Overall participation in FP6 and FP7 by Nordic organisations

Figure 5 and Figure 6 present overall statistics on Nordic participation in FP6 and FP7 respectively. The key features of these data are as follows:

- In FP6 the Nordic countries collectively participated in almost a third (31.6%) of the projects, made up 9.6% of the participations, and received 10.3% of the funding contributions provided by the European Commission (EC)
- In FP7 (to date) the Nordic countries have participated in a slightly lower share of the projects (28.7%) and accounted for a slightly lower share of the participations (9.4%) as compared to FP6. However, the Nordic share of EC funding contributions is slightly higher in FP7 to date (10.5%) as compared to FP6
- At an individual level the five Nordic countries have different participation rates and funding shares based largely on the relative size of their RTD communities, with Sweden occupying the largest share and Iceland the smallest
- In terms of the share of FP projects in which they were involved, four of the five Nordic countries have seen a small fall from FP6 to FP7, with Iceland being the only country that has increased its share
- The changes from FP6 to FP7 in terms of the share of all participations achieved by the Nordic countries are more varied, with Finland and Norway increasing their shares slightly, Iceland and Sweden maintaining theirs, and Denmark seeing a small decline in its share
- In terms of the share of all FP funding allocations, three of the five Nordic countries saw a small decrease in their share from FP6 to FP7, the exceptions being Finland and Sweden, both of which have an increased share of FP7 funding (to date) as compared to FP6

It should be noted, however, that FP7 is still underway and continues to issue calls for proposals and make new funding decisions in relation to those calls. It is therefore likely that a slightly different level of performance in FP7 may be achieved by the Nordic countries by the time that programme comes to a close. These results should therefore be treated as provisional.

FIGURE 5 – NORDIC PARTICIPATION IN FP6 – OVERALL STATISTICS

Country	No. of projects	Share of projects	Participations	Share of participations	EC funding	Share of EC funding
Denmark	1,121	11.1%	1,641	2.2%	€ 395,766,034	2.4%
Finland	1,008	10.0%	1,440	1.9%	€ 342,386,630	2.1%
Iceland	103	1.0%	132	0.2%	€ 24,099,497	0.1%
Norway	845	8.4%	1,299	1.7%	€ 284,071,608	1.7%
Sweden	1,717	17.1%	2,648	3.6%	€ 677,153,972	4.1%
Nordic 5	3,183	31.6%	7,160	9.6%	€ 1,723,477,741	10.3%

Source: FP6 participation data (E-CORDA, December 2009)

FIGURE 6 – NORDIC PARTICIPATION IN FP7 – OVERALL STATISTICS

Country	No. of projects	Share of projects	Participations	Share of participations	EC funding	Share of EC funding
Denmark	467	9.1%	599	2.0%	€ 202,186,165	2.2%
Finland	439	8.6%	632	2.1%	€ 227,724,060	2.5%
Iceland	57	1.1%	60	0.2%	€ 15,303,374	0.2%
Norway	330	6.5%	467	1.5%	€ 138,194,678	1.5%
Sweden	771	15.1%	1,100	3.6%	€ 387,329,807	4.2%
Nordic 5	1,464	28.7%	2,858	9.4%	€ 970,738,085	10.5%

Source: FP7 participation data (E-CORDA, December 2009)

4.1.2 Nordic FP6 and FP7 funding in context

While it is relatively easy to identify each Nordic country’s level of involvement in FP6 and FP7, these data alone do not tell us a great deal about whether the participation levels or amounts of funding received are indicative of strong or weak performance. In order to begin to make such judgements, it is necessary to normalise the data in order to take account of the different sizes of the countries involved and the differing scales of their RTD communities.

Many national evaluations ask the question of whether the relative share of funding received from the FPs is above, in line with, or below a notional ‘expected’ level based on that country’s relative share of **GDP**. This tends to be the preferred indicator, as GDP is used as the basis for deciding each country’s relative contribution to the EU budget from which FP funding is derived. In 2004 (i.e. at the mid-point of FP6), the Nordic countries’ share of EU GDP (out of the 25 Member States + Norway and Iceland) was 8.0%. The Nordic countries’ share of FP6 funding allocations to the EU-25+IS+NO was 11.1%, so on this basis their level of return was (+40%) higher than we might have expected given their share of EU GDP (8.0%).

Figure 7 shows how each of the Nordic countries and the Nordic 5 as a whole performed based on their FP6 funding, factored by GDP.

Figure 8 shows how each of the Nordic countries and the Nordic 5 as a whole performed based on their FP7 funding, again factored by GDP. The main features of the data presented in the two figures are as follows:

- The Nordic 5 have performed reasonably well within FP6 and FP7 based on their share of the EC funding factored by the size of their GDP. In both of the programmes the share of funding achieved is higher than we might have expected based on their share of GDP
- Looking at the Nordic countries individually, four of the five countries occupy ranked positions within the top half of the list, achieving funding shares between 40% and 64% above the ‘expected’ levels in FP6 and between 33% and 128% above the ‘expected’ levels in FP7. Norway is the exception, achieving funding shares 5% and 32% below the ‘expected’ levels in FP6 and FP7 respectively
- The performance of the Nordic 5 collectively in FP7 to date is slightly stronger than that achieved in FP6, as signified by the overall ranked position of the Nordic 5 in the two programmes (6th in FP7 out of 25 countries as compared to 8th in FP6 out of 23 countries). However, the ratio of FP funding share to GDP share for the Nordic 5 as a block has remained broadly the same from FP6 to FP7
- Two of the Nordic countries (Iceland and Finland) have improved their funding ratios and ranked positions from FP6 to FP7, and two other countries (Denmark and Norway) have seen their funding ratios and ranked positions decline. Sweden has improved its funding ratio from FP6 to FP7 but only at a level sufficient to maintain its position out of the countries featured. It is not appropriate to draw any firm conclusions at this time about these changes as FP7 is ongoing and the situation may well change significantly as further rounds of funding decisions are made

FIGURE 7 – NORDIC FUNDING ACHIEVED FROM FP6 – FACTORED BY GDP

Country	FP6 funding (€ million)	Share of EU25+IS & NO FP6 funding	Share of EU25+IS & NO GDP (2004)	Ratio of share of FP6 funding to share of GDP	Rank out of 27 countries ²
Denmark	396	2.6%	1.8%	140%	11 th
Finland	342	2.2%	1.4%	156%	8 th
Iceland	24	0.2%	0.1%	157%	5 th
Norway	284	1.8%	1.9%	95%	18 th
Sweden	677	4.4%	2.7%	164%	4 th
Nordic 5	1,723	11.1%	8.0%	140%	8th

Sources: FP6 participation data (E-CORDA, September 2009) and Eurostat (GDP data)

FIGURE 8 – NORDIC FUNDING ACHIEVED FROM FP7 – FACTORED BY GDP

Country	FP7 funding (€ million)	Share of EU27+IS & NO FP7 funding	Share of EU27+IS & NO GDP (2008)	Ratio of share of FP7 funding to share of GDP	Rank out of 29 countries ³
Denmark	202	2.4%	1.8%	133%	12 th
Finland	228	2.7%	1.4%	189%	3 rd
Iceland	15	0.2%	0.1%	228%	2 nd
Norway	138	1.6%	2.4%	68%	23 rd
Sweden	387	4.6%	2.6%	180%	4 th
Nordic 5	971	11.6%	8.3%	139%	6th

Sources: FP7 participation data (E-CORDA, September 2009) and Eurostat (GDP data)

A number of other ways to ‘normalise’ the FP funding achieved by the Nordic countries have been explored. The features of the countries that have been used to normalise the data are (i) population, (ii) Gross Expenditure on R&D (GERD), and (iii) the number of full-time equivalent (FTE) researchers. The main findings for each of these measures are as follows:

- In both FP6 and FP7 (to date) the Nordic 5 (as a group) were ranked 1st and achieved an EC funding share that was more than twice the level we might have expected given their (collective) share of the **population**. In FP6 Iceland, Sweden and Denmark occupied the top three ranked positions on this measure and in FP7 these countries plus Finland held the four highest ranked places. It is therefore clear that when judged against the size of their populations the Nordic countries have achieved very high levels of funding under both FP6 and FP7, indicating a very strong performance overall
- Despite their relatively small population sizes, the Nordic countries have a relatively high level of investment in R&D. As a result, our analysis of the Nordic countries’ share of FP funding against their share of **Gross Expenditure on R&D (GERD)** revealed a rather different perspective on their performance within the FPs, with the Nordic countries performing relatively poorly. In FP6 all of the Nordic countries were ranked low on this measure (between 18th and 24th out of the 27 countries included in the analysis) and in FP7 only Iceland managed to achieve a ‘mid-table’ position, with the other four Nordic

2 In calculating the ranked position of the Nordic 5 (collectively) in FP6 we treated the five countries as a single entity and ranked the Nordic 5 alongside the remaining 22 countries. The overall ranked position of 8th for the Nordic 5 overall should therefore be taken as 8th out of 23 countries rather than 8th out of 27 countries

3 In calculating the ranked position of the Nordic 5 (collectively) in FP7 we treated the five countries as a single entity and ranked the Nordic 5 alongside the remaining 24 countries. The overall ranked position of 6th for the Nordic 5 overall should therefore be taken as 6th out of 25 countries rather than 6th out of 29 countries

countries appearing close to the bottom of the list (ranked between 22nd and 27th out of the 29 countries included). This raises the question as to whether, when viewed in these terms, the Nordic countries are performing at a sufficiently high level or whether corrective action is needed at either the Nordic or the national level. There is no easy answer to this question, but it should be noted that all of the major R&D performing countries (e.g. the United Kingdom, Germany, France, Austria, etc.) appear at the foot of the table. It therefore seems that the Framework Programmes 'correct' in some way for the different levels of (national) R&D expenditure by boosting (disproportionately) R&D investment in countries that have relatively low levels of national expenditure on R&D

- The final way in which we normalised the share of FP6 and FP7 funding received by the Nordic countries was to factor it by the share of **FTE researchers** in each country. On this measure Nordic performance appears to be more reasonable, with the Nordic 5 collectively being ranked 11th in FP6 and 9th in FP7. Individually the Nordic countries were ranked between 10th and 21st in FP6 (out of 27 countries) while in FP7 they were ranked between 7th and 15th (out of 29 countries)

In conclusion, it is clear from our analyses that Nordic performance appears strong when certain 'general' measures are used to factor the results (e.g. when we place FP funding received in the context of relative shares of GDP and population) but appears less strong when more 'research' based indicators are used to factor the level of funding received (e.g. number of FTE researchers and in particular GERD). Perhaps more importantly, we can see that on most of the measures Nordic performance has strengthened slightly from FP6 to FP7.

4.1.3 Nordic FP6 and FP7 participation by type of organisation

In order to further explore the features of Nordic involvement in FP6 and FP7, analyses were conducted to review the profile of participation by type of organisation (also referred to as 'activity' type). The main findings can be summarised as follows:

- Nordic **higher education institutions** (HEIs) accounted for 43% of Nordic participations in FP6 and 45% of Nordic participations in FP7 (to date). These shares are slightly above those accounted for by HEIs within FP6 and FP7 as a whole (36% and 39% respectively), suggesting a strong performance by Nordic universities vis-à-vis the other types of organisation participating in the programme. However, we believe that this difference is mainly structural and can be explained by the fact that in the Nordic countries a greater proportion of public R&D is carried out by HEIs than by research institutes, a pattern that can also be observed in other countries (e.g. the United Kingdom)
- Nordic **industry** (private commercial businesses) accounted for 19% of Nordic participations in FP6, exactly in line with the share of participations accounted for by industry within FP6 as a whole (i.e. for all countries). In FP7 (to date) Nordic industry has accounted for 24% of Nordic participations, slightly below the 26% share accounted for by industry within FP7 as a whole. However, given that FP7 is still underway it is perhaps too early to infer much from this small deviation
- Nordic **research institutes** accounted for 23% of Nordic participations in FP6 and have accounted for 22% of Nordic participations in FP7 to date. Within FP6 and FP7 as a whole, research institutes have taken a 28% and 26% share of all participations respectively, so it is clear that within the Nordic countries the research institute sector is less present
- Finally, within the Nordic countries '**other**' types of organisation (mainly public sector bodies, NGOs, etc.) occupied a 15% share of Nordic participations in FP6 and a 10% share within FP7. Within FP6 as a whole 'other' organisations accounted for a 17% share of FP6 participations and a 9% share of FP7 participations to date. We can therefore say that Nordic involvement by 'other' organisations is broadly in line with the FP averages

It can therefore be concluded that in broad terms the profile of Nordic involvement in FP6 and FP7 by organisation type is in line with 'expected' levels, based on the profile for all countries within these two programmes. The only significant difference is that Nordic HEIs occupy a larger share of the Nordic participations and research institutes a smaller share, as compared to the overall profile for all countries. It is felt that this difference is due to the different make-up of the research base in the Nordic countries rather than as a result of a differential level of performance by these two groups.

4.1.4 Nordic participation in FP6 by priority area

FP6 was subdivided into 17 priority areas, each of which is described in terms of a specific research field or area of research activity.

Figure 9 lists the 17 FP6 priority areas and shows for each the number of Nordic projects and participations, and the volume of EC funding allocated to Nordic participants. Due to the differing scales of the different priority areas within FP6 it is not possible to draw conclusions on the performance of the Nordic 5 from this table, but in terms of numbers alone the **Information society technologies, Sustainable development** and **Human Resources and mobility** areas were the most significant, with over 400 projects, over 670 participations and in excess of €148 million in funding achieved by the Nordic countries in each. The **Human resources and mobility** priority area dominated in terms of the number of projects, whereas **Sustainable development** accounted for the highest number of Nordic participations and the highest amount of allocated funding.

FIGURE 9 – NORDIC FP6 PROJECTS, PARTICIPATIONS AND EC FUNDING, BY PRIORITY AREA

Priority area	Projects	Participations	EC funding
1. Life sciences, genomics and biotechnology	339	765	€ 283,817,435
2. Information society technologies	488	1,174	€ 317,976,592
3. Nanotechnologies and nanosciences	218	527	€ 157,588,038
4. Aeronautics and space	106	193	€ 56,580,018
5. Food quality and safety	105	379	€ 128,218,701
6. Sustainable development	403	1,293	€ 332,870,316
7. Citizens and governance	92	202	€ 28,646,595
Policy support / S&T needs	269	516	€ 68,054,279
Horizontal research activities – SMEs	226	560	€ 52,984,645
Support for international cooperation	67	98	€ 18,296,017
Research and innovation	86	179	€ 25,941,577
Human resources and mobility	522	673	€ 148,039,018
Research infrastructures	70	144	€ 45,976,273
Science and society	61	95	€ 7,787,630
Support for the coordination of activities	71	208	€ 33,855,710
Development of R&I policies	11	16	€ 1,040,647
Euratom	49	138	€ 15,804,250
Total	3,183	7,160	€ 1,723,477,741

Source: FP6 participation data (E-CORDA, September 2009)

In order to place the raw numbers shown in Figure 9 into context, Nordic 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 10, and arrows (↑↓↔) have been used to symbolise whether the Nordic 5 has performed comparatively strongly or less well in each area, as compared to Nordic overall performance in FP6. For example, across FP6 as a whole the Nordic 5 accounted for 9.6% of the

participations, so we can say that a participation rate of 9.0% in the **Nanotechnologies and nanosciences** area is ‘close to average’ (↔) while involvement in 11.2% of **Life sciences** participations is ‘above’ average (↑).

The results indicate that Nordic project involvement rates were highest in the **Support for the coordination of activities** (70%), **Euratom** (63%), and **Citizens and governance** (63%) priority areas. These areas tend to be associated with larger projects involving participants from many countries, so the high project involvement rates are attributable mainly to the nature of the instruments used in these areas.

The relative shares of participations and funding tend to be better indicators of performance, as the types of instruments used to implement the priorities exert less of an influence. On these two measures the Nordic countries have been strongest in the **Support for the coordination of activities**, **Food quality and safety**, and **Sustainable development** areas. In addition, the Nordic block has performed well in terms of participation in **Policy support**, **Euratom**, **Horizontal research activities (SMEs)** and **Human Resources and mobility** actions.

FIGURE 10 – NORDIC FP6 PROJECTS, PARTICIPATIONS AND EC FUNDING, EXPRESSED AS A SHARE OF FP6 TOTALS, BY PRIORITY AREA

Priority area	Project share	Participation share	EC funding share
1. Life sciences, genomics and biotechnology	57%↑	11.2%↑	12.1%↑
2. Information society technologies	45%↑	8.2%↓	8.4%↓
3. Nanotechnologies and nanosciences	49%↑	9.0%↔	10.3%↔
4. Aeronautics and space	44%↑	5.5%↓	5.3%↓
5. Food quality and safety	57%↑	11.8%↑	17.1%↑
6. Sustainable development	61%↑	12.4%↑	14.5%↑
7. Citizens and governance	63%↑	10.4%↔	11.7%↑
Policy support / S&T needs	52%↑	11.2%↑	11.3%↔
Horizontal research activities - SMEs	46%↑	10.3%↔	11.0%↔
Support for international cooperation	20%↓	3.9%↓	5.2%↓
Research and innovation	36%↑	9.7%↔	11.5%↑
Human resources and mobility	11%↓	8.0%↓	8.8%↓
Research infrastructures	45%↑	7.8%↓	6.3%↓
Science and society	38%↑	9.3%↔	10.0%↔
Support for the coordination of activities	70%↑	17.3%↑	11.8%↑
Development of R&I policies	58%↑	9.5%↔	7.6%↓
Euratom	63%↑	11.6%↑	8.5%↓
Total	31.6%	9.6%	10.3%

Source: FP6 participation data (E-CORDA, September 2009)

Additional analyses were conducted to calculate the share of all participations achieved by each of the five Nordic countries in each of the priority areas. This information can help us to understand which of the five Nordic countries have been responsible for the level of Nordic performance identified. Figure 11 lists the 17 FP6 priority areas in ranked order (based on the Nordic share of all participations) and also shows the ranked position of each priority area for each individual country, based on that country’s share of all FP6 participations. It shows that in some cases a high ranked position for the Nordic 5 overall can be attributed to a strong performance by all or most of the Nordic countries within that priority area. This is the case for **Support for the coordination of activities** and **Sustainable development**. However, in other ‘strong’ areas just one or two countries drive the performance. This is the case in **Food quality and safety** (with Denmark, Iceland and to a lesser extent Norway driving the result)

and in **Euratom** (where Finland and Sweden are the key players). In the **Life sciences** area Sweden and Denmark are the two Nordic countries with relatively high levels of participation.

Elsewhere in the table we can see that certain Nordic countries have major strengths in specific priority areas but there is relatively low involvement by the other Nordic countries, leading to a position where the priority area is ranked fairly low for the Nordic 5 as a whole. This is the case in the **Nanotechnologies and nanosciences** area where Finland accounted for a relatively high share of the participations (Finland's third highest share) but where the other four Nordic countries did not feature particularly strongly. A similar pattern is found in the **Information society technologies** area, ranked 5th for Finland in terms of its relative share of all FP6 participations but ranking fairly low for the other Nordic countries.

FIGURE 11 – NORDIC COUNTRIES' (RANKED) SHARE OF ALL FP6 PARTICIPATIONS, BY PRIORITY AREA

Nordic rank	Priority area	DK rank	FI rank	IS rank	NO rank	SE rank
1	Support for the coordination of activities	3	1	1	1	3
2	Sustainable development, global change and ecosystems	4	7	5	3	5
3	Food quality and safety	1	13	4	6	14
4	Euratom	16	2	15	11	1
5	Life sciences, genomics and biotechnology for health	5	9	8	16	2
6	Policy support & anticipating scientific and technological needs	2	6	6	7	12
7	Citizens and governance in a knowledge-based society	7	11	13	5	10
8	Horizontal research activities involving SMEs	8	8	3	4	16
9	Research and innovation	11	4	2	8	15
10	Support for the coherent development of R&I policies	14	16	15	2	4
11	Science and society	6	10	9	13	9
12	Nanotechnologies and nanosciences	10	3	14	14	8
13	Information society technologies	12	5	11	10	13
14	Human resources and mobility	9	14	7	12	11
15	Research infrastructures	13	12	12	9	7
16	Aeronautics and space	17	17	15	15	6
17	Specific measures in support of international cooperation	15	15	10	17	17

Source: FP6 participation data (E-CORDA, September 2009)

4.1.5 Nordic participation in FP7 by priority area

FP7 is structured into a total of 22 priority areas. Figure 12 shows the number of Nordic projects and participations, and the volume of EC funding allocated to date, in each. The figure shows that the **Information and Communications Technologies** and **Health** areas have been the most significant to date in terms of raw numbers, with over 190 projects, over 380 participations and in excess of €170 million in funding achieved by the Nordic countries in each area. The **European Research Council**, **Environment, Nanosciences and nanotechnologies** and **Marie Curie actions** are also significant areas in monetary terms with in excess of €60 million achieved by the Nordic participants in each area to date.

FIGURE 12 – NORDIC FP7 PROJECTS, PARTICIPATIONS AND EC FUNDING, BY PRIORITY AREA

Priority area	Projects	Participations	EC funding (€ million)
Energy	51	124	47.0
Environment (including Climate Change)	98	221	64.0
Food, Agriculture, and Biotechnology	83	174	55.1
General Activities (Annex IV)	6	9	10.1
Health	192	388	170.0
Information & Communication Technologies	257	485	184.2
Nanosciences and Nanotechnologies	98	242	81.7
Security	38	79	25.3
Socio-economic Sciences and Humanities	53	82	13.7
Space	10	35	11.3
Transport (including Aeronautics)	91	180	50.7
Activities of International Cooperation	8	14	1.3
Coherent development of research policies	5	8	1.0
Regions of Knowledge	8	17	1.6
Research for the benefit of SMEs	76	170	23.4
Research Infrastructures	72	162	43.6
Research Potential	1	1	0.2
Science in Society	34	65	7.5
Marie Curie Actions	191	279	60.3
European Research Council	71	73	113.1
Fusion Energy	2	5	0.3
Nuclear Fission and Radiation Protection	19	45	5.1
Total	1,464	2,858	970.7

Source: FP7 participation data (E-CORDA, December 2009)

In order to place the raw numbers shown in Figure 12 into context, Nordic projects, participations and EC funding have once again been expressed as a share of the FP7 totals for each priority area. The results are shown in Figure 13, and arrows (↑↓↔) have again been used to symbolise whether the Nordic 5 has performed comparatively strongly or less well in each area, as compared to Nordic overall performance in FP7. The results indicate that Nordic project involvement rates were highest in the **Security** (76%), **Environment** (71%), **Food, Agriculture and Biotechnology** (68%) and **Fusion energy** (67%) priority areas. These areas tend to be associated with larger projects involving participants from many countries, so the strong performance is in part due to structural reasons.

As regards the Nordic share of *participations*, the FP7 areas where performance has been best to date are **Security** (13.6%), **Coherent development of research policies** (13.1%), **Science in Society** (12.0%) and **Environment** (12.0%). As regards the Nordic share of *funding*, the FP7 areas where performance has been best to date are **Environment** (16.3%), **Security** (15.5%), **Energy** (14.5%), **Food, Agriculture, and Biotechnology** (14.2%) and **Science in Society** (14.1%).

FIGURE 13 – NORDIC FP7 PROJECTS, PARTICIPATIONS AND EC FUNDING, EXPRESSED AS A SHARE OF FP7 TOTALS, BY PRIORITY AREA

Priority area	Project share	Participation share	EC funding share
Energy	48.6%↑	11.0%↑	14.5%↑
Environment (including Climate Change)	71.0%↑	12.0%↑	16.3%↑
Food, Agriculture, and Biotechnology	68.0%↑	10.7%↔	14.2%↑
General Activities (Annex IV)	42.9%↑	11.5%↑	9.8%↔
Health	59.1%↑	11.8%↑	13.8%↑
Information & Communication Technologies	43.6%↑	8.6%↔	9.1%↔
Nanosciences and Nanotechnologies	51.3%↑	9.9%↔	10.9%↔
Security	76.0%↑	13.6%↑	15.5%↑
Socio-economic Sciences and Humanities	53.0%↑	9.8%↔	10.3%↔
Space	47.6%↑	8.1%↔	5.9%↓
Transport (including Aeronautics)	49.7%↑	7.3%↓	7.4%↓
Activities of International Cooperation	25.8%↔	4.7%↓	3.4%↓
Coherent development of research policies	45.5%↑	13.1%↑	8.4%↓
Regions of Knowledge	24.2%↔	5.4%↓	7.6%↓
Research for the benefit of SMEs	43.4%↑	10.2%↔	11.2%↔
Research Infrastructures	52.2%↑	7.8%↓	6.5%↓
Research Potential	1.2%↓	0.7%↓	0.3%↓
Science in Society	47.9%↑	12.0%↑	14.1%↑
Marie Curie Actions	9.4%↓	7.3%↓	8.7%↓
European Research Council	10.9%↓	10.2%↔	11.6%↔
Fusion Energy	66.7%↑	7.8%↓	5.4%↓
Nuclear Fission and Radiation Protection	59.4%↑	10.3%↔	5.7%↓
Total	28.7%	9.4%	10.5%

Source: FP7 participation data (E-CORDA, December 2009)

Additional analyses were conducted to calculate the share of all participations achieved by each of the five Nordic countries in each of the priority areas.

Figure 14 lists the 22 FP7 priority areas in ranked order (based on the Nordic share of all participations) and also shows the ranked position of each priority area for each individual country, based on that country's share of all FP7 participations. The data show that in some cases a high ranked position for a particular priority for the Nordic 5 overall can be attributed to a strong performance by several of the Nordic countries, but generally no more than three. This is the case for **Security** (Finland, Norway and Sweden), **Coherent development of research policies** (Iceland, Sweden and Finland) and **Environment** (Iceland, Norway and Denmark). In other areas, however, primarily one or two countries drive the strong 'Nordic' performance. This is the case in **General Activities (Annex IV)** (with Finland and Norway driving the result) and in **Energy** (where Finland and Sweden are the key players).

Elsewhere in the table we can once again see that certain Nordic countries have major strengths in specific priority areas but there is relatively low involvement by the other Nordic countries, leading to a position where the priority area is ranked fairly low for the Nordic 5 as a whole. This is particularly the case in the **Research for the benefit of SMEs** area where Norway accounted for a relatively high share of the participations (Norway's highest share) but where the other four Nordic countries did not feature particularly strongly. Even further down the list we can note for example that the **Transport** priority area, as might be expected, was of some significance for Sweden (this area was ranked 7th in terms of its participation share) but featured well down the list for the other four Nordic countries.

FIGURE 14 – NORDIC COUNTRIES’ (RANKED) SHARE OF ALL FP7 PARTICIPATIONS, BY PRIORITY AREA

Nordic rank	Priority area	DK rank	FI rank	IS rank	NO rank	SE rank
1	Security	14	2	15	4	4
2	Coherent development of research policies	20	4	1	20	1
3	Science in Society	6	15	3	6	6
4	Environment (including Climate Change)	3	17	2	3	11
5	Health	5	9	4	13	3
6	General Activities (Annex IV)	16	1	15	2	20
7	Energy	1	16	12	5	14
8	Food, Agriculture, and Biotechnology	4	11	6	8	12
9	Nuclear Fission and Radiation Protection	19	3	15	19	2
10	European Research Council	12	6	11	18	5
11	Research for the benefit of SMEs	8	21	7	1	16
12	Nanosciences, Nanotechnologies, Materials etc.	7	10	13	12	9
13	Socio-economic Sciences and Humanities	10	12	5	9	10
14	Information and Communication Technologies	17	7	14	14	8
15	Space	9	14	10	7	17
16	Fusion Energy	2	5	15	20	19
17	Research Infrastructures	15	13	9	10	15
18	Transport (including Aeronautics)	18	19	15	16	7
19	Marie Curie Actions	13	20	8	15	13
20	Regions of Knowledge	11	8	15	20	21
21	Activities of International Cooperation	20	18	15	11	18
22	Research Potential	20	22	15	17	22

Source: FP7 participation data (E-CORDA, December 2009)

4.2 NATURE OF NORDIC PARTICIPATION IN FP6 AND FP7

This section presents information on the roles played by Nordic participants within their FP projects.

4.2.1 Coordinator rates

Participants in the Framework Programmes can occupy the role of project coordinator or are otherwise listed simply as one of the participants.

Analysis of Nordic FP6 participations reveals that the Nordic partner occupied the role of project coordinator in 862 cases.

This means that the Nordic participants were in a coordinating role for 12% of all Nordic FP6 participations, slightly below the FP6 average of 14%. In FP7 Nordic participants occupied the role of project coordinator in 452 cases. This means that the Nordic participants were in a coordinating role for 16% of all Nordic FP7 participations, which is again slightly below the FP7 average of 17%.

Analysis of the activity (organisation) type of the Nordic coordinators in FP6 revealed that HEIs and research institutes were most likely to fulfil the role of coordinator, occupying the position of coordinator in 16% and 11% of participations respectively. Industry participants were coordinators in 6% of their participations, while for ‘other’ organisations the figure was 10%. These coordinator ratios were roughly in line with the FP6 profile in all apart from research institutes whose coordinator ratio was much lower than the overall FP6 pattern (17%) would suggest.

In FP7 Nordic coordinator rates were roughly in line with the FP7 averages for HEIs, public bodies and research institutes. Nordic industry occupied a higher than average share of

coordinator roles (18%) as compared to the FP7 average (15%), while ‘others’ occupied a lower share (14%) than the FP7 average (19%).

An analysis of Nordic coordination rates in FP6 and FP7 (to date) by country is shown in Figure 15. It reveals that in FP6 Iceland had the highest coordination rates of the five (14%), followed by Denmark (13%) and then Sweden (12%). In FP7 to date Iceland has again achieved the highest coordination rates (22%), significantly above the other four Nordic countries, each of which has coordinator rates (to date) of between 15% and 16%.

FIGURE 15 – NORDIC PROJECT COORDINATION RATES IN FP6 AND FP7, BY COUNTRY

	Denmark	Finland	Iceland	Norway	Sweden	Nordic	Overall FP
FP6	13%	11%	14%	11%	12%	12%	14%
FP7	15%	16%	22%	16%	16%	16%	17%

4.2.2 Typical roles played by Nordic organisations or research groups

Respondents to our questionnaire survey were asked to indicate the extent to which their organisation or research group has typically played different roles in the design and implementation of their FP6/7 projects. This information helps us to understand whether the Nordic partners have a central role or whether they are involved more at the periphery of activities.

The results obtained are shown in Figure 16 and indicate that the majority of Nordic participants have typically occupied either the primary role or a major role with regard to most aspects of their projects, with the exception being (i) defining the size and membership of the consortium, (ii) involvement in research training, and (iii) negotiating the IPR arrangements, where Nordic organisations more commonly play a minor role. Of course, there may be an inherent bias here in that participants will tend to see the role that they have played as significant to some degree.

FIGURE 16 – NORDIC PARTICIPANTS’ ROLES IN ASPECTS OF THEIR FP PROJECTS (N=811-919)

Aspect	No role	Minor role	Major role	Primary role
Carrying out research	5%	16%	50%	29%
Defining the content and scope of the project	4%	23%	50%	24%
Defining the objectives of the project	4%	25%	43%	27%
Disseminating project results / knowledge transfer	3%	30%	49%	18%
Planning / coordinating future research	9%	30%	42%	18%
Exploiting the results of the project	8%	36%	40%	16%
Defining the size and membership of the consortium	15%	41%	29%	15%
Involvement in research training	20%	42%	30%	9%
Negotiating the IPR arrangements	30%	39%	21%	10%

Excludes ‘don’t know / not applicable’ responses

Analysis of the results by country did not reveal any significant differences between the five as to the overall extent of their involvement in FP projects. The only notable difference at the level of the different aspects of the projects was in the case of Iceland, where its participants were more likely to have a central role in the dissemination and exploitation of the project results and more likely to have a less central role in definition of the research.

Analysis of the results by type of organisation revealed that research institutes typically occupied a more central role in their projects than the other categories of participant, across most of the aspects highlighted. HEIs were the next most centrally involved, followed by industry. Some variations within this general pattern were evident, with ‘others’ playing a

more central role in the dissemination of project results, and industry playing a major role in the negotiation of IPR arrangements and in the exploitation of the research results. HEIs were most active in research training.

4.2.3 Nordic funding as an indicator of the role played by Nordic participants

In FP6 Nordic participants were assigned an average amount of €240,700 in EC funding per participation, which is 7% above the average amount of funding assigned for all participations across FP6 as a whole (€224,000). Further analysis revealed that the average funding rates achieved by the Nordic countries were higher than the FP6 average in 12 of the 17 priority areas. The average amount of funding assigned to the Nordic participants for each of their participations was also slightly (+2%) above the average amount assigned to all participants in Nordic projects.

In FP7 (to date) Nordic participants have been assigned an average amount of €339,700 in EC funding per participation, which is 12% above the average amount of funding assigned for all participations across FP7 as a whole (€302,000). Further analysis revealed that the average funding rates achieved by the Nordic countries were higher than the FP7 average in 14 of the 22 priority areas.

The average amount of funding assigned to the Nordic participants for each of their participations was also well (+17%) above the average amount assigned to all participants in Nordic projects within FP7 to date.

Together these data lend further weight to the conclusion that participants from the Nordic countries have occupied a central role in their FP6 and FP7 projects.

4.3 DRIVERS FOR NORDIC PARTICIPATION IN THE FPS

This section presents information on the drivers and motives of the participants when choosing to become involved in FP projects. It begins with an analysis of feedback obtained from Nordic participants on the relevance of FP6 and FP7 priority areas / calls and instruments, and goes on to present data on the degree of alignment between participants' research strategies and the FP priorities. Mechanisms used by participants to increase the relevance of the programmes by influencing their priorities and work programmes are then discussed. We go on to present data obtained from our questionnaire survey in relation to the key drivers and motives for involvement by Nordic participants, expressed in the form of desired outcomes and impacts associated with participation. Finally we present data on the forms of support that participants access in order to enhance their FP participation, and on the effectiveness of that support.

4.3.1 The relevance of the Framework Programmes to Nordic participants

One of the main drivers of Nordic participation in the FPs is whether the calls for proposals issued and the types of projects supported are of high relevance to Nordic RTD performers. Our survey of Nordic FP6 and FP7 participants asked respondents to rate the relevance of the research topics / priority areas and calls covered and the forms of support (instruments) employed in both FP6 and FP7. The responses are shown in Figure 17 below.

The majority of respondents (51%+) rated *both* features in *both* FPs as of 'high' or 'very high relevance', with most of the remaining respondents giving a 'medium relevance' rating in each case. The spread of responses is largely consistent across the two features and two FPs, although there is some suggestion that the topics / priority areas and calls in both FPs are found more highly relevant than the instruments. However, while the 'average' relevance of topics / areas and calls appears to have fallen slightly from FP6 to FP7, the average relevance rating for instruments appears to have increased slightly. However, these differences are minimal.

FIGURE 17 – RELEVANCE OF FEATURES OF FP6 AND FP7 (N=944-992)

	Very low	Low	Medium	High	Very high
The relevance of FP6 research topics / priority areas and calls	2%	7%	29%	43%	19%
The relevance of FP6 instruments	3%	11%	35%	38%	13%
The relevance of FP7 research topics / priority areas and calls	2%	7%	30%	43%	17%
The relevance of FP7 instruments	2%	8%	34%	43%	12%

Closer analysis of individual responses suggests that in most cases, the view of individuals does not shift significantly between FP6 and FP7. Of the 910 respondents rating the relevance of topics / areas in FP6 *and* FP7, two-thirds (63%) provided the same rating for both, while only 20% gave a higher rating to FP6 and 17% gave a higher rating to FP7. Similarly, the majority (64%) of 891 respondents rating the relevance of instruments in FP6 *and* FP7 gave the same rating to both, while 15% rated FP6 higher and 21% rated FP7 higher. As such, the overall picture above, which shows minimal differences in the overall ratings between FP6 and FP7 is not masking a large ‘churn’ of individuals responding low / high for FP6 and then high / low for FP7.

Figure 18 below shows a summary of relevance ratings given by respondents from each of the five **Nordic countries**, with an ‘average’ relevance rating used to aid comparison. To calculate the average, each response has been allocated a score from 1 (very low) to 5 (very high), and an average relevance score then calculated for each country and for each feature of FP6 and FP7.

For *all* Nordic respondents, the average rating for each of the four features is between 3.5 and 3.7 in each case, equivalent to a rating of ‘medium’ to ‘high relevance’. Research topics in both FP6 and FP7 achieve a slightly higher relevance rating (3.7) than do instruments in either FP6 (3.5) or FP7 (3.6). These results are in line with the analysis given above.

Average scores for individual countries show a similar spread of results, with the relevance of FP6/7 research topics being rated higher than FP6/7 instruments in all cases. The average rating of research topics is also the same or lower for FP7 compared to FP6 in each case, while the average rating of instruments is also the same or higher for FP7 compared to FP6 in each case (as was found for all Nordic respondents). Average responses from both Finland and Iceland are below the Nordic average for each feature, but the difference is very small, and there are otherwise few significant differences between the responses from different countries.

FIGURE 18 – ‘AVERAGE’ RELEVANCE OF FEATURES OF FP6 AND FP7, BY COUNTRY

	Denmark (377-389)	Norway (167-185)	Sweden (253-272)	Finland (119-127)	Iceland (21)	Nordic Total (n=944-992)
The relevance of FP6 research topics / priority areas and calls	3.7	3.7	3.7	3.6	3.6	3.7
The relevance of FP6 instruments	3.6	3.4	3.4	3.3	3.3	3.5
The relevance of FP7 research topics / priority areas and calls	3.6	3.7	3.7	3.6	3.5	3.7
The relevance of FP7 instruments	3.6	3.5	3.5	3.5	3.3	3.6

Note that response rates from Iceland are very small, but are shown for completeness

Figure 19 shows the equivalent ‘average’ ratings assigned by each of the four main types of organisation participating in FP6 and FP7. Research institutes assigned the most positive ratings overall, and industry the least positive, but the differences were relatively small. The relevance of the FP6 instruments attracted the least positive ratings from all four types of participant, but otherwise the findings suggest a high degree of relevance for all main types of participating organisation.

FIGURE 19 – ‘AVERAGE’ RELEVANCE OF FEATURES OF FP6 AND FP7, BY TYPE OF ORGANISATION

	HEIs	Industry	Research Institutes	Other	Nordic Total
The relevance of FP6 research topics / priority areas and calls	3.7	3.6	3.8	3.7	3.7
The relevance of FP6 instruments	3.5	3.3	3.6	3.2	3.5
The relevance of FP7 research topics / priority areas and calls	3.6	3.7	3.7	3.8	3.7
The relevance of FP7 instruments	3.5	3.5	3.7	3.6	3.6

4.3.2 Alignment of institutional research strategies with FP priorities and instruments

We expect that the ‘relevance’ of the FP calls to Nordic research performers will be affected by the degree of alignment between (a) these actors’ own institutional research strategies and (b) the priorities and instruments of the FPs. Nordic participants were therefore asked to indicate:

- The extent to which FP6 and / or FP7 supported their institutional research strategy, and
- The extent to which their own organisation or research group had adjusted its research strategy to better align it with FP priorities and instruments

The share of responses to these two questions is presented in Figure 20 below. This shows that the majority of respondents (98%) believe that FP6/7 did support their research strategy, and in most cases to a ‘medium’ or ‘large’, rather than to a ‘small extent’. However, given that we surveyed FP6/7 participants it is expected that there would be a good degree of alignment between their strategies and the opportunities offered through the FPs. Fewer respondents, though still the majority (82%), also reported that they do adjust their research strategies to better align with the FP, though this was mostly to a ‘small’ or ‘medium’, rather than to a ‘large extent’.

FIGURE 20 – ALIGNMENT BETWEEN FP PRIORITIES / INSTRUMENTS AND RESEARCH STRATEGIES

	Not at all	To a small extent	To a medium extent	To a large extent	n
To what extent did FP6/7 support your research strategy?	2%	16%	45%	37%	832
To what extent have you adjusted your research strategy?	18%	39%	35%	9%	1,030

While it is difficult to attribute causality, there does appear to be a strong correlation between the responses to the two questions (i.e. between adjusting strategies to align with FP priorities / instruments and FP6/7 supporting research strategies). For example:

- Looked at one way, of those respondents reporting a poor fit (not at all / to a small extent) between FP6/7 and their research strategy (n=149), just 21% had adjusted their strategy significantly (to a medium / large extent) to align with FP priorities. By comparison, of those reporting a good fit (n=666), over half (52%) reported having adjusted their strategy significantly.
- Looked at the other way, of those respondents reporting little adjustment to their strategy to better align with the FP (n=437), three-quarters (73%) reported a good fit between FP6/7 and their research strategy. However, of those respondents reporting significant adjustment to their strategy (n=378), nearly all (92%) reported a good fit.

The responses to the two questions on alignment between FP priorities / instruments and research strategies have been analysed for each of the **Nordic countries** and the results are presented in the two tables below.

Figure 21 shows the extent to which FP6/7 supported participants’ research strategies in each country. In each case the majority of respondents (95%+) believe that FP6/7 did support their research strategy, and in most cases (77%+) to a ‘medium’ or ‘large’, rather than to a ‘small extent’. There is very little difference between the spread of responses from each

country, although there is some indication that in Denmark and Iceland, there was slightly less alignment between the FP and research strategies than in other countries.

FIGURE 21 – EXTENT TO WHICH FP6/7 SUPPORTED PARTICIPANTS’ RESEARCH STRATEGIES, BY COUNTRY

	Not at all	To a small extent	To a medium extent	To a large extent
Denmark (n=198)	2%	20%	43%	36%
Finland (n=132)	2%	15%	50%	33%
Iceland (n=22)	5%	18%	45%	32%
Norway (n=193)	2%	15%	44%	40%
Sweden (n=287)	2%	16%	45%	37%
Nordic Total (n=832)	2%	16%	45%	37%

Note that response rates from Iceland are very small, but are shown for completeness

Similarly, Figure 22 below shows the extent to which participants’ organisations or research groups in each country adjusted their research strategies to better align with FP priorities and instruments. The majority of respondents (75%+) in each country reported that they do adjust their research strategies to better align with the FP. However, there are some differences in the spread of responses from participants in different countries. In particular, the proportion of Danish respondents reporting that they adjusted their strategies to a medium or large extent (35%) is well below the Nordic average (43%), while the proportion of respondents from Finland (54%) and Iceland (52%) is well above the average.

FIGURE 22 – EXTENT TO WHICH RESEARCH STRATEGIES HAVE BEEN ADJUSTED TO BETTER ALIGN WITH FP, BY COUNTRY

	Not at all	To a small extent	To a medium extent	To a large extent
Denmark (n=397)	25%	40%	28%	6%
Finland (n=133)	12%	34%	44%	10%
Iceland (n=21)	5%	43%	48%	5%
Norway (n=190)	15%	39%	35%	11%
Sweden (n=289)	12%	40%	37%	10%
Nordic Total (n=1,030)	18%	39%	35%	9%

Note that response rates from Iceland are very small, but are shown for completeness

Further analyses were conducted to assess whether the main participant groups assigned similar or different ratings with regard to the extent to which FP priorities and instruments were aligned to their own research strategies. Industry and research institute participants assigned the highest ratings as regards the extent to which FP6/7 had supported their own research strategy, and ‘others’ (mainly public sector bodies) assigned the lowest ratings. However, the differences were relatively small.

Research institutes were more likely to adjust their own strategies to a medium / large extent to fit with FP priorities and instruments than were the other three groups. Industry participants were least likely to adjust their own strategies to fit the FPs.

4.3.3 Mechanisms used by organisations / research groups to influence the FPs

The Commission, in developing the FP work programmes and calls, takes input through a range of different mechanisms, each of which provides an opportunity for prospective participants to influence the priorities. Where prospective applicants are successful in influencing the content of the FP calls it is expected that this will significantly enhance the relevance of the programmes (to those actors) and will improve their chances of success within the competitions.

Respondents were asked whether they or their organisation / research group have tried to influence FP6/7 annual work programmes in any way. Nearly half (47%) of the respondents to the question (n=699) reported that they *had* tried to influence the annual work programmes, while only one-third (32%) said that they *had not*. A further 21% were unsure.

Where respondents (and / or their organisations) *had* tried to influence FP6/7 work programmes in some way, they were asked to indicate which of a range of mechanisms their organisation or research group had used. The responses are summarised in Figure 23 below and show that the most commonly used mechanism by far has been participation in conferences, workshops and other network activities, used by 90% of these respondents (or approximately 42% of all survey respondents⁴). Three further mechanisms (input to programme committees, submission of expressions of interest and participation / input to ETPs / SRAs) have also been used by over half of the respondents to the question, while the other two specific mechanisms shown have been less widely utilised.

On average, respondents that had tried to influence FP6/7 work programmes in some way had used between three and four of the mechanisms listed (~3.6), although 15% had only used one, while 21% had used all six. If we were to include all respondents into the calculation (regardless of whether they had used any mechanisms or not), then the average number of mechanisms used per respondent would fall to less than 2 (~1.8) each.

FIGURE 23 – USE OF MECHANISMS TO INFLUENCE FP6/7 WORK PROGRAMMES (N=458-537)

	Used
Participation in conferences, workshops and other network activities	90%
Input to FP6/7 Programme Committees	61%
Submission of expressions of interest (where used)	61%
Participation on European Technology Platforms and / or input to Strategic Research Agendas	58%
Participation on or input to FP Advisory Groups	49%
Participation in Internet-based public consultations	30%

An analysis of responses by Nordic country revealed that participants from Finland and Norway were most likely to have tried to influence the FP6/7 work programmes (67% and 66% of respondents respectively), followed by Sweden (60%) and then Iceland (55%). Danish participants were least likely to have sought to influence the work programmes (45%).

An analysis of responses by type of organisation revealed that research institutes were the group most likely to have tried to influence the FPs (66%), followed by 'others' (57%) and then HEIs (43%). Industry respondents were least likely to have sought to influence the FPs (31%).

Respondents were given the opportunity to mention any **other mechanisms** that their organisation or research group has used to influence FP6/7 annual work programmes (beyond those listed above). Over one-quarter (28%) of the same group of respondents indicated that they *had* used other mechanisms and 53 respondents provided further details about these mechanisms, which can be summarised into the following five main areas of activity:

- By **direct contact** with scientific officers and other relevant officials within the European Commission and Parliament (n=19)
- Through involvement in and communication with national or European **research groups** and other fora (n=19)
- Through a **marketing** opportunity (e.g. papers, projects or presentations) (n=8)
- Through **national representatives** and agencies (n=7)

4 Including both those that had tried to influence annual work programmes in some way, as well as those that had not.

4.3.4 Effectiveness of mechanisms used by organisations / groups to influence the FPs

Those respondents who had used any of the mechanisms listed in the figure above were also asked to rate how effective they thought that each of these actions had been in improving the relevance of the work programmes to their organisation or research group. The responses are summarised in Figure 24 below and show reasonably widespread experiences.

Overall, *participation on ETP and / or input to SRAs* appears to be most consistently considered as an effective mechanism for improving the relevance of work programmes. Across the next three mechanisms there is a relatively even split between those who thought them ‘quite’ / ‘very effective’ and those who thought them ‘not very’ / ‘not at all effective’. The balance of opinion in relation to the effectiveness of the final two mechanisms listed (*submissions of expressions of interest* and *participation in Internet-based consultations*) appears to be that these are more often considered ‘not very’ or ‘not at all effective’ mechanisms.

FIGURE 24 – EFFECTIVENESS OF MECHANISMS (WHERE USED) TO INFLUENCE ANNUAL WORK PROGRAMMES

	Not at all effective	Not very effective	Quite effective	Very effective
Participation on European Technology Platforms and / or input to Strategic Research Agendas (n=289)	9%	25%	48%	17%
Participation on or input to FP Advisory Groups (n=234)	7%	38%	44%	12%
Participation in conferences, workshops and other network activities (n=483)	11%	38%	43%	9%
Input to FP6/7 Programme Committees (n=301)	11%	37%	43%	8%
Submission of expressions of interest (where used) (n=302)	19%	44%	29%	8%
Participation in Internet-based public consultations (n=136)	29%	43%	24%	4%

An analysis of the effectiveness ratings assigned to each of the mechanisms by country revealed a fairly high level of agreement as to which mechanisms are more or less effective. The highest effectiveness ratings were assigned to the ‘other’ mechanisms described above, and in particular to direct contact with scientific officers and other EC officials. Of the given mechanisms, all Nordic countries apart from Iceland rated participation on ETPs as the most effective mechanism, and most rated inputs to advisory groups as the second most effective mechanism. Participation in conferences and workshops, etc. was rated as highly effective by Danish participants but was rated as less effective by participants from the other four Nordic countries. Inputs to FP6/7 Programme Committees were rated as of moderate effectiveness by all countries apart from Iceland, whose participants considered this to be the most effective mechanism.

Further analysis of the responses revealed that industry and ‘others’ were most likely to rate their efforts in influencing the programmes as effective, while HEIs assigned the lowest effectiveness ratings of the four groups, overall and for every type of mechanism used.

4.3.5 Effectiveness of Nordic efforts to influence the FPs

Respondents were asked to indicate the extent to which they felt that Nordic agencies / representatives have been successful in influencing the form and content (thematic priorities / calls and instruments) of FP6/7 in line with Nordic interests. The spread of responses to this question are shown in Figure 25. In terms of priority areas and calls in FP6, just under a fifth of respondents (18%) thought that agencies / representatives had not been at all successful. By comparison, around one-third felt that they had been successful to a ‘medium’ or ‘large extent’ (with the remainder citing success to a ‘small extent’). A similar spread of responses was given in relation to influencing the FP6 instruments, although these were slightly more negative overall. There is little indication of a change over time (i.e. between FP6 and FP7) in the extent to which respondents felt that Nordic agencies / representatives had successfully influenced the FP, either in terms of priority areas or instruments.

FIGURE 25 – EXTENT TO WHICH NORDIC AGENCIES / REPRESENTATIVES HAVE BEEN SUCCESSFUL IN INFLUENCING THE FPS

	Not at all	To a small extent	To a medium extent	To a large extent
FP6 priority areas / calls (n=354)	18%	49%	29%	4%
FP6 instruments (e.g. IPs, STREPS, MCAs) (n=316)	22%	50%	25%	3%
FP7 priority areas / calls (n=381)	18%	44%	32%	6%
FP7 instruments (e.g. NoEs) (n=335)	22%	47%	27%	4%

Analysis of the responses by country revealed that researchers from Iceland assigned the highest ratings to Nordic agencies concerning their effectiveness in influencing the FP priorities and instruments, followed by Denmark and Norway. Participants from Sweden and Finland assigned the lowest effectiveness ratings out of the five Nordic countries.

Further analysis of the responses revealed that ‘others’ (mainly public agencies) were most likely to rate Nordic agencies’ and Nordic representatives’ efforts in influencing the programmes as effective, while research institutes assigned the lowest effectiveness ratings of the four participant groups, overall and in relation to each area of potential influence.

4.3.6 Drivers for participation

Nordic participants were asked to rate a number of given factors in terms of their importance as motives (or drivers) for their organisation’s or research group’s participation in FP projects.

Figure 26 lists each of the given factors and shows the spread of importance ratings assigned by respondents. It confirms that the primary motives for Framework Programme participation are *to develop new or improved relationships or networks* (72% of high importance), *to access research funding* (78%), *to develop and extend internal knowledge and capabilities* (63%), *to address specific scientific or technical questions, problems or issues* (60%), and *to develop new or improved tools, methods or techniques* (72%).

Other factors rated as of medium or high importance by over three-quarters of respondents are (i) *to tackle problems that have a European or international dimension*, and (ii) *to access capabilities that do not exist in their own country (i.e. complementary expertise)*.

FIGURE 26 – MOTIVES FOR INVOLVEMENT IN FP PROJECTS (N=944–971)

	Of low importance	Of medium importance	Of high importance
To develop new or improved relationships or networks	4%	24%	72%
To access research funding	6%	16%	78%
To develop and extend internal knowledge and capabilities	8%	29%	63%
To address specific scientific or technical questions, problems or issues	11%	29%	60%
To develop new or improved tools, methods or techniques	12%	31%	57%
To tackle problems that have a European or international dimension	20%	34%	46%
To access capabilities that do not exist in your own country (complementary expertise)	21%	39%	39%
To improve the coordination of research	35%	38%	27%
To provide training (e.g. for PhD students or early stage postdocs)	36%	34%	29%
To facilitate the mobility of researchers	38%	37%	25%
To access research facilities / infrastructure that do not exist in your own country	40%	36%	24%
To share the costs / risks associated with the project	46%	36%	19%
To create new or improved facilities or infrastructure	51%	31%	18%
To develop new or improved commercial products or services	51%	25%	24%
To develop new or improved regulations or policies	54%	28%	18%

Respondents were asked to specify any other important motives for their involvement in FP projects (beyond those listed above). Only a small number of respondents (n=5) suggested additional important motives, which were:

- To promote the group / organisation internationally (x3)
- As a basis for future initiatives and work
- To access other funds (as FP is viewed favourably)

An analysis of the results by country indicate that there is a good degree of alignment as to the most important motives across the Nordic 5, with all considering *accessing research funding*, *developing new or improved relationships or networks*, *developing and extending internal knowledge and capabilities* and *developing new or improved tools, methods or techniques*, as the ‘top five’ motives for participation. *Addressing specific scientific or technical questions, problems or issues* was the fourth most important motive overall, but was ranked as less important by respondents from Iceland.

Analysis of the importance of each motive for each of the four main participant groups reveals a high degree of alignment between them with respect to certain important motives, with the *development of new relationships or networks*, the *development of internal knowledge and capabilities* and the *development of new or improved tools, methods or techniques* ranked highly by all four respondent groups. However, some important differences were also evident. For example, industry and ‘others’ both rate *access to research funding* as less important than do HEIs and research institutes. In addition, the *development of new or improved commercial products or services* is rated of fairly high importance by industry but this motive does not figure significantly for the other three groups. *Training (of PhD students and postdocs)* and *enhanced mobility of researchers* are important motives for HEIs but are less important motives for the other three groups.

4.3.7 Key drivers for participation in FP projects

Survey respondents were also asked to indicate which of the motives were the three *most important* drivers for their participation in FP projects, in order. The results are shown in

Figure 27 and signal that, when asked to identify only the most important objectives, *accessing research funding* becomes the most important. Nearly half of respondents selected it as the ‘first most important’ motive, while a further 15% and 10% selected it as ‘second’ and ‘third most important’ respectively. In total, more than two-thirds (71%) put this factor in their top three.

However, *improving the coordination of research*, which 65% had rated as of medium or high importance as a motive, was selected as a ‘top three driver’ by only 6%. By comparison, *developing new or improved commercial products or services* was rated as of low importance by over half of respondents (51%), yet was also selected as a ‘top three driver’ by 11%.

FIGURE 27 – DRIVERS FOR INVOLVEMENT IN FP PROJECTS (N=909)

	Selected as a key driver	1 st most important	2 nd most important	3 rd most important
To access research funding	71%	46%	15%	10%
To develop new or improved relationships or networks	55%	15%	21%	19%
To develop and extend internal knowledge and capabilities	35%	8%	16%	10%
To address specific S&T questions, problems or issues	31%	9%	11%	12%
To tackle problems with a European or international dimension	20%	4%	8%	8%
To develop new or improved tools, methods or techniques	19%	5%	5%	9%
To access capabilities that do not exist in your own country (complementary expertise)	12%	1%	5%	6%
To provide training (e.g. for PhD students or early stage postdocs)	12%	2%	4%	7%
To develop new or improved commercial products or services	11%	4%	4%	4%
To facilitate the mobility of researchers	7%	1%	2%	4%
To improve the coordination of research	6%	1%	2%	2%
To access research facilities / infrastructure that do not exist in your own country	6%	1%	2%	3%
To share the costs / risks associated with the project	4%	0%	2%	2%
To develop new or improved regulations or policies	4%	1%	1%	1%
To create new or improved facilities or infrastructure	4%	1%	1%	2%

4.3.8 Accessing support to increase participation and success

Respondents were asked to indicate which **forms of support** their organisation or research group had received from a national agency in order to take part in FP6/7 projects. A list of some of the main forms of possible assistance was provided, but respondents were able to indicate other forms of assistance used as well. The results are shown in Figure 28.

The most common form of assistance used (reported by nearly three-quarters of respondents) was *advanced notification of forthcoming calls*. *Advice on EC rules and procedures* and *information on live calls* were also commonly accessed (by 65% and 62% of respondents respectively). Other potential forms of assistance were less commonly accessed, being cited by 40% or less of respondents.

FIGURE 28 – EXTENT TO WHICH DIFFERENT FORMS OF SUPPORT WERE ACCESSED

	Used
Advanced notification of forthcoming calls (n=711)	72%
Advice on EC rules and procedures (n=704)	65%
Information on live calls (n=705)	60%
Provision of national funding for FP projects (n=698)	40%
Help with the preparation of ideas for FP6/7 proposals (n=706)	37%
Advice / feedback on draft proposals (n=699)	27%
Help with preparing / drafting proposals (n=705)	27%
Help with identifying partners (n=706)	24%

A small number of respondents (n=43) said that they had accessed another form of assistance beyond those listed, and they were asked to specify further what form this assistance took. Those who provided further information suggested the following three broad areas of support:

- Funding to support proposal preparation (n=10)
- Information and advice (n=6)
- Funding to support project costs (n=2)

Where respondents *had* received support in order to take part in FP6/7 projects, they were also asked to rate the effectiveness of the support provided. The spread of responses is shown in Figure 29, with the highest levels of effectiveness ('quite' + 'very effective') at the top of the table.

The results are fairly consistent across the different forms of support, with 40-50% ‘not very effective’ ratings and 50-60% ‘quite’ / ‘very effective’ ratings for all-but-one of the areas. The effectiveness of mechanisms *to help with identifying partners* is significantly lower than the others listed, with only one-third of users (36%) reporting the support they received was ‘quite’ or ‘very effective’.

FIGURE 29 – EFFECTIVENESS OF SUPPORT RECEIVED

	Not very effective	Quite effective	Very effective
Provision of national funding for FP projects (n=276)	40%	40%	20%
Advanced notification of forthcoming calls (n=515)	40%	50%	10%
Information on live calls (n=425)	44%	49%	8%
Help with preparing / drafting proposals (n=190)	44%	48%	7%
Advice on EC rules and procedures (n=455)	44%	50%	6%
Advice / feedback on draft proposals (n=190)	45%	46%	9%
Help with the preparation of ideas for FP6/7 proposals (n=264)	50%	41%	9%
Help with identifying partners (n=169)	64%	31%	5%

Analysis of the responses by country revealed that participants from Iceland and Norway assigned the highest effectiveness ratings for the support received, followed by Denmark and Finland. Participants from Sweden assigned the lowest ratings for the support they have received. There was general agreement among the five countries as to which were the more and less effective forms of support, although some specific variations can be identified. For example, in Norway and Sweden the *provision of national funding to support FP projects* was rated as the most effective of the given forms of support, followed by *assistance with drafting proposals*. Danish researchers considered *information on live calls* as of most help, while researchers from Iceland found the *advice on EC rules and procedures* to be most effective. Finally, participants from Finland identified the *advanced notification of forthcoming calls* as the most effective form of support received.

Analysis of the responses given by the four main categories of participant revealed that ‘others’ (mainly public agencies) assigned the most positive ratings as regards the support they had received, overall and for all forms of support except the provision of *advanced notification of forthcoming calls*. Industry participants assigned the second highest ratings overall, and were most positive (in relative terms) about the effectiveness of the help they had received in respect of *advanced notification of forthcoming calls*, *finding partners*, and *proposal preparation*. HEIs and research institutes assigned the lowest ratings overall, although research institutes were among the most positive of the four groups concerning the *provision of national funding for FP projects*.

4.4 NORDIC DEMAND FOR PARTICIPATION AND SUCCESS WITHIN THE FP COMPETITIONS

This section presents an analysis of Nordic demand and success rates within the competitive bidding processes operated by the Framework Programmes. It begins with an analysis of demand for participation by the Nordic countries in FP6 and goes on to present data on the Nordic countries’ FP6 success rates, overall and in the different priority areas of the programmes.

It concludes with an interpretation of the reasons why Nordic involvement has been high or low in each area of the programme with reference to the interplay between levels of demand and success rates achieved. We then go on to present similar data for FP7 (to date), noting that the success rates discussed are lower than they will ultimately be because not all of the funding decisions have yet been taken in relation to all of the submitted proposals.

4.4.1 Levels of Nordic demand for participation in FP6

The European Commission provided a database containing information on Nordic and overall FP eligible participations in proposals. The number of discrete proposals in which Nordic applicants were named was calculated as 13,210 out of the FP6 total of 47,749. The share of FP6 proposals with Nordic involvement was therefore 27.7%. Overall in FP6 there were 316,383 eligible participations in proposals of which the Nordic countries accounted for 27,069, so the share of proposal participations accounted for by the Nordic countries was 8.6%.

FIGURE 30 – NORDIC PARTICIPATION IN FP6 PROPOSALS, BY COUNTRY

Country	Nordic participations in proposals	Demand – Nordic share of proposal participations
Denmark	5,978	1.89%
Finland	5,848	1.85%
Iceland	520	0.16%
Norway	4,407	1.39%
Sweden	10,316	3.26%
Total	27,069	8.6%

Source: FP6 proposal data

In order to determine whether the Nordic countries' level of involvement in FP6 proposals was higher or lower than we might reasonably expect, we have compared the Nordic countries' share of FTE researchers (among the 25 EU Member States + Norway and Iceland) to the share of proposal participations accounted for by the Nordic countries. This analysis revealed that the Nordic countries accounted for a 9.9% share of proposal participations as compared to an 11.3% share of FTE researchers. Based on this measure we can conclude that Nordic demand for participation is slightly below the level we might expect or desire. The reasons for this 'gap' are not easy to discern, but it is widely accepted that high levels of national investment in R&D by the public sector (as is the case in the Nordic countries) can limit the need or desire of researchers to apply for Framework Programme funding. In light of this, some countries require or otherwise encourage recipients of national R&D investment to use these resources to 'leverage' other forms of (non-national) R&D funding. It may be that such a policy could help to increase Nordic demand for participation within the FPs, bringing their participation in proposals to a level commensurate with the number of FTE researchers employed.

Figure 31 shows the breakdown of Nordic participations in FP6 proposals by **activity type** and gives an indication of the relative level of demand for involvement by each type of organisation, overall and in comparison with the same organisational groups within FP6 as a whole (i.e. for all countries). It shows that Nordic HEIs' relative share of proposal participations (at 9.7% of all HEI proposal participations) was slightly higher than for the other three main groups. By comparison, there were relatively low levels of demand for participation by Nordic research institutes (at 7.9% of all RI proposal participations) and for 'others' (at 7.1% of all 'other' proposal participations). The higher representation by Nordic HEIs and the lower representation by Nordic research institutes in proposals (as compared to FP6 averages) is, we believe, a reflection of structural differences in the research-performing sector wherein a greater proportion of R&D is carried out within the HEI sector than in research institutes.

FIGURE 31 – NORDIC PARTICIPATION IN FP6 PROPOSALS, BY ACTIVITY TYPE

Activity type	All participations in proposals	Nordic participations in proposals	Demand – Nordic share of proposal participations
Higher Education	109,868	10,612	9.7%
Industry	69,985	6,058	8.7%
Research Institutes	87,043	6,840	7.9%
Other	46,804	3,339	7.1%
Undefined	2,691	220	8.2%
Total⁵	316,383	27,069	8.6%

Source: FP6 proposal data

The share of all proposal participations accounted for by the Nordic countries in each priority area is shown in Figure 32. It reveals that the Nordic proposal participation rate was highest in the **Support for the coordination of activities, Sustainable development, Citizens and governance**, and **Life sciences, genomics & biotechnology** areas. The Nordic countries' share of participations in proposals was lowest in the **Support for international cooperation, Aeronautics and space**, and **IST** areas.

FIGURE 32 – NORDIC PARTICIPATIONS IN FP6 PROPOSALS, BY PRIORITY AREA

Priority area	All participations in proposals	Nordic participations proposals	Demand – Nordic share of proposal participations
1. Life sciences, genomics & biotechnology	26,519	2,730	10.3%
2. Information society technologies	69,389	5,314	7.7%
3. Nanotechnologies and nanosciences	19,269	1,748	9.1%
4. Aeronautics and space	9,546	535	5.6%
5. Food quality and safety	13,781	1,206	8.8%
6. Sustainable development	36,402	3,854	10.6%
7. Citizens and governance	10,355	1,064	10.3%
Policy support / S&T needs	12,916	1,224	9.5%
Horizontal research activities – SMEs	36,336	3,112	8.6%
Support for international cooperation	16,560	513	3.1%
Research and innovation	6,360	522	8.2%
Human resources and mobility	41,613	3,443	8.3%
Research infrastructures	4,764	472	9.9%
Science and society	7,256	642	8.8%
Support for the coordination of activities	2,019	344	17.0%
Development of R&I policies	1,075	107	10.0%
Euratom	2,223	239	10.8%
Total⁶	316,383	27,069	8.6%

Source: FP6 proposal data

4.4.2 Nordic success rates in FP6

Based on data supplied by the European Commission, the overall success rate for proposals submitted to FP6 is calculated to be 21.1%, or roughly one in five. Based on the numbers of proposals and funded projects with Nordic involvement, Nordic proposal-level success rates within FP6 are calculated at 24.1%, so significantly above the overall FP6 average. At an

5 Totals do not include unassigned proposals and includes those with unidentified activity type.

6 Totals do not include unassigned participations in proposals

aggregate level we can therefore say that proposals with Nordic involvement have performed well within the competition overall.

There were 27,069 participations by the Nordic countries in FP6 proposals, and 7,160 participations by the Nordic 5 in funded FP6 projects. This gives a Nordic participation-level success rate of 26.5%, which is above the FP6 average as a whole of 23.5%, again confirming the strong performance of the Nordic countries within the competition.

Figure 33 shows the participation-level success rate for each of the Nordic countries. It shows that Norway had the highest success rate of the five, followed by Denmark, then Sweden, Iceland and Finland. All five countries achieved higher success rates than the FP6 average, indicating that they have each contributed to the overall strong performance of the Nordic 5 as a whole.

FIGURE 33 – NORDIC FP6 PARTICIPATION-LEVEL SUCCESS RATES, BY COUNTRY

Country	Participations in proposals	Participations in funded projects	Participation-level success rate
Denmark	5,978	1,641	27.5%
Finland	5,848	1,440	24.6%
Iceland	520	132	25.4%
Norway	4,407	1,299	29.5%
Sweden	10,316	2,648	25.7%
Nordic 5	27,069	7,160	26.5%

Source: FP6 proposal data

Figure 34 shows the Nordic participation success rates and compares these to the overall participation success rates for all of FP6, by activity (organisation) type. It shows that Nordic proposal success rates were above the FP6 average for all four categories of organisation, but particularly for 'others' and HEIs.

FIGURE 34 – NORDIC FP6 PROPOSAL PARTICIPATION SUCCESS RATES, BY ACTIVITY TYPE

Activity type	Nordic eligible participations in proposals	Nordic participations in projects	Nordic participation success rates	Participation success rate – all FP6	Ratio of Nordic success rates to FP6 success rates
Higher Education	10,612	3,017	28%	24%	118%
Industry	6,058	1,348	22%	20%	112%
Research Institutes	6,840	1,631	24%	24%	101%
Other	3,339	1,063	32%	26%	120%
Unidentified	220	101	46%	38%	122%
Total⁷	27,069	7,160	26%	24%	112%

Sources: Derived from FP6 participation data and FP6 proposal data (E-CORDA, December 2009)

Figure 35 shows the Nordic participation success rates within each of the FP6 priority areas. It reveals that Nordic participation-level success rates were above the FP6 averages in 12 out of 17 priority areas, with the Nordic countries performing particularly well in the following areas where its participation-level success rates were more than 20% higher than the FP6 averages: **Food quality and Safety; Horizontal research activities – SMEs; Support for international cooperation.** Nordic participation-level success rates were below the FP6 averages in **Nanotechnologies and nanosciences; Aeronautics and space; Research infrastructures; Human resources and mobility; and Development of R&I policies.**

7 Totals do not include unassigned proposals and includes those with unidentified activity type.

FIGURE 35 – NORDIC AND ALL FP6 PARTICIPATION-LEVEL SUCCESS RATES, BY PRIORITY AREA

Priority area	Nordic participations in proposals	Nordic participations in projects	Participation success rate – Nordic	Participation success rate – all FP6	Ratio of Nordic success rates to FP6 success rates
1. Life sciences, genomics & biotechnology	2,730	765	28%	25.7%	109%
2. Information society technologies	5,314	1,174	22%	20.6%	107%
3. Nanotechnologies and nanosciences	1,748	527	30%	30.5%	99%
4. Aeronautics and space	535	193	36%	36.6%	99%
5. Food quality and safety	1,206	379	31%	23.3%	135%
6. Sustainable development	3,854	1,293	34%	28.8%	117%
7. Citizens and governance	1,064	202	19%	18.8%	101%
Policy support / S&T needs	1,224	516	42%	35.7%	118%
Horizontal research activities – SMEs	3,112	560	18%	15.0%	120%
Support for international cooperation	513	98	19%	15.2%	126%
Research and innovation	522	179	34%	28.9%	118%
Human resources and mobility	3,443	673	20%	20.3%	96%
Research infrastructures	472	144	31%	38.6%	79%
Science and society	642	95	15%	14.1%	105%
Support for the coordination of activities	344	208	60%	59.6%	101%
Development of R&I policies	107	16	15%	15.7%	95%
Euratom	239	138	58%	53.3%	108%
Total	27,069	7,160	26.5%	23.5%	112%

Sources: Derived from FP6 participation data and FP6 proposal data (E-CORDA, December 2009)

4.4.3 Nordic performance in FP6 priority areas explained by levels of demand and success rates

Figure 36 presents the data on Nordic demand, success and participation rates by priority area in FP6, relative to FP6 rates overall. The three ratios are calculated by dividing the Nordic share in a priority area by the overall FP6 equivalent. These relative shares allow identification of the factors (high or low levels of success or demand) behind the relative Nordic level of participation in each priority area. If the Nordic participation level is relatively high in comparison to the overall FP6 profile, it is due to a high relative success rate or high demand in that priority area, or a combination of both. Similarly, a low relative level of participation can be driven by low demand, low success rates, or a combination of the two.

FIGURE 36 – NORDIC FP6 PARTICIPATION EXPLAINED BY RELATIVE SUCCESS AND DEMAND, BY PRIORITY AREA

Priority area	Participation rate	Normalised demand	Normalised success rate	Note
Support for the coordination of activities	High (180%)	High (199%)	Medium (90%)	Very high participation due to very high demand
Sustainable development	High (128%)	High (124%)	High (104%)	High participation due to high demand
Food quality and safety	High (123%)	Medium (102%)	High (120%)	High participation due to high success rates
Euratom	High (121%)	High (126%)	Medium (96%)	High participation due to high demand
Life sciences, genomics & biotechnology	High (116%)	High (120%)	Medium (97%)	High participation due to high demand
Policy support / S&T needs	High (116%)	Medium (111%)	High (105%)	High participation due to high success rates
Citizens and governance	Medium (108%)	High (120%)	Low (90%)	Medium participation resulting from high demand but low success rates
Horizontal research activities – SMEs	Medium (107%)	Low (100%)	High (107%)	Medium participation resulting from low demand but high success rates
Research and innovation	Medium (101%)	Low (96%)	High (105%)	Medium participation resulting from low demand but high success rates
Development of R&I policies	Medium (98%)	High (116%)	Low (85%)	Medium participation resulting from high demand but low success rates
Science and society	Medium (96%)	Medium (103%)	Medium (93%)	Medium participation resulting from medium demand and medium success rates
Nanotechnologies and nanosciences	Low (93%)	Medium (106%)	Low (88%)	Low participation resulting from low success rates
Information society technologies	Low (85%)	Low (90%)	Medium (95%)	Low participation resulting from low demand
Human resources and mobility	Low (83%)	Low (97%)	Low (86%)	Low participation resulting from low demand and low success rates
Research infrastructures	Low (81%)	Medium (116%)	Low (70%)	Low participation resulting from low success rates
Aeronautics and space	Low (57%)	Low (66%)	Low (88%)	Very low participation resulting from very low demand and low success rates
Support for international cooperation	Low (41%)	Low (36%)	High (112%)	Very low participation resulting from very low demand but high success rates
Total	100%	100%	100%	

Sources: Derived from FP6 participation data and FP6 proposal data (E-CORDA, December 2009)

4.4.4 Levels of Nordic demand for participation in FP7

The European Commission provided a database containing information on eligible participations in proposals submitted to FP7. The number of discrete proposals in which Nordic applicants were named was 11,465 out of an FP7 total to date of 45,991. The share of proposals with Nordic involvement in FP7 to date is therefore 25%. At the level of proposal participations, the Nordic countries have accounted for 20,326 out of 235,750 eligible participations in proposals to date, so the Nordic share of all proposal participations is 8.6% up to this point in the programme, exactly the same as the share attributed to the Nordic countries in FP6.

We indicated that in FP6 the share of proposal participations accounted for by the Nordic countries represented 9.9% of those accounted for by the EU25 + Iceland and Norway, and that this was slightly below the Nordic countries' share of FTE researchers (at 11.3%). In FP7 a similar result was obtained – the Nordic countries' share of proposal participations (out of the EU27 + Iceland and Norway) to date is 9.9% while their share of FTE researchers (in 2008) was 11.5%. This finding further suggests that Nordic demand for participation in the FPs is

slightly below the level we might expect, given their compliment of FTE researchers.

Figure 37 provides a breakdown of Nordic participations in FP7 proposals by country. It tells us that while the overall share of proposal participations accounted for by the Nordic 5 has remained the same (at 8.6%) from FP6 to FP7 (to date) there have been some variations at the level of individual countries. Finland and Norway have both increased their relative share of the Nordic 5's proposal participations, while Denmark and to a lesser extent Sweden have seen a fall in their share. Iceland's share of the Nordic total has remained stable.

FIGURE 37 – NORDIC PARTICIPATION IN FP7 PROPOSALS, BY COUNTRY (TO DATE)

Country	Nordic participations in proposals	Demand – Nordic share of proposal participations
Denmark	4,180	1.77%
Finland	4,732	2.01%
Iceland	387	0.16%
Norway	3,501	1.49%
Sweden	7,526	3.19%
Total	20,326	8.6%

Source: FP7 proposal data, E-CORDA December 2009

Figure 38 shows the breakdown of Nordic participations in FP7 proposals by **activity type** and gives an indication of the relative level of demand for involvement by each type of organisation, overall and in comparison with the same organisational groups within FP7 as a whole (i.e. for all countries). It shows that Nordic HEIs' relative share of proposal participations (at 9.8% of all HEI proposal participations) and Nordic public bodies' share of proposal participations (at 9.5%) were slightly higher than for the other three main groups. By comparison, there has been a relatively low level of demand for participation by Nordic companies (at 7.6% of all private commercial proposal participations) and for 'others' (at 6.3% of all 'other' proposal participations).

FIGURE 38 – NORDIC PARTICIPATION IN FP7 PROPOSALS, BY ACTIVITY TYPE (TO DATE)

Activity type	All participations in proposals	Nordic participations in proposals	Demand – Nordic share of proposal participations
Higher or secondary education	89,853	8,819	9.8%
Private commercial	56,296	4,299	7.6%
Public body exc. research and education	10,247	973	9.5%
Research organisations	44,460	3,542	8.0%
Others	17,266	1,090	6.3%
Total	218,122	18,723	8.6%

Source: FP7 proposal data, E-CORDA December 2009

The share of all proposal participations accounted for by the Nordic countries in each priority area shown in Figure 32. It reveals that the Nordic proposal participation rate to date has been highest in the **General Activities (Annex IV), Energy, Food, Agriculture, and Biotechnology**, and **Regions of Knowledge** priority areas.

FIGURE 39 – NORDIC PARTICIPATIONS IN FP7 PROPOSALS, BY PRIORITY AREA

Priority area	All proposal participations	Nordic proposal participations	Demand – Nordic share of proposal participations
Energy	9,545	1,030	10.8%
Environment (including Climate Change)	15,932	1,358	8.5%
Food, Agriculture, and Biotechnology	13,272	1,370	10.3%
General Activities (Annex IV)	237	29	12.2%
Health	22,313	2,097	9.4%
Information & Communication Technologies	47,222	3,658	7.7%
Nanosciences and Nanotechnologies	12,839	1,142	8.9%
Security	6,173	600	9.7%
Socio-economic Sciences and Humanities	11,850	1,150	9.7%
Space	1,991	156	7.8%
Transport (including Aeronautics)	15,221	1,085	7.1%
Activities of International Cooperation	1,547	52	3.4%
Coherent development of research policies	189	17	9.0%
Regions of Knowledge	2,407	246	10.2%
Research for the benefit of SMEs	17,822	1,581	8.9%
Research Infrastructures	5,286	400	7.6%
Research Potential	2,250	20	0.9%
Science in Society	3,916	334	8.5%
Marie Curie Actions	26,520	2,244	8.5%
European Research Council	17,696	1,612	9.1%
Fusion Energy	79	5	6.3%
Nuclear Fission and Radiation Protection	1,443	140	9.7%
Total	235,750	20,326	8.6%

Source: FP7 proposal data, E-CORDA December 2009

4.4.5 Nordic success rates in FP7

Because there is a lag between the submission of proposals and the rendering of decisions, it is not possible to calculate definitive success rates for FP7 while the programme is still operating. At present a significant number of proposals have been submitted without a financing decision having yet been taken. As such, the ratio of proposals to funded projects is much higher at present than will ultimately be the case once the programme has completed its assessment and decision making cycles.

While it is not possible to provide an accurate perspective on proposal success rates at this time it is nonetheless possible to provide some indicative data on the number of FP7 projects and participations achieved by the Nordic countries to date within the different priority areas of the programme and among the main types of participant organisation.

As of December 2009 a total of 45,991 FP7 proposals had been logged in the E-CORDA database and a total of 5,105 projects had been contracted. This gives a notional 'current' success rate of 11.1% although as indicated above this figure will rise as further funding decisions are taken on the submitted proposals. Based on the number of proposals (11,465) and funded projects (1,464) with Nordic involvement, the current success rate for Nordic proposals is 12.8%, so significantly higher than the overall average to date. This suggests that Nordic applicants continue to enjoy higher than average success rates within FP7, as was the case in FP6.

At the level of participations, the FP7 data so far reveal that 30,518 project participations have been approved, out of a total of 235,750 participations in submitted proposals. This gives an overall participation-level success rate of 12.9% to date, though again we expect this figure to rise as further funding decisions are taken. In comparison the Nordic participation-

level success rate in FP7 to date is 14.1%, so again above the average for all countries. Figure 40 shows the participation-level success rate for each of the Nordic countries. It shows that Iceland has enjoyed the highest success rates of the five so far, followed by Norway and then Denmark, with Sweden and Finland having the lowest success rates. However, the differences between the countries are rather small and all five achieved higher success rates than the FP7 average to date, indicating that they have each contributed to the overall strong performance of the Nordic 5.

FIGURE 40 – NORDIC FP7 PARTICIPATION-LEVEL SUCCESS RATES, BY COUNTRY

Country	Participations in proposals	Participations in funded projects	Participation-level success rate
Denmark	4,180	599	14.3%
Finland	4,732	632	13.4%
Iceland	387	60	15.5%
Norway	3,501	467	13.3%
Sweden	7,526	1,100	14.6%
Nordic 5	20,326	2,858	14.1%

Source: FP7 proposal data, E-CORDA December 2009

Figure 41 shows the Nordic FP7 participation success rates and compares these to the overall success rates for all proposals submitted to FP7 to date, by activity (organisation) type. It shows that Nordic proposal success rates are currently above the FP7 averages for four categories of organisation (HEIs, private commercial, public bodies and ‘others’) and below average for one (research organisations).

FIGURE 41 – NORDIC FP7 PROPOSAL SUCCESS RATES, BY ACTIVITY TYPE

Activity type	Nordic participations in proposals	Nordic participations in projects	Nordic participation success rates	Participation success rate – all FP7	Ratio of Nordic success rates to FP7 success rates
Higher or secondary education	8,819	1,278	14.5%	13.1%	111%
Private commercial	4,299	673	15.7%	14.3%	109%
Public body	973	230	23.6%	19.4%	122%
Research organisations	3,542	615	17.4%	17.7%	98%
Others	1,090	62	5.7%	4.8%	119%
Total⁸	18,723	2,858	15.3%	14.0%	109%

Source: FP7 proposal data, E-CORDA December 2009

Figure 42 shows the current Nordic participation-level success rates by FP7 priority area and compares these to the overall participation-level success rates within each priority. It reveals that at an overall level 14.1% of all Nordic proposal participations have so far been approved for funding, significantly above the average participation success rate to date of 12.9%. Nordic participation-level success rates were above the FP7 averages in 18 out of the 22 priority areas, with the Nordic countries performing particularly well in the following areas where its participation-level success rates were more than 30% higher than the FP7 averages: **Coherent development of research policies, Science in Society, Environment, Security, and Activities of International Cooperation**. Nordic participation-level success rates have to date been below the FP7 average in the **General Activities (Annex IV), Marie Curie Actions, Research Potential and Regions of Knowledge** priority areas.

8 It should be noted that the overall and Nordic participation-level success rates shown here differ from those in other Figures because not all participations in proposals have been assigned to an activity type

FIGURE 42 – NORDIC AND ALL FP7 PARTICIPATION-LEVEL SUCCESS RATES, BY PRIORITY AREA

Priority area	Nordic participations in proposals	Nordic participations in projects	Participation success rate – Nordic	Participation success rate – all FP7	Ratio of Nordic success rates to FP7 success rates
Energy	1,030	124	12%	12%	102%
Environment (including Climate Change)	1,358	221	16%	12%	140%
Food, Agriculture, and Biotechnology	1,370	174	13%	12%	103%
General Activities (Annex IV)	29	9	31%	33%	94%
Health	2,097	388	19%	15%	125%
Information & Communication Technologies	3,658	485	13%	12%	111%
Nanosciences and Nanotechnologies	1,142	242	21%	19%	111%
Security	600	79	13%	9%	140%
Socio-economic Sciences and Humanities	1,150	82	7%	7%	101%
Space	156	35	22%	22%	103%
Transport (including Aeronautics)	1,085	180	17%	16%	103%
Activities of International Cooperation	52	14	27%	19%	139%
Coherent development of research policies	17	8	47%	32%	146%
Regions of Knowledge	246	17	7%	13%	53%
Research for the benefit of SMEs	1,581	170	11%	9%	114%
Research Infrastructures	400	162	41%	39%	103%
Research Potential	20	1	5%	6%	80%
Science in Society	334	65	19%	14%	141%
Marie Curie Actions	2,244	279	12%	14%	86%
European Research Council	1,612	73	5%	4%	112%
Fusion Energy	5	5	100%	81%	123%
Nuclear Fission and Radiation Protection	140	45	32%	30%	106%
Total	20,326	2,858	14.1%	12.9%	109%

Source: FP7 proposal data, E-CORDA December 2009

4.4.6 Nordic performance in FP7 explained by levels of demand and success rates

Figure 43 presents the data on Nordic demand, success and participation rates by priority area in FP7, relative to FP7 rates overall. The three ratios are calculated by dividing the Nordic share in a priority area by the overall FP7 equivalent share. These relative shares allow identification of the factors (high or low levels of success or demand) behind the relative Nordic level of participation in each priority area. If the Nordic participation level is relatively high in comparison to the overall FP7 profile, it is due to a high relative success rate or high demand in that priority area, or a combination of both of these factors. Similarly, a low relative level of participation can be driven by low demand, low success rates, or a combination of the two. The final column of Figure 43 contains a note explaining whether the Nordic countries' relative participation rate in that priority area is a result of one or a combination of the two factors.

Figure 43 shows that the priority areas with the highest relative Nordic participation rates are **Security**, driven by a combination of high demand and high success rates, **Coherent development of research policies**, driven mainly by high success rates, **Science in Society**, driven by high success rates, **Environment**, driven by high success rates, **Health**, driven by a combination of high demand and high success rates, and **General Activities (Annex IV)**, driven by very high demand which was able to overcome the relatively low success rates in that area.

FIGURE 43 – NORDIC PARTICIPATION: A COMPARISON BETWEEN NORDIC RELATIVE SUCCESS AND DEMAND IN FP6, BY PRIORITY AREA

Priority area	Nordic participation rate	Nordic demand (normalised)	Nordic success rate (normalised)	Note
Security	High (145%)	High (113%)	High (129%)	High participation due to high demand and success rates
Coherent development of research policies	High (140%)	Medium (104%)	High (134%)	High participation due to high success rates
Science in Society	High (128%)	Medium (99%)	High (129%)	High participation due to high success rates
Environment (including Climate Change)	High (128%)	Medium (99%)	High (129%)	High participation due to high success rates
Health	High (126%)	High (109%)	High (115%)	High participation due to high demand and success rates
General Activities (Annex IV)	High (123%)	High (142%)	Low (87%)	High participation due to high demand
Energy	High (118%)	High (125%)	Low (94%)	High participation due to high demand
Food, Agriculture, and Biotechnology	High (114%)	High (120%)	Medium (95%)	High participation due to high demand
Nuclear Fission and Radiation Protection	High (110%)	High (113%)	Medium (97%)	High participation due to high demand
European Research Council	Medium (109%)	Medium (106%)	Medium (103%)	Medium participation due to medium demand and success rates
Research for the benefit of SMEs	Medium (108%)	Medium (103%)	Medium (105%)	Medium participation due to medium demand and success rates
Nanosciences and Nanotechnologies	Medium (106%)	Medium (103%)	Medium (102%)	Medium participation due to medium demand and success rates
Socio-economic sciences and Humanities	Medium (104%)	High (113%)	Low (93%)	Medium participation due to high demand but low success rates
Information & Communication Technologies	Low (92%)	Low (90%)	Medium (102%)	Low participation due to low demand
Space	Low (87%)	Low (91%)	Medium (95%)	Low participation due to low demand
Fusion Energy	Low (83%)	Low (73%)	High (114%)	Low participation due to low demand
Research Infrastructures	Low (83%)	Low (88%)	Medium (95%)	Low participation due to low demand
Transport (including Aeronautics)	Low (78%)	Low (83%)	Medium (95%)	Low participation due to low demand
Marie-Curie Actions	Low (78%)	Medium (98%)	Low (79%)	Low participation due to low success rates
Regions of Knowledge	Low (58%)	High (119%)	Low (49%)	Low participation due to low success rates
Activities of International Cooperation	Low (50%)	Low (39%)	High (128%)	Low participation due to low demand
Research Potential	Low (8%)	Low (10%)	Low (73%)	Low participation due to low demand and success rates
Total	100%	100%	100%	

Sources: Derived from FP7 participation data and FP7 proposal data (E-CORDA, December 2009)

4.5 NORDIC COLLABORATION IN THE FRAMEWORK PROGRAMMES

This section presents an analysis of intra-Nordic collaboration within FP6 and FP7 to date, based primarily on participation data. In addition, some results from our questionnaire survey are presented, which detail the ‘home countries’ of Nordic participants’ most important collaboration partners. Finally, we present information from our survey on the extent to which

Nordic participants have explicitly sought Nordic collaboration within their FP projects, and the reasons why such collaboration has been sought.

4.5.1 Collaboration between Nordic organisations within FP6 projects

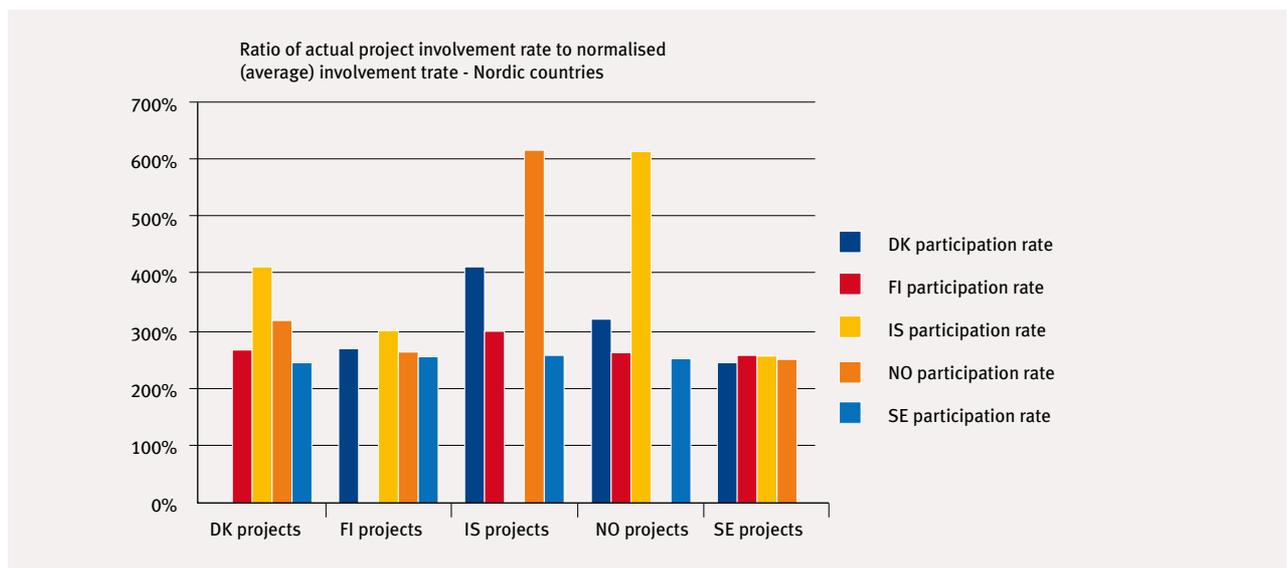
In FP6 the Nordic countries had 7,160 participations in 3,183 FP6 projects, so it is clear that in many cases more than one Nordic partner was involved in the same project. In fact, there were 1,582 FP6 projects with more than one Nordic partner involved, half (50%) of all those with Nordic involvement.

In order to investigate the level of collaboration between Nordic countries in FP6 projects we first calculated the normalised level of involvement of each (other) country in each of the Nordic countries' FP6 projects. These 'standardised' participation rates were then used as a benchmark against which the actual level of participation of each Nordic country could be assessed. Figure 44 shows the results and reveals that in all cases the actual project involvement rate of each (other) Nordic country is above the normalised level (shown as 100% on the chart) for each individual Nordic country's FP6 projects. In most cases the involvement rate is between two and two-and-a-half times the normalised level, but in a small number of cases a more significant level of intra-Nordic collaboration is evident:

- Iceland has a particularly high level of involvement in projects that also involve Norway, and vice versa. In both cases the actual level of project involvement is more than six times the normalised level
- Denmark has a high level of involvement in projects that that also involve Iceland, and vice versa. In both cases the actual level of project involvement is more than four times the normalised level

Based on this analysis we can say that there is clearly a high level of Nordic collaboration within FP6 projects and this is evident for all of the Nordic countries. However, the pattern of Nordic collaboration is particularly emphasised between Iceland and Norway, and to a lesser extent between Denmark and Iceland.

FIGURE 44 – COMPARISON OF ACTUAL NORDIC PROJECT INVOLVEMENT RATES TO NORMALISED NORDIC PROJECT INVOLVEMENT RATES WITHIN EACH NORDIC COUNTRY'S FP6 PROJECTS



Source: FP6 participation data (E-CORDA, December 2009)

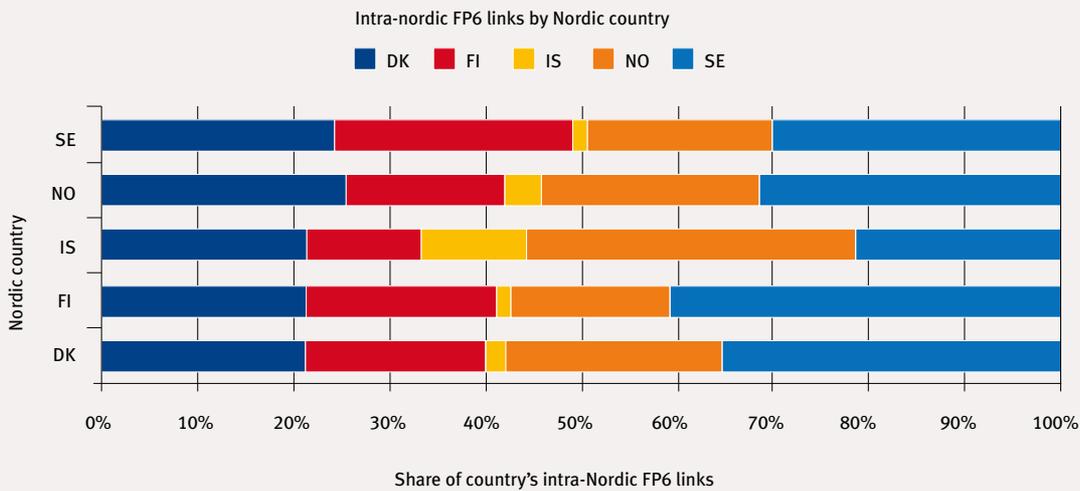
A more detailed assessment of intra-Nordic collaboration within FP6 projects was conducted based on an analysis of the numbers of links between individual participants within every FP6 project that contained two or more Nordic participants (n=1,582 projects). A total of 10,944 intra-Nordic links were found, of which 6,703 (or 61%) were between organisations from two different Nordic countries, and 4,241 (or 39%) were between organisations from the same Nordic country.

Figure 45 shows graphically the distribution of each Nordic country's intra-Nordic links by country. The data behind the figure indicates the following features of each country's role as regards intra-Nordic collaboration:

- **Denmark** – Danish participants account for 23% of all intra-Nordic links, and Denmark accounts for a remarkably uniform share of each country's links (i.e. between 21% and 25% in each case)
- **Finland** – Finnish participants account for 20% of all intra-Nordic links, but the Finnish share of each country's intra-Nordic links varies significantly: a relatively high proportion of Sweden's intra-Nordic links are with Finland (25%), while only a small proportion of Iceland's intra-Nordic links are with Finland (12%)
- **Iceland** – Iceland, being a small country, accounts for just 2% of all intra-Nordic links, and again the share of each country's links that are with Iceland varies significantly. Only 1% of Sweden's and Finland's intra-Nordic links are with Iceland, but in the case of Norway the figure is 4%. The country that has the highest share of its collaborative links with Iceland is Iceland itself (11%)
- **Norway** – Norwegian participants account for 21% of all intra-Nordic links, and again we have found that there is a fairly wide variation between the five countries as to the share of their own Nordic links that are accounted for by collaboration with Norway. At one end of the scale just 17% of Finland's and just 19% of Sweden's Nordic FP6 links were with Norwegian partners. At the other end of the scale over a third (34%) of Iceland's Nordic FP6 collaborations were with partners from Norway
- **Sweden** – Being the largest of the Nordic countries, Sweden accounts for 33% of all intra-Nordic links. In relative terms Sweden does not figure as a key collaborator for Iceland, making up just 21% of its Nordic links within FP6. However, 41% of Finland's Nordic FP6 links were with partners from Sweden, confirming the strong collaboration between these two countries within FP6

Overall, the patterns of intra-Nordic collaboration within FP6 suggest particularly strong collaborative links between Sweden and Finland and also between Iceland and Norway, with the latter being of more significance as viewed from the perspective of Iceland.

FIGURE 45 – INTRA-NORDIC FP6 LINKS, BY NORDIC COUNTRY



Source: FP6 participation data (E-CORDA, December 2009)

Further analyses were conducted to identify the FP6 priority areas where intra-Nordic collaboration within projects was most and least prevalent. The analyses were also aimed at revealing any specific collaboration patterns between two or more Nordic countries within each priority area.

Initially, the number of collaborative links within all FP6 projects and the number of these that were intra-Nordic links was calculated, for each of the 17 FP6 priority areas. The analysis revealed that the priority areas with the highest proportion of intra-Nordic links were **Support for the coordination of activities**, where 3.8% of the collaborative links were Nordic; **Sustainable development** (2.5%); **Research and innovation** (2.3%); **Food quality and safety** (2.3%); and **Horizontal research activities involving SMEs** (2.2%).

Next, normalised levels of links between each Nordic country (including intra-country links) were calculated for each FP6 priority area, based on each country’s level of participation, and compared to actual levels of intra-Nordic links within each area. Figure 46 shows the nature of the top three intra-Nordic collaborative links for each of the FP6 priority areas, based on this measure.

FIGURE 46 – MAIN NORDIC INTRA-PROJECT COLLABORATION PATTERNS, BY FP6 PRIORITY AREA

Priority area	1 st highest level of intra-project Nordic collaboration	2 nd highest level of intra-project Nordic collaboration	3 rd highest level of intra-project Nordic collaboration
1. Life sciences, genomics and biotechnology	DK-SE	SE-SE	DK-FI
2. Information society technologies	FI-IS	FI-FI	FI-SE
3. Nanotechnologies and nanosciences	FI-FI	FI-SE	SE-SE
4. Aeronautics and space	SE-SE	NO-SE	FI-SE (low)
5. Food quality and safety	DK-IS	DK-NO	DK-DK
6. Sustainable development	NO-NO	DK-NO	FI-NO
7. Citizens and governance	NO-SE	FI-NO	DK-NO
Policy support / S&T needs	DK-IS	IS-IS	DK-NO
Horizontal research activities – SMEs	IS-IS	IS-NO	NO-NO
Support for international cooperation	FI-IS	IS-SE	IS-NO
Research and innovation	IS-SE	NO-NO	FI-NO
Human resources and mobility	DK-IS	IS-SE	SE-SE
Research infrastructures	FI-SE	DK-IS	NO-SE
Science and society	DK-DK	DK-FI	DK-IS
Support for the coordination of activities	FI-IS	IS-SE	DK-IS
Development of R&I policies	NO-NO	DK-DK	-
Euratom	FI-SE	SE-SE	FI-FI

Source: FP6 participation data (E-CORDA, December 2009)

4.5.2 Collaboration between Nordic organisations within FP7 projects

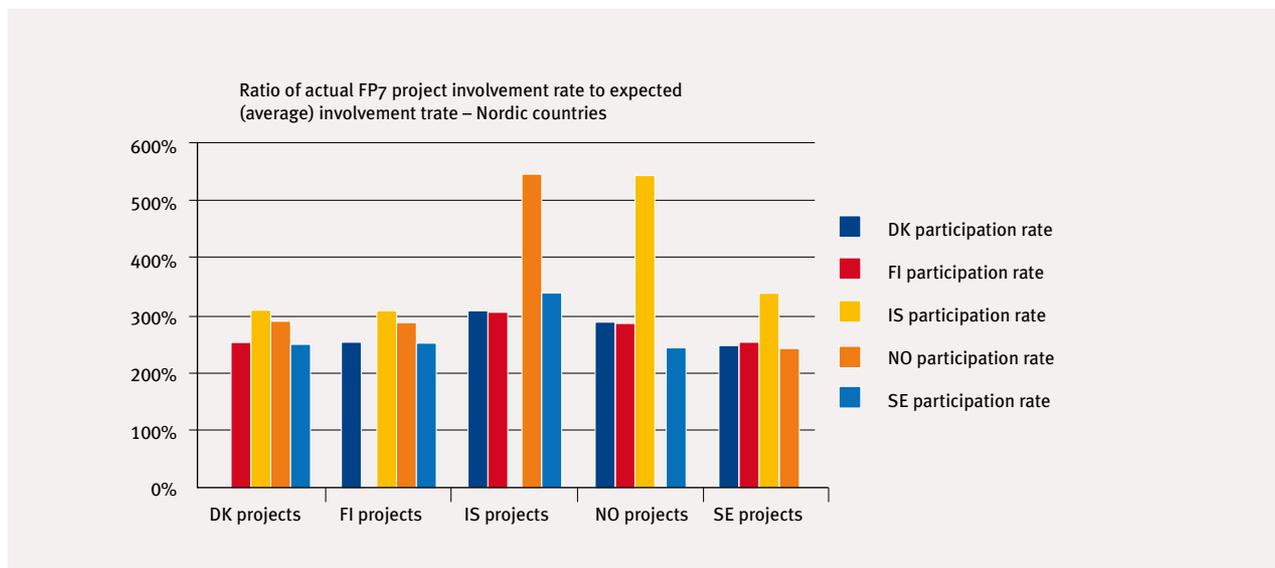
In FP7 Nordic participants have been involved in 1,464 projects to date, of which 647 (44%) have involved more than one Nordic participant. While this represents a fall in the share of projects with Nordic collaboration from FP6 to FP7 (from 50% to 44%) this may be due to changes in the pattern of use of different instruments and in particular a shift away from the much larger multi-country projects that were a feature of FP6, than due to an actual decline in the propensity of Nordic participants to collaborate.

In order to investigate the level of collaboration between Nordic countries in FP7 projects we again calculated the normalised level of involvement of each (other) country in each of the Nordic countries' FP7 projects. These 'standardised' participation rates were then used as a benchmark against which the actual level of participation of each Nordic country could be assessed. Figure 47 shows the results and reveals that in all cases the actual project involvement rate of each (other) Nordic country is above the normalised level (shown as 100% on the chart) for each Nordic country's FP7 projects. In most cases the involvement rate is between two and a half and three times the normalised level, but in a small number of cases a more significant level of intra-Nordic collaboration is evident:

- Iceland has a particularly high level of involvement in projects that also involve Norway, and vice versa. In both cases the actual level of project involvement is more than five times the normalised level. This continues the pattern found in FP6 where collaboration rates between Iceland and Norway are particularly high
- Sweden has a high level of involvement in projects that that also involve Iceland, and vice versa. In both cases the actual level of project involvement is more than three times the normalised level. This is a slightly different pattern to that found in FP6, where collaboration between Denmark and Iceland was a particularly strong feature

Based on this analysis we can say that the high level of Nordic collaboration found within FP6 projects has continued in FP7 and this is evident for all of the Nordic countries. However, the pattern of Nordic collaboration is particularly emphasised between Iceland and Norway, and to a lesser extent between Sweden and Iceland within FP7.

FIGURE 47 – COMPARISON OF ACTUAL NORDIC PROJECT INVOLVEMENT RATES TO NORMALISED NORDIC PROJECT INVOLVEMENT RATES WITHIN EACH NORDIC COUNTRY’S FP7 PROJECTS



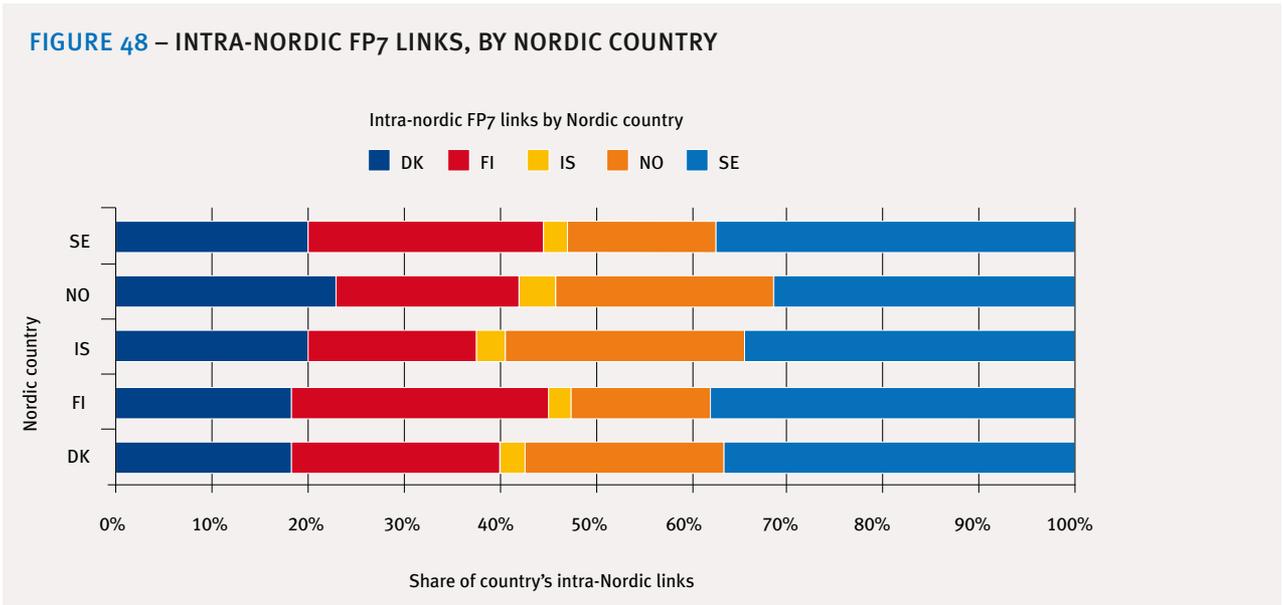
Source: FP7 participation data (E-CORDA, December 2009)

A more detailed assessment of intra-Nordic collaboration within FP7 projects was conducted based on an analysis of the numbers of links between individual participants within every FP7 project that contained two or more Nordic participants (n=647 projects). A total of 3,049 intra-Nordic links were found, of which 1,728 (or 57%) were between organisations from two different Nordic countries, and 1,321 (or 43%) were between organisations from the same Nordic country. Figure 45 shows graphically the distribution of each Nordic country’s intra-Nordic links by country. The data behind the figure indicates the following features of each country’s role as regards intra-Nordic collaboration:

- **Denmark** – Danish participants account for 20% of all intra-Nordic links within FP7 to date, slightly below the share achieved in FP6. Denmark accounts for a fairly uniform share of each country’s links (i.e. between 18% and 23% in each case), though Danish participants occupy a greater share of Norway’s links than average
- **Finland** – Finnish participants account for 24% of all intra-Nordic links, a higher share than that achieved in FP6 (20%). The Finnish share of each country’s intra-Nordic links varies significantly: a relatively high proportion of Sweden’s intra-Nordic links are with Finland (25%), while a relatively small proportion of Iceland’s intra-Nordic links are with Finland (18%). Finland also has a relatively high share of own country links (i.e. Finland to Finland) at 27% of its intra-Nordic links
- **Iceland** – Iceland, being a small country, accounts for just 2.4% of all intra-Nordic links, and the share of each country’s links that are with Iceland varies only a little. Just 1.9% of Finland’s intra-Nordic links are with Iceland, but in the case of Norway the figure is 3.4%
- **Norway** – Norwegian participants account for 18% of all intra-Nordic links, a slightly lower share than was the case in FP6. Again we have found that there is a fairly wide variation between the five countries as to the share of their own Nordic links that are accounted for by collaboration with Norway. At one end of the scale just 15% of Finland’s and just 16% of Sweden’s Nordic FP7 links were with Norwegian partners. At the other end of the scale one-quarter (25%) of Iceland’s Nordic FP7 collaborations were with partners from Norway

■ **Sweden** – Being the largest of the Nordic countries, Sweden accounts for 36% of all intra-Nordic links. In relative terms Sweden does not figure as a key collaborator for Norway or Iceland, making up just 32% and 34% of their Nordic links within FP7 respectively. However, 38% of Finland’s Nordic FP7 links to date have been with partners from Sweden, confirming the strong collaboration between these two countries within FP7. Overall, the patterns of intra-Nordic collaboration within FP7 suggest particularly strong collaborative links between Sweden and Finland and also between Iceland and Norway. These patterns mirror those found in FP6 and can therefore be viewed as fairly stable features of intra-Nordic collaboration within the Framework Programmes.

FIGURE 48 – INTRA-NORDIC FP7 LINKS, BY NORDIC COUNTRY



Source: FP7 participation data (E-CORDA, December 2009)

Further analyses were conducted to identify the FP7 priority areas where intra-Nordic collaboration within projects was most and least prevalent. The analyses were also aimed at revealing any specific collaboration patterns between two or more Nordic countries within each priority area.

Initially, the number of collaborative links within all FP7 projects and the number of these that were intra-Nordic links was calculated, for each of the 22 FP7 priority areas. The analysis revealed that the priority areas with the highest proportion of intra-Nordic links were **Marie Curie Actions**, where 4.3% of the collaborative links were Nordic (although most of these were same country links); **Science in Society** (2.7%); **Energy** (2.3%); **European Research Council** (2.1%, though exclusively same country links); and **Health** (2.0%).

Next, normalised levels of links between each Nordic country (including intra-country links) were calculated for each FP7 priority area, based on each country’s overall share of Nordic links, and compared to actual levels of intra-Nordic links within each area. Figure 49 shows the nature of the top three intra-Nordic collaborative links for each of the FP7 priority areas, based on this measure.

FIGURE 49 – MAIN NORDIC INTRA-PROJECT COLLABORATION PATTERNS, BY FP7 PRIORITY AREA

Priority area	1 st highest level of intra-project Nordic collaboration	2 nd highest level of intra-project Nordic collaboration	3 rd highest level of intra-project Nordic collaboration
Energy	DK-NO	NO-NO	DK-DK
Environment (including Climate Change)	IS-NO	DK-IS	FI-IS
Food, Agriculture, and Biotechnology	IS-IS	IS-NO	DK-DK
General Activities (Annex IV)	FI-NO	NO-NO	FI-FI
Health	IS-IS	IS-SE	DK-IS
Information & Communication Technologies	FI-SE	FI-FI	NO-SE
Nanosciences and Nanotechnologies	FI-NO	NO-SE	DK-FI
Security	NO-NO	NO-SE	FI-NO
Socio-economic Sciences and Humanities	DK-IS	IS-NO	DK-SE
Space	DK-NO	FI-NO	DK-FI
Transport (including Aeronautics)	DK-FI	SE-SE	FI-FI
Activities of International Cooperation	FI-NO	NO-SE	FI-SE
Coherent development of research policies	IS-SE	FI-FI	FI-NO
Regions of Knowledge	DK-DK	FI-FI	DK-FI
Research for the benefit of SMEs	NO-NO	IS-NO	FI-IS
Research Infrastructures	IS-IS	FI-IS	IS-SE
Research Potential	-	-	-
Science in Society	DK-NO	DK-FI	FI-IS
Marie Curie Actions	SE-SE	FI-FI	DK-IS
European Research Council	FI-FI	SE-SE	-
Fusion Energy	DK-FI	DK-SE	FI-SE
Nuclear Fission and Radiation Protection	FI-SE	SE-SE	FI-FI

Source: FP7 participation data (E-CORDA, December 2009)

4.5.3 Most important (foreign) collaboration partners

Respondents to our questionnaire survey were asked to indicate in which two countries their most important (foreign) collaboration partners are presently located. Over 700 participants responded, with most providing two countries and a few just indicating one. In total 57 different countries were selected as important collaborators, with the top 14 most frequently mentioned (by 20+ respondents each) shown in Figure 50 below.

Germany and the United Kingdom were mentioned by the highest proportion of respondents (41% and 35% respectively), while all other countries were mentioned by 17% or less. The USA was the most frequently mentioned non-European collaborator country, being mentioned by 4% of respondents. Four of the Nordic countries appear in the top 14 list, with Sweden the most commonly cited collaborator in this group (16% of respondents), followed by Denmark (10%), Finland (8%) and Norway (8%). Iceland appeared in 20th place, with 1% of respondents indicating that one of their two most important collaborators are presently located here.

FIGURE 50 – THE LOCATION OF NORDIC PARTICIPANTS’ MOST IMPORTANT (FOREIGN) COLLABORATION PARTNERS

Country	% of respondents
Germany	41%
United Kingdom	35%
France	17%
Sweden	16%
The Netherlands	14%
Denmark	10%
Italy	10%
Finland	8%
Norway	8%
Spain	7%
Austria	5%
Belgium	4%
Switzerland	4%
USA	4%
Total respondents	751

Top 14 countries shown only, percentages do not sum to 100%

The responses shown in Figure 50 have been used to identify the ranked order of important collaborators for respondents in each of the five **Nordic countries**. The top 10 most frequently mentioned important collaboration partner countries are listed in Figure 51 below. There is considerable similarity between each of the Nordic countries (if we exclude the results from Iceland, where there is a small sample size) and the Nordic average. Germany and the United Kingdom are the most commonly reported foreign collaboration partner countries in each case, while Sweden and France also appear in the top five for each Nordic country. Nordic countries also have a strong presence in the top 10 lists of each country. Participants from Denmark, Finland, Norway and Sweden each rated each other’s countries among their top 10 foreign collaborators, with the exception that Finland does not appear in Denmark’s top 10 (it ranks 12th).

FIGURE 51 – THE LOCATION OF PARTICIPANTS’ MOST IMPORTANT (FOREIGN) COLLABORATION PARTNERS, FOR EACH NORDIC COUNTRY

Ranked	Denmark (n=368)	Finland (n=232)	Iceland (n=40)	Norway (n=329)	Sweden (n=516)	Nordic Total (n=1,485)
1st	United Kingdom	Germany	United Kingdom	United Kingdom	Germany	Germany
2nd	Germany	United Kingdom	Denmark	Germany	United Kingdom	United Kingdom
3rd	Sweden	Sweden	The Netherlands	Sweden	France	France
4th	The Netherlands	France	Norway	France	Denmark	Sweden
5th	France	Italy	Germany	The Netherlands	The Netherlands	The Netherlands
6th	Norway	Spain	Spain	Denmark	Italy	Denmark
7th	Italy	The Netherlands		Finland	Finland	Italy
8th	Austria	Denmark	Sweden	Spain	Spain	Finland
9th	Spain	Norway	France	Austria	Norway	Norway
10th	Belgium	Austria	Italy	Italy	Switzerland	Spain

4.5.4 Nordic partners for FP6/7 projects

Questionnaire respondents were asked specifically whether their research group / organisation had (i) searched for, and (ii) collaborated with partners from another Nordic country in their FP6/7 projects. The responses indicate that just under half (45%) of all respondents had actively searched for a partner from another Nordic country in their FP6/7 projects, while

nearly three-quarters (71%) had actually collaborated with partners from another Nordic country in these projects.

Responses varied by country, with above average 'Nordic search' rates in Iceland (70%) and, to a lesser extent, Finland (50%) and Norway (47%), and below average rates in Sweden (43%) and Denmark (42%). Nordic collaboration rates followed a similar pattern, with above average rates in Iceland (80%), Norway (73%) and Finland (72%), and at/below average rates in Sweden (70%) and Denmark (71%).

Further analysis of individual responses suggests that those who searched for Nordic partners were significantly more likely to collaborate with a Nordic partner in FP6/7 projects (88%), than those who did not search for partners from another Nordic country (58%).

Respondents were then also asked, where applicable, to describe the main motivation for their interest in collaborating with partners from another Nordic country in FP6/7 project. Over 300 responses were received, and have been summarised below:

- **Scientific excellence** in a specific area – e.g. necessary expertise and scientific excellence in a specific area, or specific competencies of interest (n=74)
- **Cultural factors** – e.g. cultural proximity, similar business cultures and language abilities that can make collaboration easier, more efficient and more effective (n=48)
- **Similar interests** – e.g. a common field of research, facing similar national challenges, and regional knowledge (n=40)
- **Nordic-specific projects** – e.g. subjects of specific Nordic interest, a Nordic-specific topic / subject (environment, policy, etc.) (n=34)
- **Past collaborators** – e.g. an established network / contacts, good past collaboration experience, existing knowledge of the partner and their abilities (n=31)
- **Good partners** – e.g. good teamwork, quality, attitude, reliability, etc. (n=21)
- **Geographic proximity** – e.g. better travel connections, easier / more frequent travel and exchange (n=20)
- **Complementarity** – e.g. complementary expertise and competences (n=19)
- **Funding possibilities** – e.g. from national / Nordic funding sources (n=8)
- **A desire to create Nordic collaboration** – e.g. patriotism, in the regional interest, competing with large countries (n=7)

It is worth noting that a further group of respondents (n=29) specifically stated that the motivation for collaborating with Nordic partners **is no different** from the motivation for any collaboration (i.e. there is no *a priori* regional preference). Instead collaboration partners are chosen / preferable based on their knowledge, relevance, experience, etc. In some cases, this partner will be Nordic, but in other cases it will not.

4.6 BENEFITS AND IMPACTS

This section presents findings from our participant questionnaire survey in relation to the outputs and outcomes sought and realised by Nordic actors involved in FP6 and FP7. It also covers feedback on the extent to which projects results have been exploited and investigates the ratio between costs of participation and the benefits obtained, as viewed from the participants' perspective.

4.6.1 The most important outputs to organisations / research groups

Respondents were asked to indicate which of a list of different types of outputs were the three most important to their organisation or research group. Figure 52 lists the outputs that we asked about and shows, for each, the proportion of respondents reporting that they were the 1st, 2nd and 3rd most important in the list. The final column sums the proportion of respondents selecting each output as one of the most important (top three) for their organisation or research group.

The results indicate that the majority of Nordic participants give high importance to *publications in refereed journals and books* (64% selected this in their top three). A further four types of output were selected in the top three most important by at least 30% of respondents. These were: (i) *new or significantly improved tools, methods or techniques*, (ii) *new research grants*, (iii) *newly trained / qualified personnel*, and (iv) *scientific conferences, seminars or workshops*.

By comparison, four of the outputs were only selected by 3% of respondents. These were *patents granted*, *invention disclosures*, *new licence agreements* and *awards or prizes*.

FIGURE 52 – MOST IMPORTANT FP PROJECT OUTPUTS (N=852)

	Share rating most important	Share rating 2 nd most important	Share rating 3 rd most important	Share of respondents rating in top 3
Publications in refereed journals and books	46%	10%	7%	64%
New or significantly improved tools, methods or techniques	14%	12%	11%	37%
New research grants	6%	14%	16%	36%
Newly trained / qualified personnel (MSc, PhD, postdocs)	6%	17%	11%	35%
Scientific conferences, seminars or workshops	5%	11%	15%	31%
Other publications	2%	9%	5%	16%
New or significantly improved commercial products or services	6%	5%	4%	15%
Exchange of personnel (in or out)	1%	4%	9%	14%
New or significantly improved scientific or industrial processes	3%	5%	5%	14%
Patent applications	3%	2%	3%	8%
New or significantly improved facilities or infrastructure	2%	2%	3%	7%
New or significantly improved regulations or policies	2%	2%	3%	6%
New or significantly improved technical codes or standards	1%	2%	2%	5%
Patents granted	1%	1%	1%	3%
Invention disclosures	0%	1%	1%	3%
New licence agreements	0%	0%	1%	2%
Awards or prizes	0%	0%	1%	2%

Analysis of the most important types of output from the perspective of the four major groups of FP participant revealed a fairly high level of agreement as to which were the most important outputs, although there were some notable differences. All groups apart from industry rated *publications in refereed journals* as their most important output overall, while industry ranked it only 6th. *New or significantly improved tools, methods or techniques* was ranked 1st or 2nd by all groups apart from HEIs, who ranked it 5th. *New research grants* and *scientific conferences* were of similar (relatively high) importance to all groups, but *newly trained personnel* was emphasised as an important output mainly by HEIs (ranked 2nd), with the other three groups assigning this lower importance. *New or significantly improved commercial products or services* and *new or significantly improved scientific or industrial processes* were ranked 2nd and 3rd most important outputs by industry participants but did not feature within the top five most important outputs for any of the other groups. These differences between the groups are fairly uniform across the different national FP evaluation studies.

Respondents were given the opportunity to specify ‘other’ types of important output not listed. Most of the suggestions provided (n=15) related to ‘outcomes’ rather than ‘outputs’ and covered new / improved networks, new knowledge and improved coordination of research. Only two additional outputs were mentioned (by one respondent in each case). These were a training course and a European platform.

4.6.2 The extent to which outputs are successfully delivered by FP projects

Respondents were asked to indicate the extent to which their FP6/7 projects have successfully

delivered each type of output mentioned above, relative to their prior expectations. For all of the outputs, the majority of respondents (65%+) reported that they were being produced ‘in line with expectations’. However, if we consider the net balance (i.e. the proportion of respondents reporting an output being produced ‘above expectations’, minus the proportion reporting production ‘below expectations’) then there are some significant differences across the different outputs.

Publications in refereed journals and books, and *scientific conferences, seminars or workshops*, are much more commonly produced ‘above’ than ‘below’ expectations (as evidenced by the 11-12% figures for their net balance). These outputs were considered as of high importance (top three) by over 30% of respondents. Therefore ~90% of respondents reporting successful delivery ‘in line with’ or ‘above’ expectations is a very positive result.

There are however, a number of outputs (12 of the 17 listed) where the proportion reporting delivery ‘below expectations’ outweighs the proportion reporting delivery ‘above expectations’. The net balance is particularly low (or negative) for *new licence agreements* and *patents granted*. However, these two outputs were also both considered as important by a very small minority of respondents.

FIGURE 53 – EXTENT TO WHICH PROJECTS HAVE DELIVERED OUTPUTS COMPARED WITH EXPECTATIONS

	Below expectation	In line with expectation	Above expectation	Net balance
Publications in refereed journals and books (86)	11%	65%	23%	12%
Scientific conferences, seminars or workshops (1,655)	8%	74%	18%	11%
Other publications (1,070)	8%	74%	18%	10%
Newly trained / qualified personnel (e.g. MSc, PhD, postdocs) (1,303)	9%	76%	15%	6%
New or significantly improved tools, methods or techniques (1,499)	14%	71%	15%	0%
Exchange of personnel (in or out) (1,554)	15%	71%	14%	-2%
New or significantly improved scientific or industrial processes (1,320)	14%	74%	12%	-2%
New or significantly improved technical codes or standards (1,256)	14%	75%	11%	-3%
New research grants (1,552)	18%	67%	15%	-3%
Awards or prizes (1,303)	16%	75%	9%	-6%
Invention disclosures (1,285)	18%	72%	11%	-7%
New or significantly improved commercial products or services (1,253)	19%	71%	10%	-8%
Patent applications (1,248)	19%	71%	10%	-9%
New or significantly improved regulations or policies (1,237)	17%	76%	8%	-9%
New or significantly improved facilities or infrastructure (1,248)	15%	79%	6%	-9%
Patents granted (1,164)	24%	72%	4%	-19%
New licence agreements (1,121)	22%	75%	2%	-20%

Further analysis at the level of the five Nordic countries revealed no significant differences regarding the extent of achievement of outputs, irrespective of whether they were rated as of high or low importance. There were also no significant differences between the results from the four main categories of participating organisation as regards the level of achievement of outputs.

4.6.3 The extent to which ‘important’ outputs are successfully delivered

In order to understand more clearly the extent to which the delivery of outputs ‘below expectations’ might represent a significant issue, it is important to consider these responses in comparison with the importance attached to each output by individual respondents.

For each output, Figure 54 below considers just those individuals who earlier rated the pro-

duction of a particular output as one of the three most important for their participation, and shows the proportion of these same respondents who reported delivering the output ‘below expectations’.

This highlights a number of areas of regular ‘disappointment’ for participants. In particular for five of the outputs (*patents granted, new licence agreements, patent applications, new research grants, and awards or prizes*), at least one-quarter of participants who regard these outputs as ‘most important’ have not seen them produced in line with (or indeed above) their expectations. All but one of these five areas (*awards or prizes* is the exception) also has a negative net-balance, due to the relatively low proportion of respondents reporting achievement of the output ‘above expectations’.

FIGURE 54 – EXTENT TO WHICH THE ‘MOST IMPORTANT’ OUTPUTS ARE PRODUCED AT A LEVEL ‘BELOW EXPECTATIONS’

	Respondents reporting output as ‘important’	% reporting achievement of output ‘below expectations’
Scientific conferences, seminars or workshops	250	2%
New or significantly improved facilities or infrastructure	53	4%
Newly trained / qualified personnel (e.g. MSc, PhD, postdocs)	276	4%
Other publications	125	5%
New or significantly improved tools, methods or techniques	300	5%
Invention disclosures	22	9%
New or significantly improved scientific or industrial processes	109	10%
Publications in refereed journals and books	521	11%
New or significantly improved technical codes or standards	36	11%
New or significantly improved commercial products or services	123	14%
New or significantly improved regulations or policies	49	14%
Exchange of personnel (in or out)	114	15%
New research grants	277	25%
Patent applications	48	27%
Awards or prizes	11	27%
New licence agreements	14	36%
Patents granted	24	50%

4.6.4 The realisation of tangible and intangible benefits

Respondents were asked to indicate what scale of positive impact their FP6/7 participation has had (or is expected to have) on their own organisation or research group in terms of a range of different types of benefit, as shown in Figure 55 below. The results indicate that the main positive impacts realised by participants come in the form of (i) *improved relationships and networks*, (ii) *increased understanding / knowledge*, and (iii) *increased scientific capabilities*. In each case, at least 85% of respondents reported ‘medium’ or ‘high impact’ in these areas. FP projects have also bestowed significant benefits in related areas such as *improved competitive position internationally* and *enhanced reputation and image*.

There is accordingly a good degree of alignment between participants’ motives for participation and the kinds of impacts realised, with developing and extending knowledge and capabilities, and developing new and improved relationships and networks figuring as 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 impact listed that are not realised to a medium or high degree by the majority of participants relate to (i) *improved business opportunities* and (iii) *increased income or market share*. Both of these are areas of medium-high impact for some, but of low or no impact for the majority of participants. These two impacts tend to take longer to realise than the other more ‘direct’ benefits accruing through collaborative research projects.

FIGURE 55 – SCALE OF POSITIVE IMPACTS OF FP6/7 PARTICIPATION ON PARTICIPATING ORGANISATIONS

	No impact	Low impact	Medium impact	High impact
Improved relationships and networks (n=912)	1%	6%	29%	64%
Increased understanding / knowledge (n=919)	1%	7%	42%	50%
Increased scientific capabilities (n=893)	3%	13%	46%	39%
Enhanced reputation and image (n=866)	5%	15%	43%	37%
Improved competitive position internationally (n=850)	9%	16%	41%	34%
Increased technological capabilities (n=831)	7%	23%	45%	25%
Improved ability or capacity to conduct R&D (n=872)	8%	23%	45%	24%
Improved competitive position nationally (n=843)	13%	23%	39%	25%
Improved planning or coordination of R&D (n=868)	10%	29%	39%	23%
Improved ability to attract staff / increased employment (862)	14%	28%	37%	21%
Improved career development of researchers (n=851)	13%	30%	40%	17%
Improved ability or capacity to provide training (n=857)	12%	33%	39%	16%
Increased mobility of researchers (n=855)	15%	29%	38%	17%
Improved business opportunities (n=720)	28%	31%	29%	13%
Increased income or market share (n=666)	41%	28%	22%	9%

Analysis of the results by country revealed a small number of relatively minor differences in the impact ratings assigned by participants from each Nordic country. Icelandic participants assigned the most positive ratings overall, followed by Norway and Sweden, and then Finland. Danish researchers assigned the lowest impact ratings. However, the differences were relatively small. At the level of the different kinds of impacts there was a very high degree of alignment between the five countries as to the ranked order of the impacts.

Further analysis revealed that there is also a very high degree of alignment between the four main participant groups with respect to the main benefits they have realised through their FP projects. All four groups rated *improved relationships and networks* as the area of highest impact, and all rated *increased understanding / knowledge* as the second most significant impact realised. The only major differences between the four groups related to:

- Increased technological capabilities (3rd greatest area of benefit for industry but relatively low for the other three groups)
- Improved planning or coordination of R&D (3rd greatest area of benefit for ‘others’ but relatively low for the other three groups)
- Increased mobility of researchers and improved career development of researchers (rated 6th and 7th most significant benefits for HEIs but not areas of significant benefit for the other three groups)
- Improved business opportunities (ranked 7th most significant benefit by industry but very low impact for the other three groups)

4.6.5 Impact on network formation

Participants rate the development of new or improved relationships and networks as one of the main drivers for participation in the Framework Programmes, and also the major area of benefit. Respondents were therefore asked about the average number of partners in their

FP6/7 project(s), the proportion of these partners that were new (i.e. no previous collaboration), and the proportion of these *new* partners (only) that the respondent had worked with after the FP project (or expected to in the future).

Overall, the results obtained indicate that the average number of partners in FP6/7 projects with Danish participation was 14.7 (as given by respondents). On average, respondents reported that 57% of their partners were ‘new’ (i.e. they had not previously collaborated), which equates to a figure of 8.4 new partners per project on average. On average, respondents also reported that they had already worked (or expected to in the future) with 33% of their *new* partners, which equates to a figure of 2.8 partners per project on average.

4.6.6 The extent to which project results have been exploited

The survey questionnaire sought to understand whether and to what extent different groups have exploited the results of FP projects, both within the Nordic region and more generally across the EU and internationally. By ‘exploited’ we mean that the project results have been accessed and used by researchers, industry or policymakers outside the context of the FP projects. Respondents were therefore asked to indicate the extent to which their FP6/7 project results have been used in the ways listed in Figure 56 below.

The results obtained show that the majority of project results have been exploited first and foremost by *researchers* in follow-on projects. European and Nordic researchers have exploited the results 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 or medium extent. This suggests that the main impacts of FP projects with Nordic involvement are on the research community, with the benefits to both European and Nordic policy formulation and business sectors being lower in relative terms.

Half of the projects have been exploited by European and Nordic companies, but mainly to a small and medium extent, while only slightly fewer projects have been exploited by European and Nordic policymakers (mainly to a small extent). Few projects (<10%) have been exploited to any significant degree (medium/large extent) by companies or policymakers from outside of the EU and Nordic region.

FIGURE 56 – EXPLOITATION OF PROJECT RESULTS BY DIFFERENT COMMUNITIES

	Not at all	To a small extent	To a medium extent	To a large extent
Exploited by researchers in other parts of the EU in subsequent research (n=877)	17%	19%	31%	33%
Exploited by researchers from a Nordic country in subsequent research (n=763)	26%	21%	33%	20%
Exploited by researchers from outside the EU in subsequent research (n=855)	39%	26%	20%	15%
Exploited by companies based in other parts of the EU (n=855)	50%	23%	16%	11%
Exploited by companies based in a Nordic country (n=759)	50%	21%	21%	8%
Exploited by European-level policymakers (n=858)	54%	23%	14%	10%
Exploited by policymakers from a Nordic country (n=761)	56%	24%	15%	5%
Exploited by companies from outside the EU (n=838)	69%	21%	6%	3%
Exploited by policymakers from outside the EU (n=824)	74%	17%	6%	3%

Those responding ‘not applicable’ to the question have been included in the ‘not at all’ column

Analysis of the results by country revealed few differences between the five, although Norwegian participants assigned slightly higher ratings as to the extent of exploitation than was the case with the other four. There were few significant differences between the countries as regards which groups and which regions have been playing the major roles in the exploitation of project results.

Further analysis revealed some expected but nonetheless important differences between the four main participant groups as regards the extent to which their project results have been exploited in different contexts. All groups but particularly HEIs see their project results as being exploited mainly by researchers, whether at the European, Nordic or international level. Industry participants see higher levels of exploitation of project results by companies, particularly at the Nordic level, than do the other categories of participant. ‘Other’ participants (mainly public agencies) see higher levels of exploitation by policymakers, particularly at the Nordic level, than do the other three groups. Research institutes see fairly widespread exploitation of their project results by all types of beneficiary and at all levels (Nordic, European, international).

4.6.7 Overall cost:benefit ratio associated with participation in FP projects

Survey respondents were asked to assess, overall, how the costs and benefits associated with their own organisation / research group’s participation in FP6/7 projects balanced out, on a seven-point scale as shown in Figure 57 below. It can be seen from the results that more than two-thirds (69%) of Nordic participants realised a positive benefit to cost ratio, 17% indicated that the costs and benefits were evenly balanced, and just 14% indicated that the costs of participation had outweighed the benefits.

An ‘average’ rating of +1.2 suggests that the average Nordic participant believes that the benefits of their participation outweighed the costs slightly, while a net balance of +56% from responses shows that in the vast majority of cases a ‘positive’ outcome was achieved. There may be a bias here in the sense that many participants would not wish to indicate that they had ‘done the wrong thing’ by taking part in their FP projects.

However, taken at face value we can say that over two-thirds of participants have realised a positive result.

FIGURE 57 – COSTS & BENEFITS TO NORDIC PARTNERS OF PARTICIPATION IN FP6/7 PROJECTS (N=930)

Costs outweigh benefits			Costs equal benefits	Benefits outweigh costs		
-3	-2	-1	0	+1	+2	+3
2%	2%	10%	17%	21%	29%	19%

Analysis of the responses by country revealed that a higher proportion of Icelandic participants (81%) reported that the benefits of FP participation had outweighed the costs than was the case for participants from the other four countries (where the proportions were between 68% and 70%). Significantly fewer Icelandic participants reported that costs had outweighed the benefits (5% as compared to 11%-16% for the other countries). The ranked order of the five countries in terms of the average ratings assigned for their cost:benefit ratios were as follows: Iceland (most positive), Finland, Sweden, Norway, Denmark (least positive).

Analysis of the responses to the cost / benefit question by type of participating organisation revealed that all four main groups achieve broadly similar cost:benefit ratios. For all four groups between 13% and 15% of respondents indicated that the costs of participation had outweighed the benefits, although industry participants assigned slightly more ‘very’ negative ratings (-3 or -2 on our scale) than did the other three groups. Industry also provided slightly fewer positive ratings (62%) as compared to the other three groups (between 70% and 73% in each case), assigning instead a higher share of neutral ratings. This pattern is repeated in many of the countries where national FP evaluations have been conducted and included a similar question within their surveys of FP participants, so we do not believe that it is a particular feature of Nordic industry participation.

4.7 MAIN CHALLENGES AND SUCCESS CRITERIA

This section presents findings from our questionnaire survey of Nordic FP6 and FP7 participants. It begins with an analysis of the reasons given by participants for very positive and very negative cost:benefit ratios, and goes on to analyse the main problems and difficulties (i.e. challenges) associated with FP participation. Finally, we present findings on participants' levels of satisfaction with FP administration and reporting. Additional information on 'success criteria' is presented in the Section 4.8.

4.7.1 Reasons why the benefits of FP participation in most cases outweigh the costs

Respondents reporting a **positive benefit to cost ratio** from their FP participations indicated that the main positive reasons for this balance were the following:

- **Networks:** Networking and collaboration opportunities created and resulting new / enhanced partnerships, contacts and international networks with researchers, scientists and organisations in other countries (and the potential for new future collaboration) (n=71)
- **Direct financial benefit:** Direct financial benefit from adequate / high EC contribution towards the costs of research over a reasonably long time period, enabling existing areas of research to progress within institutions and serving as one of the main sources of income for the existence of departments / organisations (contributing to infrastructure, personnel, administration, etc. costs) (n=45)
- **Not possible otherwise:** Research that would not have been possible otherwise, either through (increasingly limited) national funding or internal resources in areas and types of research that are not a national priority⁹. Alternative funding would be either non-existent or not sufficient for the project to have been funded otherwise (n=30)
- **Employment / training:** Additional employment and training opportunities, funding the recruitment, retention and training of additional staff (including scientific personnel, PhDs, postdocs, managers, etc.) and increasing the attractiveness of employers (and therefore recruitment options and possibilities) (n=28)
- **Further research / funding:** New opportunities for further research / funding (often from national sources), building on the FP project and the collaborative links and prestige created, or the ability to attract co-financing for the FP project because of the EC contribution (n=25)
- **Good science / research:** Generally, the project enabled the undertaking of good, interesting research at the leading edge of science, with new, good, useful results and benefits (n=23)
- **Knowledge:** Improvements to internal knowledge, expertise and competencies, access to new knowledge (n=20)
- **Profile / reputation:** Maintained / increased European and international visibility, profile, reputation and prestige of participants and their organisations (n=19)
- **Exploitation:** New products, IP and commercial contacts leading to new business opportunities, new markets, commercial exploitation benefits, and increased income / market share resulting from this (n=15)
- **Publications:** Project led to increased publications (journal articles, books) (n=10)
- **Critical mass:** Enabled critical mass / scale, in terms of funding and / or partners (n=8)
- **Coordination:** Helped to foster and create cooperation and coordination of research in Europe (n=7)
- **Tools:** Development / knowledge of new tools, methods and techniques (n=5)

9 It should be noted that RTD funding has in fact been increasing in most Nordic countries, so this result is likely to be subject or organisation-specific.

- **FP experience:** Training / experience in project participation, management and administration (n=4)

4.7.2 Reasons why in some cases the costs of FP participation outweigh the benefits

Respondents reporting a **negative benefit to cost ratio** were asked to explain the main reasons why the costs and benefits had this balance. Those respondents indicated that there were problems with the following main areas:

- **Funding** (FP and other) is inadequate for the true costs involved (particularly administrative and overhead costs) (n=37)
- **Administrative burden** is too high / greater than expected / excessive relative to level of involvement (n=35)
- **Lack of relevance** of the project content / outputs / outcomes (n=6)
- Issues within the **consortium** (coordination / lack of effort) (n=4)
- **Lack of benefit** / impact realised from project (n=4)
- Inadequate **project planning** (n=2)

4.7.3 Negative impacts associated with FP participation

Respondents were also asked to consider whether FP participation had any negative impacts on their research group or organisation and to explain why this was the case. Over 500 responses were received, most of which (n=216) merely stated that there had been **no negative impacts** to participation. However, the remaining respondents did suggest a small number of areas, which have been summarised below:

- **Time and resources being devoted to administration, rather than research / science:** Additional (high or excessive) project administration requirements (understanding and undertaking financial administration, reporting, meetings and other bureaucracy) for the organisations, scientists, researchers and support teams involved, which has reduced the time and resources available (especially for leaders / supervisors / seniors) for research / science and / or has not been adequately funded through the project. This has been a particular problem for small groups, inexperienced participants and where a participant has a central / coordinating role. (n=106)
- **Financial loss / difficulties:** Need to find funding / funds from elsewhere (often internally) to cover costs, or underfunded projects / make a loss / financial strain (n=29)
- **Distraction from other priorities:** Focus on FP project can reduce time / resources / effort / interest in other areas (national funding, other areas of science / research, industry / commercial goals, internal projects, national / domestic issues) especially due to changes in economic climate, can lead to less internal funding (due to external success), less national funding (due to focus externally and less domestic visibility), loss of focus on core strategy / goals (e.g. in tailoring project to meet the call) (n=20)
- **Impact on relationships:** Internal colleague 'jealousy' and tension / issues with collaborators (IP / patent issues, low contributions, poaching staff, etc) (n=9)
- **Delayed research:** The start of projects was held back due to time-delays in reviewing / negotiating proposals and funding (n=4)
- **Poor partner performance:** putting a strain on their participation and impacting on their cost/benefit from involvement in the project (n=4)
- **Bad experience:** generally, which would put them off participating again (n=4)

4.7.4 The 'bureaucracy' issue

As already discussed, in many cases the reasons given for negative cost:benefit ratios relate to the level of administration and reporting required in order to participate in FP projects. This has been a recurring theme of the FPs and an area where it is common for participants,

particularly academics, to express high levels of dissatisfaction. Nordic participants were therefore asked to indicate their level of satisfaction with various aspects of FP6/7 administration and reporting. The results obtained are presented in Figure 58 and reveal that in most regards a substantial majority of respondents (60%+) are actually (very/) satisfied or neutral with regard to FP6/7 procedures.

The areas where the arrangements have attracted the highest share of satisfied or very satisfied ratings relate to *management arrangements within the projects* and *information provided by the Commission as to how to bid into the FP*. In both cases more than half of respondents reported that they were satisfied or very satisfied with their experience of these aspects.

The areas where participants were most commonly dissatisfied related to the *audit and reporting procedures* and *mechanisms for payment of EC financial contributions* to the project participants, with 30%+ of respondents stating that they were unhappy in some way with each. In the case of *auditing and reporting procedures*, the net balance was actually negative (i.e. more dissatisfied than satisfied participants). The *application and contract negotiation* procedures, as well as the *procedures for end of project assessment / completion* were also sources of dissatisfaction for a significant minority (21-22%).

FIGURE 58 – PARTICIPANTS’ SATISFACTION WITH FP6/7 ADMINISTRATION AND REPORTING (N=1,038)

	(Very/) dissatisfied	Neutral	(Very/) satisfied	Net balance
Management arrangements within your project (n=663)	10%	35%	54%	44%
Information provided to prospective applicants about how to apply (n=648)	10%	39%	51%	41%
Processes for dissemination and exploitation of project results (n=638)	9%	47%	44%	35%
FP6 proposal evaluation and selection procedures (n=621)	17%	41%	42%	25%
Evaluation at national and EC levels (n=538)	10%	58%	32%	21%
Procedures for end of project assessment / completion (n=604)	21%	43%	36%	16%
FP6 application procedures (n=636)	22%	41%	37%	14%
FP6 contract negotiation procedures (n=567)	21%	47%	32%	11%
Mechanisms for payment of EC financial contributions (n=653)	32%	34%	34%	2%
EC monitoring and reporting procedures (n=661)	37%	36%	27%	-10%
EC audit procedures and requirements (n=635)	39%	40%	21%	-18%

Analysis of the results by country revealed that participants from Iceland assigned the most positive ratings for FP6/7 administration and reporting, while participants from Sweden assigned the least positive ratings. There was a high degree of alignment between the five countries as to the aspects that participants were more satisfied with and which they were less satisfied with, although some small differences were noted in the case of Iceland. Icelandic participants were found to be more satisfied with proposal application and assessment procedures and with project monitoring and reporting than were the other four countries. Conversely Icelandic participants were less satisfied with dissemination and exploitation of results and with evaluation at the national and EU levels than were participants from the other four countries.

Analysis of the responses by type of organisation revealed a fairly high degree of alignment in the ratings provided by each of the four main groups, although industry and research institutes typically provided slightly higher (i.e. more positive) ratings than did HEIs and ‘others’. Industry ratings were highest in relation to most aspects of administration and reporting, although they were less impressed with the information provided to applicants about how to apply and with national and EU-level evaluations than were the other three groups. HEIs provided among the lowest ratings on all aspects of administration and reporting *apart* from

the processes for dissemination and exploitation of project results, where HEIs provided the most positive ratings overall.

Respondents were asked to provide any comments they had on the EC's administrative mechanisms and reporting procedures, and also whether they had any specific recommendations for how processes could be improved. Over 500 comments were provided covering the full range of processes and procedures. The comments suggest that a small number of respondents (n=12) appear to be **largely content** with current FP administrative mechanisms and procedures, having experienced few problems and seeing the current requirements and processes as appropriate and necessary when spending taxpayers money. Some of these respondents also pointed out that their current satisfaction with the system had resulted from recent improvements made between FP6 and FP7.

The majority of respondents, however, provided **negative feedback**. Most of these respondents focused on explaining issues that they had experienced through their participation in proposals and projects, rather than providing actual 'recommendations' for improvement (beyond suggestions that the situation within a particular area should be 'improved'). Many of the comments provided by respondents were brief and of a 'general' nature, stating merely that the management and administration involved in FP participation is too complex, bureaucratic, slow or excessive and that it is a waste of time and resources that should instead be devoted to research. These comments are summarised below:

- The various processes involved are **too slow** (n=48):
- Agreement and provision of payments (particularly final payments) (n=27)
- FP processes in general (n=8)
- Responding to queries and reports (n=7)
- The negotiation phase (i.e. from application to project start) (n=6)
- The administrative requirements are **too complex**: The administrative requirements are generally too complicated / complex, with insufficient clear, transparent information on what is required (n=25)
- The administrative requirements are **excessive**: Too much time / resources are required for administration of projects (taking time and effort from the projects) (n=17)
- The level of **bureaucracy** is excessive; Generally, the mechanisms and procedures are overly bureaucratic (n=15)

Other, more specific comments were also made, which related to more particular elements of the EC's administrative mechanisms and reporting procedures. These have been summarised below:

- The number of deliverables / reports required is excessive. They are often considered unnecessary and require time and resources that could otherwise be spent on research (n=60)
- EC staff changes occur too frequently during projects (n=16)
- IT systems / websites are difficult to use and have problems with bugs (n=9)
- Auditing processes are too complicated (n=8)
- Application requirements are excessive, requiring too much time and resource (n=8)
- Contract amendment (e.g. changing partners) is difficult due to inflexibility in the process (n=7)
- EC staff assistance / contact can prove difficult to obtain (n=6)
- Large projects in particular incur excessive administrative load / complexity (n=5)
- Decision-making is too politicised, with lobbying and insider knowledge driving too many funding decisions (n=5)
- Lack of differentiation between the requirements placed on large / small projects and applicants (n=4)

- Other issues, including specific financial issues (n=3), poor quality of evaluation (n=3), quick audit deadlines (n=1) and short project lengths (n=1)

Beyond 'general' suggestions that the situation within a particular area should be 'improved', a small number of specific recommendations were put forward as part of the comments above:

- A two-stage application should be considered to reduce wasted time, effort and resources (n=3)
- Online submission of paperwork should be acceptable (n=2)
- Normal accounting methods that are used by organisations, and audited through normal auditing procedures, should be approved for use also in EU-funded projects, in order to reduce overlap and unnecessary and time-consuming audits (n=2)

It is clear that experiences vary considerably, but there is some suggestion from the responses given that participants without experience of FP involvement and / or those not affiliated to large organisations with dedicated support personnel are often those encountering the most serious difficulties. Some participants (n=11) therefore also noted that the availability of experienced, expert support staff within their organisation, to deal with administrative, legal and financial aspects of FP involvement, could dramatically lessen the burden on individual participants.

4.8 BEST PRACTICES AND LESSONS LEARNED

This section presents findings from our questionnaire survey with respect to the strategies that Nordic participants have learned concerning effective management of their involvement in FP projects and maximising the benefits derived. It also presents findings regarding effective strategies for influencing FP priorities. Finally, we present a summary of the recommendations put forward by Nordic participants as to how institutional and national support for FP participants could be strengthened, along with other related recommendations for improving Nordic participation and the benefits derived.

4.8.1 Ways to successfully manage involvement in FP projects

Respondents were asked what advice they would give to other Nordic participants concerning ways to successfully manage their involvement in FP projects. Over 600 suggestions were made and these have been summarised below:

Selecting your FP project

- Choose the project topic carefully, making sure it aligns with and makes sense in relation to your strategy and main focus (n=13)
- Be clear what you expect to get out of the project before committing and ensure that this is sufficient for your involvement (n=9)

Building a consortium

- Establish a good, strong consortium early on, with partners that meet some or all of the following criteria: (i) experienced in FP projects, (ii) suit the needs of the project, (iii) reliable and hardworking, (iv) already known to you, and (v) have a shared focus but with complementary expertise (n=36)
- Avoid projects with too many partners (n=6)
- Ensure an international (and not just Nordic) consortium (n=5)
- Established a skilled internal team within your organisation / research group (n=3)

Coordination of the project

- Ensure good coordination and leadership for the project (e.g. a strong, competent, experienced coordinator with administrative backup, and a project task force) (n=16)
- Take on the role of coordinator or work package leader yourself (to gain insight, control, to align work packages with your interests, etc.), but prepare for the responsibility and time / effort involved (n=23)

- *Do not* take on the role of coordinator, especially without experience, support and resources (n=8)

Project planning

- Plan the project carefully and ensure common understanding and vision, with clear goals and objectives, partner roles, milestones, etc. and ensure sufficient time and budget for the project (n=28)
- Be active in planning the project from an early stage (proposal / project management), clearly defining your own role within the project to meet your needs and aims (n=21)
- Be realistic in planning the project (n=4)
- Seek other funding to support your involvement (n=3)
- Think about dissemination of project results at an early stage (n=3)

Administration

- Be fully aware of the administrative / financial requirements of FP projects from the start (including both the specific requirements and the likely effort / resources involved) (n=19)
- Make practical preparations for the administrative requirements (e.g. through establishing time-recording mechanisms, reporting plans and adequate accounting systems with tracked FP eligible / non-eligible costs), allocate the necessary resources and time, and ensure that there are strict rules for time, delivery, etc. in the project (n=12)
- Get administrative / management support to deal with these tasks. It is important that the scientists / researchers are able to focus on and devote their time to the project and not to management / administration, particularly where you are in the role of project coordinator (n=39):
- Use existing administrative office / administrative staff for these tasks (n=23)
- Employ an experienced, competent professional / consultant(s) with good knowledge of the FP, management, administration, financial and reporting tasks (n=14)
- Share management tasks across the consortium (n=2)

Activity during the project

- Be generally active in the project, be visible and voice your opinions (n=18)
- Maintain good contact within the consortium from an early stage (allowing sufficient time and resources for meetings throughout) (n=16)
- Use the opportunities offered to network (n=7)
- Deliver what is expected and do a good job (n=5)

4.8.2 Strategies for maximising the benefits realised from FP participation

Respondents were further asked what advice they would give to other Nordic participants on **how to maximise the benefits** that they derive from FP projects. Over 600 suggestions were given, which can be summarised as follows:

- Ensure sufficient attention is paid to **administrative elements** from the start, that there will be adequate resources and time available (for the considerable and often unexpected level of requirements) and that you are well prepared for these (e.g. through studying requirements carefully, ensuring a good coordinator, having a dedicated administrative team / person, etc.) (n=47)
- Establish a good **consortium** of partners (e.g. known partners, reliable, hardworking, committed, with the necessary competences and sharing a common interest, who complement you and are right for the project and its aims) with an appropriate / expert / experienced coordinator (n=42)
- **Planning and organisation** should be done thoroughly from the start (e.g. have a well-focused and structured project with clear objectives and goals, clear deliverables and responsibilities, clear milestones that are understood by everyone) (n=41)

- Be selective and only participate in **areas / topics that are highly relevant** to you and your organisation (i.e. aligned closely with your areas of interest, research focus, current strategies and activities, and that build on your existing interests and expertise). Do not do it (just) for the money (n=37)
- Focus on and take full opportunity to **develop networks**, make contacts and establish relationships (for the good of the project and for future opportunities) (n=37)
- Be active, maintain **communication** and cooperate (n=33)
- Take on **responsibilities** (e.g. work package leader or coordinator) (n=16)
- Be selective based on **potential benefits / exploitation**. When deciding to participate, ensure that you can see what you will get out of it, how you will use the results and how you will benefit from participation. Make this clear to partners and keep it at the forefront of your mind throughout the project (n=14)
- Take an active role in **project formulation** at an early stage (and try to influence according to your needs / goals) (n=12)
- Be **realistic** about what can be achieved (especially in relation to the level of funding) (i.e. keep it simple and achievable, do not under budget, accept that there is a learning curve) (n=12)
- Seek / ensure **adequate funding** from other sources (national or institutional), which may require alignment with national / institutional priorities (n=9)
- *Do not* take on **responsibilities** (e.g. coordinator) (n=5)
- Keep projects to a manageable **size** (n=5)

4.8.3 Ways to successfully influence FP priorities

Respondents were also asked to describe any ways in which Nordic participants could do more to influence FP work programme calls. Over 100 relevant suggestions were given relating to possible actions by individual researchers and participants, many of which related to the mechanisms introduced in the previous section. The suggestions can be organised into the following broad areas of action:

- Direct, **active involvement** in relevant FP mechanisms (n=53), including:
 - Generally, in the various programme and call definition mechanisms (mentioned in Figure 24 above), and from an early stage (19), or more specifically
 - Participation in conferences, workshops and related networking activities (14)
 - Participation on / input to FP advisory groups (8)
 - Input to FP6/7 Programme Committees (8)
 - Participation on ETPs and / or input to SRAs (4)
 - **Coordinated Nordic participation** in and inputs to programme / call development mechanisms (e.g. through discussion, networking, meetings, etc.) (n=28)
 - Direct **lobbying** of the EC / EU (n=16)
 - Make use of national / Nordic **representatives** and agencies (n=11), including:
 - Representatives in programme committees (5)
 - National contact points (4)
 - NordForsk (1)
 - Others (1)
 - Be active in **other relevant groups** (industry / professional associations, international sectoral networks and project, etc) (n=9)
 - Be an evaluator (n=2)

In addition to the suggestions provided above, a small number of respondents (n=19) highlighted that they **did not know** how Nordic participants could influence FP work programmes and calls, and suggested that there was therefore a need for greater information on how individual researchers might go about doing this and what options are available. A further small

group of respondents (n=7) suggested that maybe participants **should not try** to influence the FP, because they felt it might not be worth the effort of individuals at this level for the potential gains that could be made.

4.8.4 Areas where Nordic agencies / representatives could do more to influence the FPs

Respondents were also asked to describe any ways in which the Nordic agencies / representatives could increase their influence on FP planning processes in order to achieve higher relevance to Nordic research communities. Over 150 relevant suggestions were given, which have been summarised below:

- Generally, **improve the organisation of Nordic representation** (n=31), including through:
 - Communicating with and coordinating the efforts of national agencies and representatives (n=13)
 - Clearly defining a Nordic strategy and position (for relevant 'Nordic' areas) (n=10)
 - Improving the organisation of the 'Nordic effort' (i.e. professionalising activities) and taking a more coordinated approach (n=8)
 - Be more active at the EU level in **networking and lobbying** for the Nordic region (n=26)
 - **Seek input bottom-up** (from the research community) about priorities / fields of interest, through broader consultation, closer contact, improved communication and information exchange channels and specific events (n=24)
 - Take a greater interest and **direct involvement in the early planning and preparatory stages** of the FP (e.g. in the elaboration of EU research priorities and research themes, proposing thematic areas, producing work programmes for calls and call outlines, etc.) and ensure strong and active representation in the relevant bodies and groups for this purpose (e.g. in scientific advisory boards, reference groups, planning groups and expert panels) (n=18)
 - Coordinate an **early response to FP developments**, by alerting participants of upcoming calls / meetings (possibly providing preliminary versions of calls), seeking input and feedback (e.g. through workshops, organised networks or the formation of advisory groups) and taking these inputs forward (n=11)
 - Undertake **other activities** (suggested by a small number of individuals in each case):
 - Encourage communication and collaboration between potential Nordic FP participants (e.g. through support for consortium-building, networks, platforms, etc. in the Nordic region) (n=9)
 - Provide funding and support for applicants (n=6)
 - Involvement in / support for ERA-NETs, JTIs, ETPs, etc. (n=6)
 - Study / understand the main areas of activity in the Nordic countries (n=5)
 - Encourage scientists (themselves) to be active in lobbying / programming (n=2)
 - Demonstrate Nordic research excellence (n=2)

In addition to the suggestions provided above, a not insignificant number of respondents to this question (n=38) said that they **did not know** what could be done. Many of these individuals explained further that this was because they are not aware of Nordic agencies / representatives and what they do (or might do). Some specifically stated that they would like better information on these organisations and their (potential) role in this area so as to better understand what is possible, particularly if these Nordic agencies / representatives are expecting the research community to feed information to them.

Another small group of respondents (n=12) suggested that **there is no role** (or should be no role) at all for Nordic agencies / representatives in influencing the FPs, because:

- The Nordic priorities are not right for them as individuals
- There is no need to duplicate national efforts

- There is no need to duplicate institutional / group efforts
 - Generally, there is no need for Nordic intervention / it is not seen as a good thing
- Although not relating specifically to possible mechanisms, a further small group of respondents (n=16) took the opportunity to suggest that Nordic agencies should be trying to **promote specific areas** (biomedical sciences, clinical research, infectious diseases, geothermal energy, health, social challenges, welfare state, biomass, Arctic, climate, etc.), or **specific changes to the FP processes** (e.g. non-thematic calls, SME support, smaller consortia, openness, transparency, basic research focus, etc.)

4.8.5 Areas where national or institutional support for prospective FP applicants could be improved

Respondents were asked to describe any ways in which national or institutional support for prospective FP applicants could be improved. Over 500 responses were provided, some of which (n=16) merely suggested that generally, national / institutional help, advice and support should be improved. Other, more specific suggestions were put forward, which have been summarised below:

- Help with preparing / drafting proposals (particularly administrative parts) (n=33)
- Funding to support proposal phase (n=32)
- Funding to support FP project implementation (n=32)
- Improved administrative assistance during projects (e.g. establish support teams / experts) (n=20)
- Proactive involvement in the European process (e.g. knowledge of and involvement in programme / call development, and lobbying) (n=17)
- Improved national / Nordic strategy in relation to the FPs (e.g. aligned national priorities) (n=14)
- Help with identifying partners (n=14)
- Advanced notification of forthcoming calls (n=11)
- Information on live calls / news / announcements (n=11)
- Advice / feedback on draft proposals (n=10)
- Money / merit / rewards for application / participation (n=9)
- Seek inputs to draft calls and give advice on how to influence them (n=8)
- Advice on EC rules and procedures (n=8)
- Dissemination of success stories (n=3)
- Help with the preparation of ideas for FP6/7 proposals (n=2)
- Encouragement for participants to take on the role of coordinator (n=2)

It also worth noting that some respondents (n=18) took the opportunity to state that they feel that the current **support available (nationally / institutionally) is sufficient** and improvements were not needed (at least for their involvement in FP projects).

4.8.6 Recommendations for strengthening Nordic participation and the benefits derived

Finally, Nordic participants were asked to put forward any recommendations they have for strengthening Nordic participation and increasing the benefits realised. The main responses received are summarised below.

Suggestions relating to the Commission and the Framework Programmes in general

- The EC should seek to reduce and simplify various elements of the FPs' administrative requirements relating to applications, projects and reporting, reducing the proportion of funding, time and costs required for these areas. Others (e.g. Nordic / national agencies and representatives) should also strongly encourage the EC to do so (n=36)
- There should be a greater emphasis on smaller FP projects (n=12)
- Allocate FP funding to specific areas of research (varied person to person) (n=9)

- The EC / FP should not discourage or look negatively on those partnerships involving two or more Nordic participants (n=8)
- Greater use should be made of open, less specific and more flexible calls (n=6)
- Funding per project / participant should be increased (n=7)
- There should be an increased focus on scientific quality within call requirements / proposal selection (n=4)
- Greater use should be made of two-phase application processes (with a short pre-application requirement), or success rates should be increased, in order to make application more worthwhile (n=3)

Suggestions relating to Nordic or national agencies and representatives

- Improved national / Nordic funding relating to the FP (n=53):
- Establish /extend Nordic / national funding that is aligned with FP priorities, to serve as a precursor to FP participation, to increase Nordic chances of success within the competition and to strengthen future FP participation (n=16)
- Provide funding for proposal preparation and partnership formation (n=15)
- Improve the availability of national or (where there are two or more Nordic partners) Nordic co-financing for FP projects (n=18)
- Provide Nordic / national funding to follow-up, continue and / or support the exploitation and commercialisation of FP projects (n=4)
- Develop and define a joint Nordic strategy for the FP in areas of identified interest or alignment (aligning strategies, holding joint conferences, etc.) and using this as a basis for promoting Nordic interests as one and influencing the development of FP calls (n=24)
- Improve cross-Nordic participant information (e.g. on Nordic initiatives, efforts, capabilities and potential partners) and therefore increased awareness of Nordic collaboration possibilities (n=17)
- Support and promote the establishment of national / Nordic networks, groups and workshops of related researchers (n=14)
- Develop improved representation in Brussels, with greater Nordic influence in the planning and development of the FP and greater knowledge and awareness of developments (n=14)
- Generally, Nordic collaboration / cooperation in FP projects is desirable and should be encouraged / sought out (n=13)
- Disseminate Nordic participation and case study successes (n=3)
- Encourage and support closer industry-university relations (n=2)

Suggestions relating to individual institutions

- Increase institutional support to apply to the FP and to manage projects (n=9)
- Incentivise / reward participation in the FP (n=3)

Suggestions relating to individual participants

- Ensure good, committed partners within your FP consortium (n=11)
- Seek the *best* partners, regardless of whether they are Nordic (n=9)
- Do not participate in the FP lightly (n=3)
- Write a good / well-prepared proposal, meeting the call requirements closely (n=2)
- Participate in your project actively (n=2)

Other comments and suggestions

- It is particularly difficult for SMEs to get involved in the FP, and this group requires greater, more specific financing and other support (n=11)
- Encouragement and support should be particularly provided to *new* FP applicants (n=4)
- Greater support and training should be provided in administrative elements of the FP (n=3)
- Greater support should be provided in developing applications (n=3)

4.9 NORDIC PARTICIPATION IN RELATED INSTRUMENTS AND INITIATIVES

This section presents information on a number of recent initiatives that have been run alongside or in parallel to FP6 and FP7 and which are linked indirectly to the two programmes, either through the provision of funding, by operating in a similar (research / innovation) sphere, or by tackling similar EU policy objectives (including for example the drive to create a European Research Area, strategic planning and priority setting, joint programming, etc.). In each case no complete data was available on the extent of Nordic cooperation so the websites of each initiative have been mined for relevant descriptive information and participant data. The availability of participation data by country is detailed in relation to each of the initiatives below.

4.9.1 Nordic participation in related instruments and initiatives

4.9.1.1 European Technology Platforms (ETP):

European Technology Platforms have been established around a number of strategically important research and technological areas under the leadership of industry. ETPs are bottom-up initiatives that provide a framework for stakeholders to define, develop and implement research and development priorities in areas where achieving Europe's future growth, competitiveness and sustainability objectives is dependent upon major research and technological advances in the medium to long term. ETPs foster effective public-private partnerships and therefore have the potential to contribute significantly to the development of the ERA.

ETPs were launched fully in FP6, after being trialled by the aeronautics industry in FP5 in 2001 (ACARE). At the beginning of 2007 there were 31 ETPs running. Five additional ETPs have been funded since, for a total of 36 ETPs by the end of 2009. Each of the ETPs covers leading technology areas of Europe. Selected examples include: engineering materials and manufacturing, aeronautics and space; computing systems and software and services; mobile and wireless communications; construction; nanoelectronics and nanotechnologies; rail and road transport; thematic areas around energy such as wind energy, nuclear, fossil fuels and power plants; food; forest; and animal health.

ETPs bring together large numbers of stakeholders in various structures. The size of the ETPs varies greatly, in some cases exceeding 500 stakeholders. The stakeholders comprise predominantly industry, but also regulatory bodies, public authorities (at the national and international levels), research institutes and academics, civil society and finance organisations. The Commission participates as an observer in meetings of ETPs. It provides limited financial support where appropriate and in line with its priorities. During the initial setting-up phase, it promotes the concept and encourages the process of defining a long-term vision and Strategic Research Agenda (SRA). The funding of the operation of the ETPs, the development of the Strategic Research Agenda and its implementation rely on various sources, including Commission funding, membership fees and contributions received from industry, in addition to different national and international funding programmes and sources such as the Framework Programmes or Structural Funds.

There is no comprehensive information available on the participating organisations in the ETPs. According to a recent evaluation¹⁰ of the ETPs, on average there were 30 ETPs with established national mirror groups, which on average involved 16 countries each at the end of 2007. Furthermore the ETPs had an average of 316 member organisations.

4.9.1.2 Joint Technology Initiatives (JTI):

Joint Technology Initiatives involve a dedicated legal structure – Joint Undertakings – set up under Article 187 TFEU (previously Article 171 TEC) to implement a clearly defined objective.

10 Idea Consult: Evaluation of the European Technology Platforms (ETPs), Brussels, August 2008

They can therefore serve to implement a specific part or the entirety of a European Technology Platform. JTIs provide a framework for public-private partnerships at the European level in the field of industrial research with leadership and coordination that ensures effective implementation to achieve research objectives.

FP7 identifies JTIs as a means to support transnational cooperation in fields of key importance for industrial research, and therefore FP7 foresees the following identification criteria for JTIs:¹¹

- Inability of existing instruments to achieve the objective
- Scale of the impact on industrial competitiveness and growth
- Added value of European-level intervention
- Degree and clarity of definition of the objective and deliverables to be pursued
- Strength of the financial and resource commitment from industry
- Importance of the contribution to broader policy objectives including benefit to society
- Capacity to attract additional national support and leverage current and future industry funding

JTIs are set up on the basis of a Council Regulation following a proposal from the Commission. The Commission is a funding member in all JTIs and is involved in the decision-making process. The JTIs are funded by the EC (and the Member States that are involved in the JTI) through annual commitment, furthermore by in-kind contributions and funds from industry accounting for at least 50% of the total costs of the research projects undertaken by the JTI.

So far five JTIs have been established. The first four were agreed on in December 2007 under the Portuguese presidency and the regulation on the last one, the Fuel Cells and Hydrogen JTI, was adopted in May 2008 under the Slovenian presidency. The five established JTIs are as follows:

- **Innovative Medicines Initiative** (IMI) aims to provide new tools and methodologies to remove major bottlenecks in drug development. The founding partners are the EC and the European Federation of Pharmaceutical Industries and Associations (EFPIA), which is a non-profit organisation representing the research-based pharmaceutical industry in Europe. Four Nordic countries are members of the EFPIA: **Denmark, Finland, Norway and Sweden**. The maximum Community contribution to running costs and research activities is €1 billion, which is allocated from the 'Health' theme of the Specific Programme Cooperation under FP7
- **Embedded Computing Systems** (ARTEMIS) aims to deliver the essential technology building blocks for the next generation of embedded computing systems including design methods, hardware and software. Founding members include: the Community, Austria, Belgium, **Denmark**, Estonia, **Finland**, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Portugal, Romania, Slovenia, Spain, **Sweden**, the United Kingdom and ARTEMISIA, an association representing companies and other R&D organisations active in the field of Embedded Computing Systems in Europe. Three of the Nordic countries – Denmark, Finland and Sweden – are among the founding member countries, and the ARTEMISIA industry grouping consists of further Nordic participants. The maximum Community contribution to running costs and research activities is €420 million, which is allocated from the 'Information and Communication Technologies' theme of the Specific Programme Cooperation under FP7
- **Aeronautics and Air Transport** (Clean Sky) aims to develop environmentally-friendly and cost-efficient aircraft. Members of the Clean Sky JTI include the EC and industrial organisations in France, Germany, Italy, Spain, **Sweden** and the United Kingdom that lead six 'Integrated Technology Demonstrators': Airbus, Agusta, Alenia Aeronautica,

11 Source: http://cordis.europa.eu/fp7/jtis/about-jti_en.html

Dassault Aviation, EADS CASA, Eurocopter, Fraunhofer Gesellschaft, Liebherr, Rolls-Royce, SAAB, Safran, Thales and Westland. (ITDs create the structure of the Clean Sky JTI.) Associate members of the individual ITDs are also members of the JTI. The maximum Community contribution to running costs and research activities is €800 million, which is allocated from the ‘Transport’ theme of the Specific Programme Cooperation under FP7

- **Nanoelectronics Technologies 2020** (ENIAC) aims to develop the capabilities of nanoelectronics in Europe through the creation of an attractive R&D and human capital environment for investment. The founding members of the ENIAC Joint Undertaking are the Community, Belgium, Estonia, France, Germany, Greece, Ireland, Italy, the Netherlands, Poland, Portugal, Spain, **Sweden**, the United Kingdom and AENEAS, an association representing companies and other R&D organisations active in the field of nanoelectronics in Europe. The maximum Community contribution to running costs and research activities is €450 million, which is allocated from the ‘Information and Communication Technologies’ theme of the Specific Programme Cooperation under FP7
- **Fuel Cells and Hydrogen** (FCH) aims to deliver ‘fit-for-use’ hydrogen energy and fuel cell technologies developed to the point of commercial take-off. Founding members include the EC and the European Fuel Cell and Hydrogen Joint Technology Initiative Industry Grouping (NEW-IG), which represents the interests of industry and is open to private companies. The maximum Community contribution to running costs and operational costs is €470 million, which is allocated from the ‘Energy’, ‘Nanosciences, Nanotechnologies, Materials and New Production Technologies’, ‘Environment (including Climate Change)’, and ‘Transport (including Aeronautics)’ themes of the Specific Programme Cooperation under FP7

Figure 59 provides a summary on the Nordic countries’ involvement as founding members of the JTIs. It shows that there is Nordic involvement in each of the JTIs, with Sweden being involved in all five, and Denmark, Finland and Norway participating in four (Aeronautics and Air Transport is the exception). Iceland is only involved in one JTI as a member of the NEW-IG industry grouping.

FIGURE 59 – NORDIC INVOLVEMENT AS FOUNDING MEMBERS OF JTIS

Founding members of the JTIs	Innovative Medicines Initiative	Embedded Computing Systems	Aeronautics and Air Transport	Nanoelectronics Technologies 2020	Fuel Cells and Hydrogen
Number of founding members excl. the EC	EFPIA	19 countries + ARTEMISIA	6 countries	13 countries + EANEAS	NEW IG
Denmark	X*	X		X*	X*
Finland	X*	X		X*	X*
Iceland					X*
Norway	X*	X*		X*	X*
Sweden	X*	X	X	X	X*
Comment	X*: members of the EFPIA	X*: ARTEMISIA industry grouping members include: DK –3 members FI –17 members NO – 4 members SE – 8 members		X*: members of EANEAS	X*: members of NEW-IG

4.9.1.3 European Institute of Innovation and Technology (EIT):

The European Institute of Innovation and Technology was established with a regulation that came into force on 29 April 2008. The EIT supports European-wide research collaborations between academia, research and business, in the shape of knowledge innovation communities (KICs).

VISION

The European Institute of Innovation and Technology (EIT) is to be a key driver of sustainable European growth and competitiveness through the stimulation of world-leading innovations with a positive impact on economy and society.

MISSION

The mission of the EIT is to grow and capitalise on the innovation capacity and capability of actors from higher education, research, business and entrepreneurship from the EU and beyond through the creation of highly integrated Knowledge and Innovation Communities (KICs). (Source: <http://eit.europa.eu/about-eit/at-a-glance/eit-mission.html>)

KICs are highly integrated, creative partnerships encompassing education, technology, research, business and entrepreneurship that aim to produce new innovations and new innovation models. The EIT's activities started in late 2009 with the selection of three KICs, which are transnational, distributed geographically and based in colocation centres where locality is highly involved. Local entities are working together with a global perspective, facing the global market and constraints. The first KICs are focusing on climate change and mitigation, on renewable and sustainable energies and on the future of ICT. The KICs are intended to operate as autonomous bodies and the EIT controls whether funding is spent efficiently.

Funding for the EIT includes an initial contribution from the EU budget (€308.7 million) for the 2009-2013 period. The KICs operate using a variety of sources, including: national and regional funding; Community funds, for example from FP7, in addition to EIT funding; and own resources of the participants, including money, in-kind contributions and staff.

The composition of the first three KICs is presented in

Figure 60 below, listing all of the core partners. It reveals that there is no Nordic participation in the Climate KIC, something of a surprise given the strong performance of the Nordic countries within the environment and climate change-related priority areas of FP6 and FP7. Sweden and Finland are represented in the other two KICs, and account for two of the six countries and seven of the 29 partners in the ICT KIC and two of the nine countries and three of the 35 partners in the KIC InnoEnergy. As far as we can determine, Denmark, Norway and Iceland are not represented in any of the KICs supported to date.

FIGURE 60 – PARTNER COMPOSITION OF THE KICS

	Climate KIC	EIT ICT Labs	KIC InnoEnergy
Countries	UK, France, Spain, Netherlands, Poland, Germany, Switzerland, Italy and Hungary	France, Germany, Finland , UK, Netherlands, Sweden	Germany, France, Poland, Spain, Netherlands, Portugal, Belgium, Finland , Sweden
Total number of countries	9 – no Nordic participation	6 – Sweden and Finland	9 – Sweden and Finland
Total number of partners	32 partners	23 partners , of which 3 Finnish (13%) 4 Swedish (17%)	35 partners , of which 1 Finnish (3%) 2 Swedish (6%)
Core partners			
Academia and research centres	ETH Zurich, Imperial College, IPSL - ParisTech-CEA - INRA - USVQ - Météo-France - Advancity, PIK - TU Berlin - TU Munich - GFZ - FZ Juelich - KlimaCampus Hamburg, Utrecht - Delft - Wageningen	TU Berlin, 3TU / NIRICT, Aalto University , UPMC, Université Paris-Sud, Institut Telecom, Royal Institute of Technology , DFKI, Fraunhofer, INRIA, Novay, VTT , SICS	Karlsruhe University, Stuttgart University, AGH University of Science and Technology, Forschungszentrum Karlsruhe, German Aerospace Centre (DLR), KIT Central Mining Institute (GIG), CIEMAT, CEA, ESADE Business School, Grenoble Ecole de Management (GEM), Grenoble Institute of Technology, IREC, Institute of Chemical Processing of Coal (ICHPW), INSA Lyon, Technical University of Lisbon, Katholieke Universiteit Leuven, Royal Institute of Technology , Silesian University of Technology, Technische Universiteit Eindhoven, TecNALIA, TNO, Universitat Politècnica de Catalunya, University of Stuttgart, Uppsala University
Regional innovation and implementation community	Central Hungary, Lower Silesia (Poland), Midlands (UK), Hessen (Germany), Emilia Romagna (Italy) and Valencia (Spain)		
Corporate partners	Bayer, Beluga Shipping, Cisco, DSM, EDF, SAP, Schiphol Group, Shell, SolarValley, Thales	Deutsche Telekom, SAP, Siemens, Philips, Nokia , Alcatel-Lucent, France Telecom, Technicolor, Ericsson , TeliaSonera	ABB, EnBW, Schneider Electric, Miro, AREVA, Intel, EANDIS, SAP, EDF, Gas Natural Fenosa, Iberdola, Polish Oil and Gas Company, Total, Vattenfall , Vito, ZAK

4.9.1.4 European Research Area – Network (ERA-NETs) and ERA-NET Plus:

ERA-NETs were launched in FP6 through an open call for proposals in December 2002, followed by five selection procedures during FP6. ERA-NETs are bottom-up initiatives without any preference given to specific scientific domains or disciplines. ERA-NETs comprise networking and coordinating actions and mutual opening up of national and regional research programmes. ERA-NETs aim to facilitate increased coordination of and cooperation between national and regional research and innovation programmes. The ERA-NETs were implemented during FP6 as Coordination Actions (CA, for fully-fledged proposals) and Specific Support Actions (SSA) to prepare the CAs. There were 229 proposals submitted to the call requesting €391 million, of which 106 proposals were granted an EU contribution of €182.72 million. Thematic fields covered by the ERA-NETs include: life sciences (26 projects), environment and energy (25 projects), humanities and social sciences (14 projects), fundamental research (six projects), international cooperation (seven projects), and industrial technologies, aeronautics, space, IST, innovation and transport (28 projects).

In FP7 there have been two calls for proposals to date supporting 11 ERA-NET proposals under the first call and 10 under the second call.

Figure 61 provides a summary on the participating organisations by country funded under both the FP6 and FP7 ERA-NET calls for proposals. It reveals that there have been 252 Nordic participations in the ERA-NETs to date, out of a total of 1,427. This means that the Nordic countries have together accounted for a 17.7% share, significantly above the level we might have expected based on their relative size and level of participation in FP6 and FP7 more widely. Finland, Norway and Denmark also participated in the role of coordinator for 14 of the FP6 ERA-NETs (a 15% share) but Nordic coordinator rates have been lower in the FP7 ERA-NETs (with two out of 21 coordinator positions, or 9.5%).

FIGURE 61 – INVOLVEMENT IN ERA-NETS, BY COUNTRY

ERA-NET projects		FP6		FP7		FP6 and FP7	
		Coordinator	Participants	Coordinator	Participants	Total	Total %
EU27	Germany	20	94	4	23	141	9.9%
	France	19	75	6	33	133	9.3%
	Netherlands	14	66	1	18	99	6.9%
	Spain	7	52		29	88	6.2%
	United Kingdom	10	56	3	13	82	5.8%
	Austria	4	53	2	17	76	5.3%
	Belgium	2	52	1	20	75	5.3%
	Sweden		52		17	69	4.8%
	Italy	1	43	2	21	67	4.7%
	Finland	9	42	1	13	65	4.6%
	Denmark	3	31	1	10	45	3.2%
	Poland		32		7	39	2.7%
	Portugal		30		6	36	2.5%
	Greece	2	21		11	34	2.4%
	Slovenia		23		8	31	2.2%
	Hungary		20		10	30	2.1%
	Ireland		23		7	30	2.1%
	Czech Republic		16		5	21	1.5%
	Romania		12		10	22	1.5%
	Estonia		15		1	16	1.1%
	Cyprus		8		5	13	0.9%
	Latvia		6		6	12	0.8%
	Slovakia	1	6		5	12	0.8%
	Bulgaria		6		3	9	0.6%
	Lithuania		4		5	9	0.6%
	Luxembourg		5		1	6	0.4%
Malta		3		2	5	0.4%	
Associated candi-date countries	Turkey		8		9	17	1.2%
	Croatia		2		5	7	0.5%
Associated states	Norway	2	46		10	58	4.1%
	Switzerland		17		13	30	2.1%
	Israel		12		7	19	1.3%
	Iceland		10		5	15	1.1%
Third countries	Russian Federation		2		1	3	0.2%
	Albania		1			1	0.1%
	Algeria				1	1	0.1%
	Bosnia and Herze-govina		1			1	0.1%
	Egypt		1		1	2	0.1%
	Canada		1			1	0.1%
	Macedonia		1		1	2	0.1%
	Kenya		1			1	0.1%
	Morocco				1	1	0.1%
	Serbia and Monte-negro		2			2	0.1%
	Tunisia				1	1	0.1%
International organisation				2*		0.1%	
Total		94	950	21	362	1427	100%

* International organisations include participation of the Nordic Innovation Centre in the ERACOBUILD ERA-NET.

ERA-NET Plus was introduced in FP7 within the ERA-NET scheme as a new instrument with the aim to advance transnational funding of research based on the successful achievements of the ERA-NETs. ERA-NET Plus encourages collaborative work and joint calls of the participating organisations (programme owners and programme managers) by topping-up joint transnational funding with Community funds in the areas with particular European added value. ERA-NET Plus are implemented through Coordination and Support Actions (CSAs). There are criteria to comply with to receive Community funding, such as:

- The proposed joint call has to involve at least five different Member or Associated States
- The budget of the joint call should be at least €5 million including Community contribution (up to 33% of the cumulative joint call budget)
- The duration of the ERA-NET Plus cannot exceed five years

There have been two call for proposals for ERA-NET Plus in FP7 so far that resulted in funding of seven ERA-NET Plus projects. The members of the FP7 ERA-NET Plus actions approved to date are shown in Figure 62. It again reveals a very high level of involvement by the Nordic countries, collectively accounting for 28 out of 107 participations – a 26% share of the total. Finland has been very centrally involved, occupying the role of coordinator in three out of the seven actions.

FIGURE 62 – INVOLVEMENT IN ERA-NET PLUS, BY COUNTRY

FP7 ERA-NET Plus		Coordinator	Participants	Total	Total (%)
EU27	Finland	3	7	10	9.3%
	Spain		8	8	7.5%
	Germany	2	5	7	6.5%
	Netherlands	1	6	7	6.5%
	Sweden		6	6	5.6%
	Austria		5	5	4.7%
	Slovenia		5	5	4.7%
	United Kingdom		5	5	4.7%
	Denmark		4	4	3.7%
	Estonia		4	4	3.7%
	France	1	3	4	3.7%
	Ireland		4	4	3.7%
	Belgium		3	3	2.8%
	Italy		3	3	2.8%
	Luxembourg		3	3	2.8%
	Poland		3	3	2.8%
	Portugal		3	3	2.8%
	Latvia		2	2	1.9%
	Slovakia		2	2	1.9%
	Czech Republic		1	1	0.9%
	Lithuania		1	1	0.9%
	Romania		1	1	0.9%
	Bulgaria				
	Cyprus				
Greece					
Hungary					
Malta					
Associated candidate countries	Turkey		2	2	1.9%
	Croatia		1	1	0.9%
Associated states	Norway		5	5	4.7%
	Iceland		3	3	2.8%
	Israel		3	3	2.8%
	Switzerland		1	1	0.9%
International organisation			1	1	0.9%
Total		7	100	107	100.0%

4.9.1.5 Article 169 (Article 185):

Article 169 of the EC Treaty (Article 185 since the Lisbon Treaty came into force in December 2009) provides means for the Member States to coordinate their research programmes. Article 169 initiatives have developed from ERA-NETs and have a stronger legal basis. “Implementing Article 169 in the Seventh Framework Programme implies that the participating EU Member States integrate their research efforts by defining and committing themselves to a joint research programme, in which the European Community promotes the voluntary integration of scientific, managerial and financial aspects. The Community provides financial support to the joint implementation of the (parts of the) national research programmes involved, based on a joint programme and the setting-up of a dedicated implementation structure.”¹² Article 169 initiatives are set up individually based on proposals from the European Commission and through a codecision process between the Parliament and the Council.

12 Source: http://cordis.europa.eu/fp7/art169/about-169_en.html

The first Article 169 initiative, the European and Developing Countries Clinical Trials Partnership (EDCTP), was established during FP6 in the field of clinical research and trials to combat HIV/AIDS, malaria and tuberculosis (development of new drugs, vaccines, microbicides and diagnostic tools), with project length of 10-20 years. There have been four additional Article 169 initiatives funded under FP7: three under the ‘Cooperation’ Specific Programme – the joint research programmes Ambient Assisted Living (AAL), Bonus-169 in the field of Baltic Sea research, and EMRP in the field of metrology – while the last one, Eurostars, is funded under ‘Capacities’ and is aimed at research-performing SMEs and their partners. Article 169 initiatives launch joint calls.

Figure 63 provides a summary on the Nordic countries’ involvement in the Article 169 initiatives. It shows that Denmark and Sweden have been involved in all five Article 169 initiatives, and that Finland, Norway and Iceland have been involved in four, three and one respectively.

FIGURE 63 – NORDIC PARTICIPATION IN ARTICLE 169 INITIATIVES

Members of the Article 169 EEIGs	EDCTP	AAL	EUROSTARS	EMRP	BONUS-169
Number of members	16 countries	22 countries	32 countries	22 countries	8 countries
Denmark	X	X	X	X	X
Finland		X	X	X	X
Iceland			X		
Norway		X	X	X	
Sweden	X	X	X	X	X
Comment	A European Economic Interest Group (EEIG-EDCTP) is the legal entity for implementing the programme and managing the funding.	The AAL Association, an international, non-profit association according to Belgian law with its official seat in Brussels is responsible for the joint programme and its implementation.	Dedicated implementation structure: Eurostars Joint Programme	EURAMET e.V. is the dedicated implementing structure of EMRP, which was established in 2007 under German law as a non-profit association.	BONUS EEIG (European Economic Interest Grouping) is the dedicated legal structure for the BONUS-169 with a registered office in Finland.

4.9.1.6 Joint Programming Initiatives

Joint Programming is a new process that aims to join national research efforts to tackle common European challenges and to use public R&D resources in a more efficient way. Based on the initiative of the European Council of March 2008, the Commission made a proposal to launch Joint Programming during 2010 as described in the Commission Communication entitled: Towards Joint Programming in Research.¹³

Joint Programming brings together a strategic framework with bottom-up initiatives and a high level of commitment from the participating Member States. The JPIs’ main structure will comprise common visions and Strategic Research Agendas agreed on jointly by the Member States to address major societal challenges. The High Level Group on Joint Programming (GPC), which is a dedicated group of the European Research Area Committee (previously CREST), identifies the areas that are suitable for Joint Programming.

The first Joint Programming Initiative was launched in the field of neurodegenerative diseases with special emphasis on Alzheimer’s disease. Joint Programming for Neurodegenerative Diseases (JPND) has managed to engage voluntary commitments from 25 countries so far, including Denmark, Finland, Norway and Sweden from the Nordic countries. The JPND addresses this challenging area by pooling resources from the participating countries to achieve its ultimate goal: “to accelerate progress in understanding the causes of these debili-

13 Towards Joint Programming in Research: Working together to tackle common challenges more effectively; COM(2008) 468, Brussels, 15.07.2008

tating conditions, leading to not only early diagnosis, and the development of new treatments and prevention, but also the provision of more effective medical and social care to improve the quality of life for patients and care givers.”¹⁴

The activities carried out within the framework of the JPDN will be structured around three main areas including development of the scientific understanding of the disease; improvement of the medical tools available to identify and to treat the disease; further advancement of the social care systems and structure to optimise the care provided to patients. The management structure of the JPDN includes a Management Board that is the main decision-making body and which relies on the advice of the Scientific Advisory Body (15 members appointed) and on the support of a five-strong body, the Executive Board. A Secretariat is in charge of the organisation of the daily operations of the JPDN, which started up in April 2010.

In December 2009 the Council selected new areas for new JPIs, based on the recommendation of the GPC:

- Agriculture, food security and climate change
- Health, food and prevention of diet-related diseases
- Cultural heritage, global change and security

With a provisional date of the end of 2010 a new set of JPIs will be adopted by the Council.

There are additional instruments addressing specific thematic areas and major challenges including the Recovery Plan Initiatives (New Public-Private Partnerships – PPPs – within the European Economic Recovery Plan adopted in November 2008) and the SET-Plan.

4.9.1.7 Strategic Energy Technology Plan (SET-Plan)

Launched in November 2007, the SET-Plan was designed to help Europe to meet its climate change goals of reducing greenhouse gas emissions by 20% by 2020 and by around 80% by 2050. The SET-Plan aims to contribute to increasing the competitiveness of Europe by accelerating the development and deployment of cost-effective low-carbon technologies and by ensuring Europe’s leading role in these developments. In addition to setting up joint research programmes in line with SET-Plan priorities and sharing research infrastructures, the partners commit themselves to strengthening links with industry, enhancing Europe’s capacity to carry out large, high-risk, high-gain R&D programmes, and developing training, education and outreach activities.

Implementation of the SET-Plan is steered by a 57-strong Steering Group representing all 27 EU Member States and Norway, Switzerland and Turkey. The Commission chairs the Steering Group, which is comprised of high-level government representatives from the Member States. The key objectives, main tasks and composition of the Steering Group are laid down in its Terms of Reference.

The Group has had three meetings since its inaugural meeting in June 2008. The Group will conceive joint actions, through coordinating policies and programmes, make resources available, and monitor and review progress in a systematic way. European Industrial Initiatives in selected areas aim to strengthen industrial energy research and innovation by mobilising the necessary critical mass of activities and actors. Four European Industrial Initiatives were launched on 3 June 2010 including detailed roadmaps and implementation plans for the 2010-2012 period:

- Wind
- Solar (Photovoltaics and Concentrated Solar Power)
- Electricity Grids
- Carbon Capture and Storage

8 Source: <http://www.neurodegenerationresearch.eu/home/>

4.9.1.8 European Economic Recovery Plan 2010-2013 – Public-Private Partnerships in Research Activities

The economic recovery package, adopted by the Commission on 26 November 2008 and endorsed by the Council on 11-12 December 2008, proposed actions for the development of clean technologies for cars, construction and manufacturing. The Commission proposed to launch three major public-private partnerships to provide the required support to the manufacturing, construction and automobile sectors respectively. The main objectives of these PPPs are to boost research efforts and direct investments in industrial sectors in line with Strategic Research Agendas. There are a number of different PPPs in R&D including ETPs and JTIs.

In terms of funding of the research activities carried out within the framework of the PPPs, the EC has provided an overall contribution of 50% to the total budget in the form of grants, while the remaining 50% will be provided by the private sector, mostly through human capital and in-kind contributions.

The three PPPs launched include:

- **Factories of the Future** (total budget of €1.2 billion including financial contributions from the NMP and ICT thematic areas of FP7) aims to support the manufacturing industry in the development of new and sustainable technologies and to help EU manufacturing enterprises, in particular SMEs, to adapt to global competitive pressures by improving the technological base of EU manufacturing across a broad range of sectors
- **Energy Efficient Buildings** (total budget of €1 billion including financial contributions from the NMP, Environment, Energy and ICT thematic areas of FP7) targets the construction sector at large and aims to promote green technologies and the development of energy-efficient systems and materials in new and renovated buildings, with a view to radically reducing their energy consumption and CO₂ emissions
- **Green Cars** (total budget of €1 billion including financial contributions from the NMP, Energy, Environment, Transport and ICT thematic areas of FP7 plus a loan from EIB of €4 billion) aims to boost the automotive industry and to support the development of new and sustainable forms of road transport. Greening road transport is necessary to achieve EU and world targets in emissions reductions

Each PPP is supported by an industrial advisory group. The compositions of the Ad-hoc Industrial Advisory Groups for the three PPPs in November 2009 were as follows:

- **European Green Cars Initiative:** representatives of 19 companies including Volvo from the Nordic countries
- **Factories of the Future:** 15 partners, with no involvement of the Nordic countries
- **Energy Efficient Buildings:** 26 partners, with the following representatives from the Nordic countries: BIC and ClimateWell from Sweden and VTT from Finland

The first cross-thematic calls for proposals were launched in 2009, making use of existing FP funding schemes, such as collaborative projects and Coordination and Support Actions. A total of 157 proposals were submitted for the first calls for proposals of Factories of the Future and Energy Efficient Buildings, 96 and 60 proposals respectively. The overall budget of the first call of the Green Cars PPP was around €100 million, with a focus on electrification of road transport.

4.9.2 Relevance of related instruments to Nordic FP6/7 participants

Respondents were asked specifically about three of the ‘new’ instruments introduced to accompany the Framework Programmes. These were:

- **Joint Technology Initiatives (JTIs)** are public-private partnerships using the ‘Joint Undertaking’ model. Introduced in FP7 to support (in a limited number of cases) large-scale initiatives that could not be implemented efficiently using the other R&D funding mechanisms, the JTIs focus on one specific industrial area, have a well-defined objective

and address a market failure. They are funded by a combination of private and public investments

■ **Public-Private Partnerships (PPPs)** for research are a new initiative to be funded through the Framework Programme, which support long-term “smart” research investment in certain sectors and involve the Commission providing a contribution of 50% to the total R&D budget, with matching investment coming from the private sector. As part of the European Economic Recovery Plan, the Commission launched three PPPs in 2009 to boost research efforts in three large industrial sectors – the automotive, construction and manufacturing sectors

■ **Joint Programming Initiatives (JPIs)** involve enhanced cooperation among Member States to develop and manage research programmes, with the aim of increasing the efficiency and impact of national public research funding in strategic areas

For each of the three instruments, respondents were asked (i) whether they had heard of the instrument, (ii) whether they had participated in the instrument, and (iii) whether they intended to (or would like to) participate in the instrument in the future.

The results, presented in Figure 64, Figure 65 and Figure 66 below show that less than half of respondents have heard of each of the instruments, with JTIs (37%) and PPPs (40%) more commonly known than JPIs (26%). Only a small proportion (6-7%) of respondents have already participated in each of these instruments, although a significantly larger proportion (19-24%) intend to (or would like to) participate in each instrument in the future.

It is notable that a majority of the FP participants are unsure as to whether or not they intend to participate in these new instruments. It is likely that the low level of awareness is limiting the extent to which FP participants can make informed decisions about whether or not to participate in these activities. The relatively widespread lack of awareness of these instruments does, however, mask the level of interest in participating in the instruments *amongst those that are aware of their existence*. For example, if we just consider those respondents that have heard of each of the instruments, then in each case, just less than half of these respondents (43% for JTIs, 41% for PPPs and 45% for JPIs) have either already participated and / or intend to in the future. At the same time, of those that have already participated in each instrument, the vast majority indicated that they intend to (or would want to) participate in the same instrument again in the future (81% for JTIs, 88% for PPPs, 89% for JPIs).

FIGURE 64 – AWARENESS AND PARTICIPATION IN NEW INSTRUMENTS – JTIS

JTIs	Yes	No	Unsure
Have you heard of this instrument?	37%	50%	12%
Have you participated in this instrument?	7%	87%	7%
Do you intend to (or would you like to) participate in this instrument in the future?	22%	21%	57%

FIGURE 65 – AWARENESS AND PARTICIPATION IN NEW INSTRUMENTS – PPPS

PPPs	Yes	No	Unsure
Have you heard of this instrument?	40%	50%	10%
Have you participated in this instrument?	7%	87%	6%
Do you intend to (or would you like to) participate in this instrument in the future?	24%	21%	55%

FIGURE 66 – AWARENESS AND PARTICIPATION IN NEW INSTRUMENTS – JPIs

JPIs	Yes	No	Unsure
Have you heard of this instrument?	26%	59%	15%
Have you participated in this instrument?	6%	82%	12%
Do you intend to (or would you like to) participate in this instrument in the future?	19%	17%	63%

An analysis of the responses by type of organisation revealed that research institutes are most likely to have heard of each of these new instruments, and universities are least likely to have heard of them. Research institutes are most likely to have already participated in JPIs and industry are most likely to have participated in PPPs, while ‘others’ are most likely to have participated in JTIs. In all cases HEIs are least likely to have participated in each of the different initiatives. Finally, participants from ‘other’ types of organisation (mainly public sector agencies) were most likely to signal an interest in participating in these three types of initiative in the future. The proportion of respondents from each category that provided a positive (affirmative) response to each question is shown in Figure 67 below.

FIGURE 67 – AWARENESS OF, PARTICIPATION IN, AND FUTURE PLANS FOR INVOLVEMENT IN NEW INSTRUMENTS, BY TYPE OF ORGANISATION

	Joint Technology Initiatives			Public-Private Partnerships			Joint Programming Initiatives		
	Heard	Taken part	Intend	Heard	Taken part	Intend	Heard	Taken part	Intend
HEIs	30%	32%	21%	4%	4%	4%	19%	21%	17%
Industry	41%	39%	21%	10%	12%	5%	25%	26%	15%
RIs	47%	51%	35%	11%	10%	7%	30%	31%	24%
Other	44%	56%	48%	7%	7%	17%	15%	15%	33%

4.9.3 Nordic participation in FP evaluation panels

Participation as an expert on one of the European Commission’s evaluation panels is another type of ‘related’ activity that has been highlighted by some participants as a valuable way in which to improve their ‘inside’ knowledge about how the FP competitions operate. This in turn can lead to the development of stronger proposals and improve success rates within the competitions. Since 2007 the Commission has been publishing annual lists of the experts who have been involved in the appraisal of proposals submitted to FP7. The lists of experts are published on the Cordis website (http://cordis.europa.eu/fp7/experts_en.html), are organised by FP7 priority area and include the names of the evaluators, their institutions, and their country.

The source data includes information for three consecutive years (2007, 2008 and 2009) for all FP7 priority areas apart from the following: *Euratom* (2007 only), *Socio-economic sciences and Humanities* (2007 and 2009 only), *Transport* (2007 and 2008 only) and *General Activities* (2008 and 2009 only). The data for *Coherent development of research policies* priority area was not available and is hence excluded from the table. Lastly, in the panel data, *Activities of International Cooperation* and *Regions of Knowledge* are treated as a single priority area and the priority area *Euratom* includes experts from *Fusion Energy* and *Nuclear Fission and Radiation Protection*. In 2007 the system allowed multiple selection of nationality per participant. In order to analyse the data for each of the Nordic countries separately, we focused solely on the Expert Evaluator’s primary nationality.

Our analysis of Nordic involvement in the FP7 evaluation panels revealed that the Nordic 5 together supplied 7.8% of all the FP7 expert evaluators, which is below the Nordic countries’ share of FP7 participations to date (9.4%). This indicates a level of involvement below that which we might expect given the Nordic countries’ overall level of involvement in FP7. An analysis by individual country is shown in

Figure 68, and reveals that Iceland and Finland both have expert involvement rates higher than their share of participations while the other three Nordic countries have lower levels of participation in evaluation panels than might be expected given their level of involvement in FP7 projects.

It is worth noting that all five Nordic countries have enjoyed broadly similar (and good) success rates in FP7 to date and so there does not appear (based on these data alone) to be a clear

correlation between success rates and levels of involvement in evaluation panels. However, the benefits derived from working as an expert evaluator may only have a localised impact (e.g. on the participant and his/her close collaborators) and may take some time to be revealed and so may not be identifiable at an aggregate (national) level at this stage.

FIGURE 68 – NORDIC PARTICIPATION IN FP7 EVALUATION PANELS, BY COUNTRY

Country	Participations in FP7 projects (to date)	Participations in FP7 evaluation panels (to date)	Ratio of involvement rate in evaluation panels to involvement rate in FP7 projects
Denmark	2.0%	1.6%	81%
Finland	2.1%	2.2%	106%
Iceland	0.2%	0.3%	139%
Norway	1.5%	1.0%	66%
Sweden	3.6%	2.7%	75%
Nordic 5	9.4%	7.8%	83%

Source: FP7 participation data, E-CORDA December 2009 and FP7 evaluation panel data (Cordis website, June 2010)

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 NORDIC PARTICIPATION IN FP6 AND FP7

5.1.1 Extent of Nordic involvement

The results presented in this report demonstrate that the Nordic countries, individually and collectively, have had a strong and active involvement in FP6 and FP7 to date. Nordic organisations have taken part in almost a third of the projects, have accounted for almost 10% of the participations, and have received just over 10% of all EC funding under the two programmes.

Our attempts to normalise the amount of funding received by the Nordic countries, to take account of differences in the sizes of the participating countries and their respective RTD communities, have confirmed the strong performance of the Nordic 5. On the most commonly used metric (FP funding share versus GDP share) the Nordic countries' FP 'income' was found to be ~40% higher than might have been expected given their share of GDP, and when placed in the context of relative population sizes the volume of FP funding attracted by the Nordic countries is the highest of all participating Member States and associated countries. However, when placed in the context of more 'research-based' measures, such as the number of FTE researchers or GERD, Nordic performance is much less strong, with the five countries collectively occupying 'middle-ground' and 'bottom of the table' positions respectively using these two measures.

In conclusion we have found that Nordic performance is very strong when 'general' scale measures are used to factor the level of funding achieved, and less strong (but still respectable) when more research-based indicators are used to factor the results. It can be seen that most of the EU countries perform better on some measures than others, so the findings for the Nordic countries are in line with expectations. Perhaps most importantly we have seen a small improvement in the performance of the Nordic 5 collectively from FP6 to FP7 on most of the indicators used.

5.1.2 Nature of Nordic involvement

The findings of this study have confirmed that Nordic participants have occupied a strong role in their projects. Nordic project coordination rates are above the levels we might expect given the overall extent of involvement of the five countries, and feedback gathered through our survey revealed that most participants occupy a major or primary role in relation to most aspects of their projects. We have also found that Nordic participants achieve a higher level of funding per participation than the FP6 and FP7 averages overall and compared to other participants in Nordic projects.

5.1.3 Areas of Nordic research strength

If we use FP participation rates an indicator of Nordic research strengths then the Nordic countries have performed most strongly in the following research areas:

- **Sustainable development / environment:** Iceland, Norway, Denmark and Sweden all performed strongly in this area in FP6 and FP7, although it is not a major focus for Finnish participation
- **Food:** Denmark, Iceland and to a lesser extent Norway have all performed strongly in this research area in both FP6 and FP7
- **Life sciences / health:** Denmark and Sweden have both performed strongly in this area, and Iceland has performed reasonably well, particularly in FP7
- **Coordination of activities:** All five Nordic countries performed extremely well in this 'joint programming' area of FP6, although only Finland and Norway have continued this high level of performance in FP7 so far

- **Euratom / fission:** Sweden and Finland performed extremely well in the Euratom area in FP6, and both have performed extremely well in the Nuclear Fission area of FP7
- **Security:** Introduced as a standalone priority for the first time in FP7, this is the area where the Nordic share of participations is highest, with Finland, Sweden and Norway standing out as the major performers from the Nordic 5
- **Science in society:** Also introduced for the first time as a priority area in FP7, Iceland, Norway, Sweden and Denmark have each performed well in this field

5.1.4 Relevance of FP6 and FP7 priorities and instruments

Our participant survey has confirmed that FP6 and FP7 priority areas / calls and the instruments used to implement the activities are of high relevance to the majority of Nordic participants. It has also demonstrated that the FPs have in most cases supported the implementation of Nordic participants' research strategies to a medium-high extent. The majority of Nordic participants have also adjusted their research strategies to a small-medium extent in order to ensure a better alignment with FP priorities and instruments.

5.1.5 Nordic influence on FP work programmes and instruments

Almost half of the Nordic participants have taken steps to influence the FP6/7 annual work programmes in order to increase the relevance of the calls and thereby improve chances of success within the competitions.

A range of mechanisms to influence the work programmes are in use, including participation in conferences and workshops, inputs to programme planning committees, participation on ETPs, and direct contact with the Commission's scientific officers. Respondents have been split as to whether they had found the mechanisms to be effective or not, although the ones noted here are found to be among the most effective. Industry participants and those from public agencies report slightly higher effectiveness ratings than do HEIs and research institutes.

Of more direct policy relevance are participants' views on the extent to which Nordic agencies and representatives have been successful in influencing FP priorities and instruments. Here the balance of opinion is that Nordic agencies have either not been effective or only effective to a small extent. Only around one in 20 respondents felt that Nordic agencies had been effective to a large extent.

While it is inevitable that not all efforts to influence the programmes can be effective (due to the many competing interests of European actors) these results are somewhat disappointing, and signal perhaps that more could be done by agencies at the Nordic / national level to ensure a good alignment between Nordic research strengths / priorities and the opportunities offered through the FPs. It is noteworthy that a significant number of Nordic FP6/7 participants stated that they did not know what steps Nordic agencies could take to influence the programmes, and in fact several of these are not really aware of the existence of Nordic-level agencies / representatives, their role and what they might do (or are actually doing) to support Nordic interests within the Framework Programmes. These participants would appreciate more information and knowledge about these aspects, and so it would be useful for the Nordic agencies and representatives to take steps to increase their visibility to Nordic research communities, and that they clarify their respective roles, responsibilities and activities.

Other participants put forward a number of suggestions as to actions that could be taken by Nordic agencies to influence the FPs in line with Nordic interests. A significant number of these participants see a need for a more coordinated and concerted approach at the Nordic level involving:

- Improved communication with and coordination of the relevant agencies and representatives at the national level

- The development of a clearly defined Nordic strategy and position, identifying the areas where Nordic cooperation would add value
- Greater focus on collecting and analysing information from the research level as to priorities / fields of interest, and improved communication and information exchange channels between the research policy, research funding and research performing systems
- Greater effort to provide more coordinated and structured inputs at the early (definitional) stages of each FP in order to ensure that the Nordic priorities and needs identified can be better represented in the final work programmes and calls
- More active promotion of specific research areas and for specific changes to FP instruments and procedures, in line with defined Nordic interests
- More active lobbying for Nordic interests in relevant EU forums
- More active support and funding to help Nordic participants and their representatives at agency level to plan and implement effective approaches to Nordic FP participation
- Improved identification and sharing of good practice at the Nordic level as to the best approaches to influencing the programmes through researcher-level activities

In light of these suggestions we recommend that the Nordic agencies and representatives develop and implement a more coordinated and concerted strategy for Framework Programme involvement in line with Nordic interests and research strengths.

5.1.6 Levels of demand and success rates

It is not easy to determine whether Nordic participation levels within each of the priority areas is above or below the 'expected' level, given actual Nordic research capacities and capabilities in each domain. However, our analyses have identified the areas where there are (a) relatively high or relatively low levels of demand and (b) relatively high or relatively low success rates within the competition. These results should enable Nordic policymakers and research funding agencies to gauge whether performance matches expectations or indicates the need for further investigation. Areas of unexpected strong performance can be used to determine whether any critical 'success factors' may be identified and transferred to other areas, while areas where performance is below expectations can be reviewed in order to identify and correct any weaknesses in approach.

Taking each priority area where the Nordic share of all participations has been highest, we can conclude the following about relative levels of demand and relative success rates:

- **Sustainable development / environment:** In FP6 performance was mainly driven by high levels of demand, coupled to success rates that were slightly above the Nordic average. In FP7 demand was down to more normal (average) levels but success rates were considerably above average. It is not clear whether changes in the scope (from sustainable development in FP6 to environment / climate change in FP7) have prompted these changes or whether experience in FP6 has led to a more targeted approach in FP7, with relatively fewer applications but a higher degree of success (and hence a more efficient approach)
- **Food:** In FP6 performance in this area was driven mainly by high success rates (demand was in line with Nordic averages overall). In FP7 the situation has reversed, with Nordic performance being driven mainly by higher levels of demand rather than success rates, which have fallen to slightly below the Nordic average. This implies a less efficient approach, with much of the additional demand being 'wasted' in the sense that success rates have fallen markedly
- **Life sciences / health:** In FP6 high levels of demand drove the strong performance, as success rates were slightly below average in this area. In FP7 performance has improved slightly, and now a combination of above average levels of demand and above average success rates are driving performance

- **Coordination of activities:** This area, which includes support for ERA-NETs, has stood out as the area in FP6 where Nordic relative performance was highest, with participation rates almost double the Nordic average. While Nordic performance has not been so emphatic in FP7 it is still well above average. In both programmes Nordic *demand* for participation has been the primary driver for this level of achievement, as success rates within the competitions were slightly below average in both cases
- **Euratom / fission:** In FP6 the strong Nordic participation rate was largely a result of high levels of demand, as success rates were slightly below the Nordic average. In FP7 the same pattern can be observed
- **Security:** A combination of high levels of demand and high success rates have led this (newly introduced) FP7 priority area to feature as the area where Nordic participation rates have been highest overall
- **Science in Society:** Also introduced for the first time as a priority area in FP7, strong Nordic performance in this research area has been driven not by high levels of demand but by high success rates within the competitions

We suggest that the Nordic agencies carry out a review of Nordic research strengths and assess the extent to which the levels of FP performance identified in this report are in line with that profile. Follow-on actions should then be formulated to address areas of under-performance and these should form part of an overall Nordic strategy for FP involvement.

5.1.7 Motives and goals of participants

Our survey found that there is a high degree of alignment between Nordic participants (country by country and across different types of organisation) as to the relative importance of different motives for participation in the Framework Programmes. The development of new or improved relationships and networks, the development of internal knowledge and capabilities, and access to research funding are the most important motives for participation, along with the development of new tools, methods or techniques and finding answers to specific scientific or technical questions. Our survey also shows that these are exactly the kinds of ‘benefits’ that the Framework Programmes are successful at delivering (see Section 5.2 below).

5.1.8 Support to participants

Our survey has shown that the vast majority of participants have accessed some form of support or advice in connection with their FP involvement, usually in relation to the application process but also in some cases around the drawing up of contracts and the implementation of the projects. Accessing information on calls for proposals and receiving advice on the rules and procedures were the most commonly used forms of assistance. In addition, a significant minority have received national funding and / or help with the preparation of project ideas and the drafting of proposals. The most useful or effective forms of assistance were funding support, information on calls and help with drafting proposals and complying with EC rules and procedures.

Respondents identified a range of ways in which they felt that institutional and / or national support for FP applicants and participants could be improved, but in most cases these related to giving more / better support in areas where there is already provision. Many of the suggestions related to the need for improved support *during* project implementation, particularly from an administrative perspective or in terms of the costs not covered by the EC funding element. There were also calls for more proactive involvement in influencing the programme calls and in lobbying for Nordic interests, with some participants highlighting the need for a more coordinated or strengthened set of national / Nordic strategies relating to involvement, with increased alignment between national priorities and funding and those developed at the EU level. Participants also requested improved help with finding partners, the area where exist-

ing support was rated as least effective. Finally, advanced (or early) notification of forthcoming calls was another area where support could be improved, and we note here that Finnish participants were more positive about the effectiveness of support in this area nationally than was the case with the other countries.

We recommend that Nordic agencies implement a mechanism for the sharing of good practice in FP support provision across the Nordic region, and that they encourage national agencies to focus in particular on those areas highlighted above.

5.2 OUTCOMES OF FP PARTICIPATION (BENEFITS AND IMPACTS)

Our questionnaire survey has confirmed that there is a good level of alignment between the Nordic countries and the main types of participating organisations as to the importance of different types of outputs being generated through their FP projects. By a considerable margin, scientific publications in refereed journals feature as the most important output, followed by new or improved tools, methods or techniques, new research grants and newly trained or qualified personnel.

In each case these outputs are delivered in line with expectations for the vast majority of participants, and in most cases the share reporting achievement above expectations outweighs the share reporting achievement below expectations. It has also been shown that less important outputs are more likely to be delivered at a level below expectations, suggesting that a lack of prioritisation on these outputs means that they are most likely to be ‘under-delivered’. It is noteworthy that the more commercially-oriented outputs (such as patents, licence agreements, invention disclosures) are only considered important by a minority of participants, and even among industry their importance is relatively low.

As regards specific benefits realised through FP participation, there is again a good level of alignment across the Nordic countries and the main participant groups as to the areas of highest impact. New and improved relationships and networks, increased understanding and knowledge, increased scientific capabilities, enhanced reputation and image and strengthened competitive position internationally are the areas of greatest benefit.

Network formation is a defining feature of the Framework Programmes, being the most important motive for participation and also the area of greatest benefit for those involved. Nordic participants indicated that over half of the partners in their projects were ‘new’ in the sense that there had been no collaboration between the organisations or groups prior to the Framework partnership. This suggests that Nordic FP participants have been exposed to over 80,000 new partners through their FP6 and FP7 participations to date, providing huge opportunities for knowledge exchange and the transfer of capabilities, methods and tools between the partners. Our survey has also shown that a significant number (around a third or ~27,000) of these new relationships are expected to endure beyond the FP projects themselves.

Most but not all of the Nordic participants have also expressed overall satisfaction with their involvement in FP projects, with just over two-thirds stating that the benefits of participation had outweighed the costs. Most of the remainder stated that the costs and benefits had been equally balanced, with just 14% stating that the costs of participation had outweighed the benefits. These are fairly typical ratios, and the pattern of responses was broadly the same across the five Nordic countries and across the different types of participating organisation.

Participants through their responses to our survey have detailed the main reasons underlying positive benefit:cost ratios for their FP projects, highlighting the following:

- Networking benefits, where the programme has helped to broker new relationships, enhance existing ones, and increase the flow of knowledge and practice between research teams that otherwise would not have had an opportunity to collaborate. The programmes also help to broker industry-academic partnerships that provide a platform for more targeted research of higher practical utility

- Financial benefits, primarily through the research funding for the FP projects themselves, which in the case of the FPs is often seen to be sizeable and extending over reasonably long periods of time. In many cases FP funding has permitted the building up of research groups, contributing personnel, equipment and administrative support, and has often led to follow-on funding either at the EU or national level
- Support for research that would not be possible otherwise, either because of a need to conduct certain studies at a transnational level (i.e. to give sufficient scale or to combine data sets or research traditions) or due to a lack of national funding in specific areas
- Employment and training benefits, through the additional resources and project activities that can be used to recruit additional capabilities and provide formal and informal ‘on the job’ training for young researchers
- Profile / reputational benefits through the visibility and status afforded to FP participants, particularly the coordinators of major projects
- New knowledge of utility either in the research or industrial spheres, which helps participants to increase their competitiveness both nationally and internationally and helps to protect or increase market share

The reasons why the costs of participation in some cases outweigh the benefits revolve around the following:

- Funding issues, usually where the resources available for the project have been insufficient, particularly given the high administrative costs involved
- The high level of administrative burden associated with FP projects, which for many participants is disproportionately high in relation to the value of the research being carried out
- Project-specific issues involving lack of relevance of the project, lack of coordination or effort within the project team, inadequate project planning or a lack of results / benefits from the research itself

5.3 NORDIC COLLABORATION IN FP PROJECTS

A particular focus of our analyses has been to assess the extent of intra-Nordic collaboration within the FPs and to investigate ways in which that collaboration can be strengthened through action at the Nordic level.

In FP6 we found that half of all projects with a Nordic participant involved intra-Nordic collaboration. Analysis of the extent to which other Nordic countries were also involved in each Nordic country’s projects revealed that intra-Nordic collaboration occurred at between two and three times the notional ‘normalised’ rate. In some cases collaboration between two Nordic countries occurred at levels even higher than this, with Iceland and Norway being involved in each others’ projects at more than six times the level we might expect based purely on their relative involvement in FP6 as a whole. A strong pattern of collaboration was also evident between Denmark and Iceland, with project involvement rates between the two countries occurring at more than four times the normalised levels.

In FP7 a similar pattern of strong Nordic collaboration was evident, although there has been a slight fall in the share of Nordic projects that involved intra-Nordic collaboration (44% in FP7 as compared to 50% in FP6). Despite this we again found that each Nordic country was involved in each other Nordic country’s projects at between two and three times the normalised level. Collaboration between Norway and Iceland was again strongly featured, with project involvement rates between these two countries running at more than five times the normalised level. In a departure from the pattern found in FP6, the second highest project involvement rates (when normalised) involved Sweden and Iceland, with each country participating in the other’s projects at more than three times the normalised level.

A more detailed analysis at the level of individual links between countries revealed that

there were almost 11,000 links between Nordic participants in FP6, of which almost two-thirds were between participants from different Nordic countries and just over a third were same country links. Analysis of the distribution of these links highlighted the extent to which collaborations between each pair of Nordic countries were higher or lower in relative terms. An unusually high level of collaboration was found between Iceland and Norway and also between Sweden and Finland. Denmark had a fairly uniform level of collaboration with each of the other Nordic countries, with no particular focus evident. When this analysis was repeated for FP7 a similar pattern emerged, suggesting that these collaboration patterns are reliable and that the strong links between Norway and Iceland and between Finland and Sweden are an enduring feature of intra-Nordic cooperation.

Our analysis of intra-Nordic collaborative links within FP6 and FP7 has also highlighted the ‘strongest’ collaboration patterns between countries (against normalised levels) for each of the priority areas. This information shows, for example, that intra-Nordic collaborative partnerships in the IST and Nanotechnology fields mainly involve Finland and Sweden, while in the Food area they mainly involve Denmark, Norway and Iceland. These analyses should be helpful in enabling Nordic agencies to check whether the actual collaborative patterns are as expected and to identify areas where they do not appear to be as strong as they might. At this stage we are not in a position to highlight specific areas that require further attention or investigation but believe that Nordic agencies should be in a position to at least initiate a dialogue around these issues. We therefore recommend that the Nordic agencies review the main lines of Nordic collaboration described in this report and take steps to strengthen collaboration between Nordic actors in areas where current levels of collaboration are judged to be suboptimal. This should be carried out as part of the development of a wider strategy for enhancing Nordic involvement and cooperation within the Framework Programmes.

Our questionnaire survey was also used to explore a number of aspects of intra-Nordic collaboration. The results show that Nordic participants’ most important foreign collaboration partners tend to be based in Germany, the United Kingdom and France, but four of the five Nordic countries feature within the ‘top ten’ most important list, with Sweden ranked 4th, Denmark 6th, Finland 8th and Norway 9th. Our survey also revealed that almost half of the Nordic participants have actively sought out other Nordic partners for their projects. The main motivations for seeking intra-Nordic collaboration include the availability of (known) scientific capabilities in specific areas, cultural factors (similar languages, attitudes, etc.), shared interests, a Nordic-specific focus to the project, pre-existing relationships and geographic proximity. In a smaller number of cases joint funding possibilities at the Nordic level or a patriotic desire to create Nordic collaboration in the region’s interest are also motives for seeking Nordic partnerships within the FPs. However, it is worth noting that some participants stated that for them there is no *a priori* regional preference and their approach is to seek out the best partners based on their knowledge and capabilities no matter where in Europe they might be based.

5.4 MAIN CHALLENGES ASSOCIATED WITH FP PARTICIPATION

The results of our survey have demonstrated that the main challenges associated with FP participation revolve around the complexity of the EC rules and requirements and the associated (high) administrative burden imposed on participants and particularly project coordinators. However, while certain challenges exist in these areas, it is important to note that the majority of participants have indicated that they are either neutral or positive as regards FP6 and FP7 administration and reporting procedures, and that most participants (that answered) stated that there have been no negative impacts on them as a result of their participation in the FPs. It is possible therefore to overstate the extent of the ‘bureaucracy’ problems that seem to be inherent in the FPs and act as a source of constant irritation to many (but by no means all) of those involved.

Looking at the satisfaction ratings provided by participants, the areas where Nordic actors are least content relate to EC audits and project monitoring and reporting procedures. The application procedures, contract negotiation procedures, end of project assessment and sign-off procedures and mechanisms for payments of EC financial contributions are also areas of dissatisfaction for a significant minority of participants. When asked to detail the main challenges the issues most commonly raised by participants were as follows:

- The various administrative rules and requirements are too complex and bureaucratic and the various procedures take an excessive amount of time and effort to meet. Very large multi-partner projects can suffer from an overload of administration that overshadows the research itself
- Application, contract negotiation, contract amendment and auditing procedures are overly complex and inflexible, with a lack of suitable differentiation between large and small projects
- The number and frequency of reports and other deliverables is excessive
- Staff changes within the Commission occur too frequently, and obtaining assistance from project officers can be difficult / slow
- IT systems and websites are difficult to use and bug-ridden
- Decision-making is too politicised, and lobbying has too much influence on funding decisions

Some responses suggested that larger organisations can cope with these requirements and can afford to provide dedicated in-house expertise to support FP participants. However, new applicants and smaller organisations are not able to leverage the costs of such capability against a sufficiently broad number of projects / users and so tend to struggle on their own. A case can therefore be made that any efforts to enhance support provision should be targeted towards new and small participants, in order to maximise the additionality of that assistance.

In light of these problems we recommend that the Nordic agencies, in conjunction with the relevant national administrations, develop and maintain an ongoing dialogue with the Commission about the need for simplification of FP administration with a view to reducing the burden on participants.

Nordic participants noted a number of other negative impacts arising from FP involvement. In some cases these were directly linked to the 'bureaucracy' issue, insofar as the time that had to be devoted to administration and reporting had diverted attention and resources away from the project work, leading to projects that had under-performed or had run into delays or resource issues. In other cases the problems encountered related to the displacement effect that FP participation can sometimes create for the research team, taking their focus away from national funding and national priorities, which can be detrimental to their fortunes over the longer term.

Other problems and challenges encountered related to the collaborations, with tensions and disagreements between consortium members leading to in-fighting and a breakdown in relationships.

Delays at the start of projects (due to negotiations over contracts and IPR issues) has in some cases presented significant challenges in terms of completing projects on time, while poor performance on the part of some partners has also led to delays and / or a failure to achieve the scientific objectives of the project. However, only a very small number of participants have reported these kinds of issues.

5.5 STRATEGIES FOR SUCCESSFUL INVOLVEMENT IN THE FPS (BEST PRACTICES)

This study has identified a wide range of information on the practices adopted by Nordic participants to successfully manage their involvement in FP projects and to maximise the benefits derived. We have also identified a range of actions taken by participants that they consider to

be useful in influencing FP priorities and work programmes, and which can therefore increase the relevance of the calls and chances of success.

The main recommendations for influencing the FP work programmes and calls relate to the need to be proactively interacting with the Commission at all possible levels, including through the provision of inputs to programme committees and through participation in EU conferences and workshops, on FP advisory groups, and in ETPs / JTIs. Direct interaction (via meetings, etc.) with EU officials in order to lobby for certain topics and to increase visibility is also recommended, as is making full use of national delegates and national contact points as potential routes by which to influence the EC officials with responsibility for drawing up the work programmes.

The main recommendations for successful involvement in FP projects and maximising the benefits derived can be summarised as follows:

- Select your project carefully, ensuring that it is of high relevance to the programme call and that it is a good match with your capabilities and research strategy / focus
- Establish a strong consortium, ensuring that the team involves partners experienced in FP projects, that are known to you, and that provide a good fit with the objectives and content of the proposed project but bring complementary skills to those provided by your own organisation
- Establish an international (not just Nordic) team with a sufficient breadth of capabilities but without involving too many partners in order to keep the project manageable
- Ensure good coordination and leadership of the project by appointing the role to the person most experienced to take on the task. Do not seek to coordinate projects unless you have sufficient experience of FP projects to manage this role comfortably – acting as a work-package leader can be a useful stepping stone to the full coordinator role
- Plan the project carefully and ensure common understanding / vision with roles and responsibilities clearly defined and delineated. Ensure that the project plan is realistic in light of the time and resources at the project's disposal, and that any additional funding needed to execute the project is in place
- Ensure that you are aware of the rules and administrative requirements that will be placed on the project and that the consortium has sufficient capabilities, tools and resources to meet these demands. Wherever possible employ an experienced administrator / manager of FP projects to support the research team with the administrative functions
- Maintain regular communication throughout the project implementation phase, ensuring that effective monitoring and reporting is in place so that any issues or problems can be identified and resolved quickly
- Take advantage of all networking opportunities offered during the project, and take an active role in the dissemination and (if appropriate) exploitation of the project results

There appears to be scope for more action at the Nordic level to codify and share good practice in FP participation. This should build on existing activity at the national level to codify and share good practice, and should encompass aspects such as influencing the calls, maximising success within the competitions, and the effective management of FP projects.

5.6 Suggestions for improving the FPs and strengthening Nordic involvement

In addition to suggestions as to how to manage involvement in the FPs and maximise the benefits obtained at participant level, our survey canvassed ideas as to how the FPs themselves could be improved and the role that Nordic agencies could take in (a) strengthening the programmes and (b) supporting Nordic involvement within them.

The main suggestions for improving the programmes related, not surprisingly, to simplifying the requirements and reducing the level of administrative burden associated with FP

participation. At the same time participants would like more open calls, more flexible arrangements, more funding per participant, higher success rates, and so on. There is a clear and obvious circularity to some of these suggestions in the sense that making the programme more open and flexible and easier to participate in will only serve to increase levels of demand for participation, which will inevitably lead to lower success rates and / or lower amounts of funding per participant. It is not clear whether Nordic participants would be prepared to trade the current high success rates for a more open, less bureaucratic programme but with a much lower chance of success due to increased competition. At the present time the balance of opinion would appear to be in favour of this course of action, and many participants suggested that Nordic agencies should be more active in lobbying the Commission for such changes.

The main suggestions for action at the Nordic level to improve Nordic participation in the FPs are as follows:

- The development of a joint Nordic strategy for FP participation, identifying the areas of interest and using this as a basis for influencing the programmes (to enhance alignment) and as the basis for promoting Nordic research capabilities in FP priority areas
- Improved information on Nordic-level activities and capabilities in order to improve Nordic collaboration. This should involve the creation and ongoing support of Nordic networks and related network activities (workshops, planning meetings, etc.) in order to boost collaborative efforts
- Improved Nordic-level representation in Brussels, in order to exert greater Nordic influence on FP planning, work programmes, calls, etc. and to increase visibility of Nordic capabilities
- Improved funding arrangements to support FP participation, including (i) Nordic or national-level funding that is aligned to FP priorities and that can support capability-building and the subsequent continuation, dissemination and exploitation of FP activities, (ii) improved availability of matching funding for FP participation, and (iii) financial support towards the costs of proposal preparation and partnership formation
- Increase the sharing of good practice between national and institutional-level support providers, and provide more targeted national support to new and smaller participants that lack their own institutional-level support
- General improvements to the prioritisation and reward / incentive systems for participation in the Framework Programmes

5.7 Nordic participation in related 'new' instruments

This study has reviewed a range of related initiatives operating at the European level and which have either direct or indirect connections to the Framework Programmes, often as supporting or accompanying actions that inform research trajectories or support large-scale collaborative ventures that operate above or beyond the scope of FP projects.

Because there is no central source of information on participants in the various initiatives investigated during the study, details on actual levels of Nordic participation are somewhat patchy.

However, we have found that there is at least some level of Nordic involvement in most of the initiatives, with organisations from Sweden and Finland most likely to be present. There is strong Nordic involvement in four of the five established JTIs (Sweden is involved in all five, Denmark, Finland and Norway are involved in four, and Iceland is involved in one), and Sweden and Finland are involved in two out of the three KICs that have been launched by the European Institute of Innovation and Technology. Nordic involvement in ERA-NETs and ERA-NET Plus has been extremely strong, with 18% of the participations and 14% of the coordinator roles being held by Nordic organisations. There is also a good level of involvement by the Nordic countries in the five Article 169 initiatives that have been launched to date, and

four of the five Nordic countries are involved in the first Joint Programming Initiative that was launched in early 2010.

Our survey found that at least half of the Nordic FP6 and FP7 participants have not heard of Joint Technology Initiatives (JTIs), Public-Private Partnerships (PPPs) or Joint Programming Initiatives (JPIs) (or are unsure whether they have) and only a small minority have participated or intend to in the future. There is therefore significant scope for Nordic action to promote and inform research and industrial communities about these instruments and to facilitate greater involvement by Nordic actors where appropriate.

5.8 Policy implications and recommendations

In overall terms we can conclude that the Nordic countries have played and continue to play a full and active role in the Framework Programmes and perform at a good level. The main suggestions for action at the Nordic level to build on this success and maximise Nordic involvement in the FPs and the benefits derived are as follows:

- The development of a joint Nordic strategy for FP participation, identifying the areas of common interest and using this as a basis for influencing the programmes (to enhance alignment) and as the basis for promoting Nordic research capabilities in FP priority areas
- The development of improved information on Nordic-level activities and capabilities as the basis for action to strengthen Nordic collaboration. This should involve the creation and ongoing support of Nordic networks and related network activities (workshops, planning meetings, etc.) in order to boost collaborative efforts
- Increased Nordic-level representation in Brussels, in order to exert greater Nordic influence on FP planning, work programmes, calls, etc. and to increase visibility of Nordic capabilities. Nordic agencies should use this platform as a means to apply further pressure on the Commission to simplify the administrative arrangements and to remove non-value-adding administrative and reporting requirements
- General improvement in the prioritisation and reward / incentive systems for participation in the Framework Programmes. This could include improved funding arrangements to support FP participation, involving (i) Nordic or national-level funding that is aligned to FP priorities and that can support capability-building and the subsequent continuation, dissemination and exploitation of FP activities, (ii) improved availability of matching funding for FP participation, and (iii) financial support towards the costs of proposal preparation and partnership formation
- Increased sharing of good practice between national and institutional-level support providers, and the provision of more targeted national support to new and smaller participants that lack their own institutional-level support
- Improved identification and sharing of information on successful strategies for FP participation, building on the significant experience gained by Nordic participants and national representatives and support providers

In addition we recommend that the Nordic agencies and representatives take action to increase their visibility to Nordic research communities, including clarification of their respective roles, responsibilities and activities.

Finally, we recommend that the Nordic agencies work with national agencies to increase awareness of the opportunities offered by the new instruments (JTIs, JPIs, PPPs) and to share good practices and lessons learned as regards involvement in these initiatives.

