ANALYSIS OF THE PARTICIPATION OF ESTONIAN ORGANISATIONS IN THE EU FIFTH FRAMEWORK PROGRAMME FOR RESEARCH AND TECHNOLOGICAL DEVELOPMENT (FP5)

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This analyses

- gives an overview of the participation of Estonian organisations in the Fifth Framework Programme for Research and Technological Development of the European Union (FP5) - the main motivations, any positive and negative experience and general attitude - through different indicators.
- is focused on the use of the services of the National Contact Point (NCP), bringing out the main subject areas in which consultations and all kinds of additional information are needed most.
- evaluates the participation of Estonia on a broader scale - which objectives were mainly achieved and what is the direct and indirect effect of participation on the development of Estonia.
- gives possible recommendations for increasing the effectiveness of the further participation of Estonian organisations and the activities of Archimedes Foundation as the NCP of the Framework Programme.
- provides a statistical overview of the participation of Estonian organisations in FP5.

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INTRODUCTION

The Fifth Framework Programme for Research and Technological Development of the European Union (FP5) was launched at the end of 1998 and ran until 2002. The goal of FP5 was to solve social and economic problems facing Europe - increasing the employment rate, improvement of the competitiveness of the economy on the global market, improvement of the quality of life and conservation of the environment. Considerable attention was paid to socio-economic problems and to the preservation and popularisation of cultural heritage. FP5 enabled Estonian researchers, research institutions and companies to participate in international research and development activities. The Framework Programme opened up new opportunities for Estonian research institutions and companies for finding cooperation partners and for the acquisition of new knowledge, also for finding new markets in Europe and proving themselves on the international scale.

International research and development activities and cooperation in the field of innovation is an important opportunity for a small country with limited possibilities to find additional resources and make use of the opportunities of international research infrastructure. The Estonian potential for satisfying the need of business and society for technological development is limited. Therefore international technological transfer support to Estonia enables Estonian enterprises to raise their competitiveness by acquiring and adapting modern technologies that have been elaborated elsewhere. International cooperation in the field of technology offers enterprises the opportunity to disseminate the risks associated with technological development activities to share costs, as well as to have access to know-how and new markets[1]. EU framework programmes of research and technological development are among the best opportunities for Estonian research institutions, universities and companies to achieve the above-mentioned objectives.

FP5 is not so science-centred by its nature as FP4. It is an applied research programme in which the results developed should also have a broader impact in terms of improvement of the competitiveness of Europe. Consequently, the research area developed should have an output and more general market value.

ANALYSIS

The following analysis gives an overview of the participation of Estonian organisations in FP5 - their main motivations, any positive or negative experience and general attitude - through different indicators. What is the main function of the Framework Programme for Estonian research institutions and companies? May the Framework Programme be expected to be an important variable for shaping the competitiveness of Estonia or do Estonians perceive the programme just as an opportunity for additional financing? The analysis also focuses on the use of services provided by the National Contact Point (NCP) of the Framework Programme, bringing out the main areas in which consultations and all kinds of additional information are needed most. Innovation Centre of the Archimedes Foundation as the host of the NCP of FP5 is a part of the research and development activities and innovation support structure in Estonia. Innovation Centre of the Archimedes Foundation functions as the NCP for FP5, FP6, COST (European Cooperation in the Field of Scientific and Technical Research)[2] and eContent programme[3]. The Centre supports the Estonian research and development activities and the innovation system also through other different projects[4].

This study gives an evaluation to the participation of Estonia in FP5 also in a broader sense - which objectives were mainly achieved and what is the direct and indirect effect of participation on the development of Estonia. FP5 was the first cooperation programme for Estonia in such a large volume in the field of research and technological development activities in which Estonian institutions could participate as equal partners.

The Archimedes Foundation has conducted two earlier surveys[5] to describe the participation of Estonian organisations in FP5. This analysis tries to focus less on bringing out factual indicators and more on the attitude of participants and increasing the effectiveness of further participation, also on the main reasons for the failure of some projects coordinated by Estonian organisations.

[1] Knowledge-based Estonia, Estonian R&D Strategy for 2002-2006.

[2] Cooperation network in the field of scientific and technical research, allowing the coordination of nationally funded research on a European level.

[3] eContent Programme supports primarily the access to public information and facilitation of its use, creation of information content in different languages and for different cultures and development of the digital information market.

[4] www.irc.ee

[5] "Eesti osavõtte Euroopa Liidu Teaduse ja Tehnoloogilise Arendustegevuse 5. Raamprogrammist", vahekokkuvõte jaanuar 1999 - august 2000; Estonian Participation in the European Union Fifth RTD Framework Programme (FP5). www.irc.ee

METHODOLOGY

The analysis is based on 240 interviews conducted with Estonian partners and coordinators of FP5 projects. The interviews were quantitative and structured by nature, allowing the respondent to choose the right answer and through that to shape his or her opinion and attitude. The interviews were conducted in two parts - 106 interviews during the first year of the Framework Programme and the remaining 134 interviews at the end of FP5.

STRUCTURE OF THE FRAMEWORK PROGRAMME

FP5 consisted of four thematic programmes addressing clearly defined problems and three horizontal programmes responding to common needs across all fields of research and development activities.

Thematic programmes

- Quality of life and management of living resources (QoL)
- User-friendly information society (IST)
- Competitive and sustainable growth (GROWTH)
- Energy, environment and sustainable development (EESD)
  This programme consisted of two parts:
  a. Environment and sustainable development
  b. Energy and sustainable development

Horizontal programmes:

- Confirming the international role of Community research (INCO II). The programme concerned research and development cooperation with third countries, training of researchers and coordinating activities.
- Promotion of innovation and encouragement of SME participation (Innovation-SMEs)
- Improving the human research potential and the socio-economic knowledge base (IHP)[6].

PARTICIPATION OF ESTONIA IN DIFFERENT PROGRAMMES

At the time of the launch of FP5 many Estonian researchers were hesitating and also expressed the opinion that the participation fee of Estonia in the Framework Programme would be lost. Estonia paid in total 5 855 476 euros (91 614 777 kroons) to FP5, of which amount 848 361 euros (13 273 456 kroons) came from the PHARE[7] Programme. The results of the first calls for proposals already showed that such fears had been unfounded. Although not all FP5 projects have come to an end, the amount coming back from the Framework Programme will be approximately three times the participation fee of Estonia. Estonian researchers and entrepreneurs with innovative ideas participated actively in all stages of the Framework Programme. In total, 809 project proposals were submitted with the participation of Estonian organisations. 195 of them proved to be successful. Judging by such indicators per inhabitant or per GDP, Estonia is among the most successful candidate countries and the success rate is approaching the average indicator of the Member States.

[6] www.irc.ee

7PHARE is the main EU support programme for the purpose of helping CEEC countries to join the EU.

TABLE 1 - PARTICIPATION OF ESTONIAN ORGANISATIONS IN THE 5TH FRAMEWORK PROGRAMME

Programmes	Projects with Estonian participation		
	Projects submitted	Successful projects	Success rate (%)
Quality of life and management of living resources (QoL)	256	56	21,9
User-friendly information society (IST)	126	28	22,2
Competitive and sustainable growth (GROWTH)	27	9	33,3
Environment and sustainable development (EESD)	156	31	19,9
Energy and sustainable development (EESD)	61	18	29,5
Confirming the international role of Community research (INCO)	18	8	44,4
Promotion of innovation and encouragement of SME participation (Innovation & SME)	51	14	27,5
Improving the human research potential and the socio-economic knowledge base (IHP)	114	31	27,2
Total	809	195	24,1

Judging by the number of proposals, Estonian participation was the most numerous in the Quality of Life (QoL) and the Environment (EESD) programmes. This reflects above all the higher potential and more extensive international experience of Estonian researchers in the fields of biosciences, medical sciences and environmental sciences. The success rate in the Energy Programme was the highest among thematic programmes. IST had one of the highest success rates as well - in total 128 proposals with Estonian participation were submitted, 28 of which proved successful. When the INCO Programme, intended for the support of the research and technology sector of third countries and for cooperation, was launched, there were rather high expectations about the active participation of Estonian researchers, since unlike other programmes it was aimed at cooperation with partners who had become familiar to Estonian researchers in the course of decades.

Actually, the call for proposals under the name Centres of Excellence, which was intended for EU candidate countries and was opened in the first year of the Framework Programme, evoked most response. The aim of the call was to finance outstanding research institutions and research orientations in the countries of Central and Eastern Europe (CEEC). The EU support for the centres was provided above all for the activisation of the exchange of research staff and the international cooperation of the centres. Six proposals were submitted from Estonia in total, covering such areas as gene technology, materials sciences, biophysics, information technologies, power engineering and demographics. Four of the proposals submitted were evaluated highly. According to the ranking of the scores of projects the European Commission eventually decided to finance two Estonian projects - GENEMILL[8] Project of the Estonian Biocentre in the field of gene technology and ESTOMATERIALS[9] Project of the Institute of Physics of the University of Tartu in the field of materials sciences.

Such a success in the first year of the Framework Programme and therefore obtaining large amounts of additional financing no doubt created a positive attitude towards the Framework Programme and the competitive spirit necessary in the field of science.

We have to note that every tenth project was coordinated by Estonian organisations. The success rate of projects with Estonian coordination proved somewhat higher than the general success rate of Estonia. According to percentages, the Estonian coordinators played a particularly important role in the IST, INCO and SME programmes and were represented to a significant extent also in the QoL Programme. In the Environment and Energy programmes the role of Estonian coordinators remained modest.

[8] http://www.ebc.ee/EBC/genemill.html

[9] http://www.fi.tartu.ee/ce/introduction.htm

TABLE 2 - SUCCESS RATE OF PROJECTS WITH ESTONIAN COORDINATION

Programmes	Projects with Estonian coordination		
	Projects submitted	Successful projects	Success rate (%)
Quality of life and management of living resources (QoL)	21	7	33,3
User-friendly information society (IST)	11	5	45,5
Competitive and sustainable growth (GROWTH)	1	1	100,0
Environment and sustainable development (EESD)	7	0	0,0
Energy and sustainable development (EESD)	6	1	16,7
Confirming the international role of Community research (INCO)	6	4	66,7
Promotion of innovation and encouragement of SME participation (Innovation & SME)	8	4	50,0
Improving the human research potential and the socio-economic knowledge base (IHP)	19	1	5,3
Total	79	23	29,1

PARTICIPATION OF DIFFERENT TYPES OF ESTONIAN ORGANISATIONS

In comparison with FP4, in which Estonia participated as a "third country", the circle of participants from Estonia has considerably expanded. While in FP4 universities and research institutions accounted for 87% of applicants, according to the results of FP5 their participation has decreased to 62.5%.

Different support structures (foundations, non-profit organisations) of Estonian research and development activities have succeeded in achieving their objectives. Despite their lower number in comparison with research institutions and companies, their participation accounts for 18.7% of the total number of proposals submitted. Their success rate was remarkably high as well, constituting 22% of successful projects with Estonian participation. The main participants are, after all, research institutions and universities, who participated in 59% of successful projects with Estonian participation, and companies participated in 13%. On the other hand, the success rate of research institutions and universities is rather low (10%), the respective indicator for companies being 20%.

PROJECT TYPES

The 5th Framework Programme contained several different types of projects, which had different objectives for the solution of European problems.

Research and development projects:

- Research and technological development projects (RTD projects) - with the objective of obtaining new knowledge intended to develop or considerably improve products, processes or services and to meet more completely the needs of the society.
- Demonstration projects (Demoprojects) - with the objective of proving the viability of already developed technologies.
- Combined scientific research and demonstration projects (Combined Demo and RTD projects) - contain the components of both RTD and the demoproject.

Compared to the above the proportion of support measures, grants and smaller projects is much larger in the Framework Programme.

- Cooperation networks (Thematic Networks) - projects, which consist in launching thematic research networks.

- Coordinated activities (Concerted Actions) - the main objective is the mutual exchange of information and experience on projects already financed within the Framework Programme, also distribution of information among the users of the results of the project.
- Training networks for young researchers (Research Training Networks) - creation of cooperation networks related to the training of doctoral and post-doctoral students.
- Marie Curie fellowships - intended for the performance of research of young researchers in some Member State or associated country.
- Accompanying measures - projects for the support of activities intended for the introduction of specific programmes, distribution of information and raising public awareness.
- Cooperation projects in the field of technology (CRAFT) - intended for the support of SMEs[10], which do not have sufficient funds for development activities. The project allows them to involve some other organisation with the necessary research facilities in the solution of their technological problem.
- Preparatory projects (Exploratory Awards) - SME specific measure intended for the preparation and formalisation of a CRAFT or some other type of project proposal[11].

TABLE 3 - PROJECT TYPES DURING THE FIRST HALF OF FP5 (1998-1999)

Project type	All successful projects with Estonian participation (%)	Successful projects with Estonian coordination (%)
RTD projects	74	9
Accompanying measures	9	64
Combined RTD and demoprojects	6	0
Research Training Networks	4	0
Demoprojects	3	9
Exploratory Award	2	18
Concerted Actions and Thematic Networks	2	0

Although the CRAFT type of technological development projects existed as an instrument also during the first half of FP5, no Estonian organisation participated in it. Comparison of all project types with Estonian participation and successful projects coordinated by Estonia brings out several differences. 70 per cent of all projects with Estonian participation were research and development projects, which have the most important and most immediate effect on the development of a country. At the same time, research and development projects (RTD projects, demoprojects) account for just 18 per cent of projects coordinated by Estonia. The accompanying measures type of projects constitute the largest part, 64 per cent.

TABLE 4 - PROJECT TYPES DURING THE SECOND HALF OF FP5 (1999-2002)

Project type	All projects with Estonian participation (%)	Projects coordinated by Estonia (%)
RTD projects	55	47
Accompanying measures	24	33
Thematic Networks	10	7
Concerted Actions	5	0
Combined RTD and demoprojects	3	0
Demoprojects	1	0
Exploratory Award	1	13
CRAFT	0,7	0

[10]Companies with no more than 250 employees, with the annual balance sheet total of less than 27 million euro and the annual turnover of no more than 40 million euro.

[11]Eesti osavõtt Euroopa Liidu Teaduse ja Tehnoloogilise Arendustegevuse 5. Raamprogrammist, vahekokkuvõte jaanuar 1999 - august 2000 (Estonian Participation in the European Union Fifth RTD Framework Programme, Interim Summary January 1999 - August 2000).

In comparison with the first half of the Framework Programme there has been an increase particularly in RTD projects coordinated by Estonia. This indicator has increased by even 38 percentage points in the course of the Framework Programme. The projects of accompanying measures are still popular among Estonians. As mentioned above, the objective of such projects is to carry out activities related to the distribution of information and raising the awareness of the general public, in order to increase participation in the Framework Programme and through that advance research and development activities. Considering the lower earlier participation of Estonia in EU framework programmes of research and development activities, it is logical for the areas of activities enhancing participation to be very topical.

PARTNERS

The partners of Estonia in the proposals submitted have been mainly from the Scandinavian countries, but the ranking of successful projects is led by the United Kingdom and Germany (see Table 12 - Distribution of coordinators by countries, on p. 34).

Two equal research centres have developed in Estonia - Tallinn and Tartu - from where 94.4% of proposals came. Tartu was more successful in the implementation of projects of natural sciences and health, and Tallinn in the implementation of projects related to information society and energy (see Tables 8 and 9 - geographical distribution of projects submitted and successful projects, on p. 34).

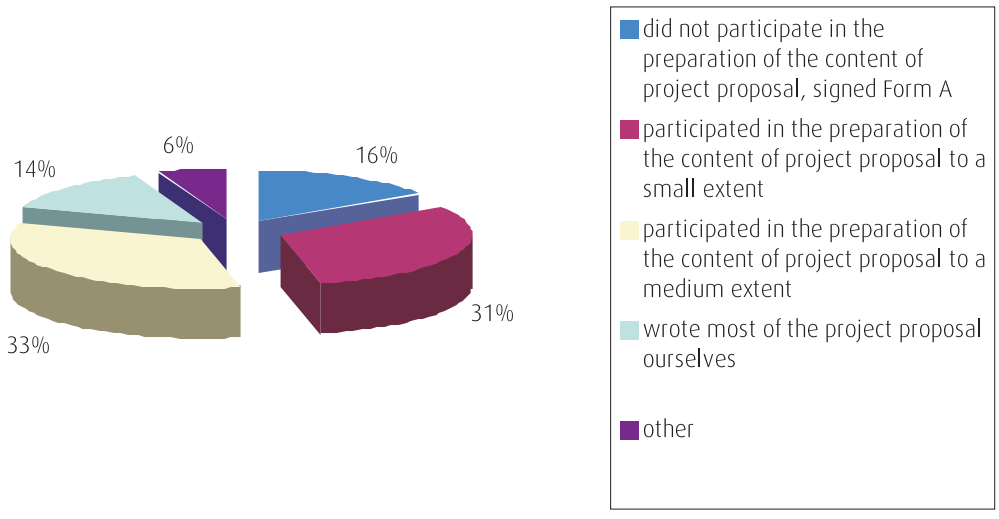
INVOLVEMENT OF THE ESTONIAN PARTNERS IN THE PROJECT PREPARATION PROCESS

Judging by their activeness in writing the proposals, Estonian organisations can be divided into two approximately equal groups - 47 per cent of respondents participated in the preparation of the project proposal to a small extent, if any, signing only the administrative part, i.e. Form A of the project proposal. From the more active other half, 17 per cent wrote most of the proposal themselves and 34 per cent participated in writing to a medium extent. It is rather difficult to evaluate the effect of the projects, in which the Estonian partner has a modest role, if any, in shaping the content part of the proposal, since Estonian partners could not pursue their interests directly. In that case the benefit of the project consists more in the experience gained and in cooperation which allowed to create new contacts for further research and development activities.

Among the participants who wrote most of the proposal themselves, the companies proved to be the most active group. 32 per cent of companies interviewed wrote most of the proposal themselves, and the respective indicator of research institutions and universities was 7 per cent. Companies may have more concrete interests in the Framework Programme, which they wish to achieve.

Among Estonian co-ordinators of successful projects the proportion of research institutions was the highest (38%), followed by companies with 32%; the remaining coordinators were either from state agencies, local governments or other organisations. The general success rate of research institutions among Estonian coordinators was 24 per cent, the respective indicator of companies was 33 per cent.

FIGURE 1 - PARTICIPATION IN WRITING THE CONTENT OF THE PROJECT PROPOSAL



Project consortiums were formed mainly due to earlier cooperation and contacts - in 84 per cent of the cases. The role of National Contact Points was modest in that context. Only 2.5 per cent of respondents found partners with their assistance. The remaining respondents found the contact with their cooperation partners in some other manner. Finding cooperation partners was also one of the aspects in which assistance was least expected from Archimedes (see Figure 6 - Assistance from Archimedes, in p. 20). This situation can also be explained with the low awareness of Estonian organisations about the partner search service provided by the NCP of the Framework Programme and of the quality of the service. It is also clear that long-term cooperation projects proceed more smoothly when cooperation partners know each other and have a closer relationship. Therefore Estonian organisations may be slightly sceptical about projects, in which they have had no earlier cooperation with partners. When participants of the Framework Programme had no information about and no actual experience in using the partner search service of the NCP, they preferred already existing contacts. Estonian organisations may also lack a realistic opportunity for participation in projects, in which they have no earlier cooperation partners. All the more it would be necessary to increase the awareness of the potential target group about partner search services and the accompanying opportunities.

It is good to see that the subjects of projects largely coincided with the basic research and central subjects of research institutions. For 77 per cent of research institutions the project was of great importance from the aspects of basic research of the group. For 90 per cent of research institutions the central activity of the project was closely connected also with the central research subjects of the group. In both cases finding financial support for the research institutions was very important. Although the percentage of participation in writing the content of the project was rather low among research institutions, they managed to join projects, which are in harmony with their central activities. This leaves the impression that participants tried to get funds from FP5 for activities that already exist in many respects. Although obtaining additional financing has been brought out as a very important aspect in both cases, it is still positive that funds coming from Europe were used in practice and that Estonian partners did not join projects, which do not coincide with their research objectives. Besides, Estonian research institutions and universities are able to get additional experience and new contacts in Europe through such partnership with the involvement of the best specialists of the field.

For 70 per cent of the companies surveyed, the project was very important from the aspects of the strategic development of companies and in 93 per cent of cases the project was closely related to the main activity of the company. Mentioning strategic development reflects the nature of FP5 for the participating companies - they can see the long-term perspective and benefits of the Framework Programme. For 30 per cent of the responding companies the main output of the Framework Programme consists rather in short-term benefit and has no longer-term effect on development. In both cases finding additional financing was very important also for companies. It seems that the Framework Programme is more seen as a real possibility for the expansion and development of their activities, whether motivated mainly by finding additional financing for development or by the marketing of an innovative product or by expansion of markets with the assistance of new cooperation partners.

MAIN PROBLEMS IN THE PREPARATION OF THE PROJECT PROPOSAL

The following possibly problematic areas in the preparation of the project proposal had been listed in the questionnaire:

- too little time for the preparation of the proposal
- lack of earlier experience
- lack of a general understanding of FP5 as a whole
- general shortage of information
- no one to consult
- poor exchange of information and communication with partners

Lack of earlier experience in the preparation of similar proposals was brought out most as a definite problem (55%). It was followed by shortage of time for the preparation of the proposal with 49 per cent and lack of a general understanding of FP5 as a whole with 34 per cent.

It is quite logical that lack of earlier experience has been brought out as the biggest problem, since FP5 was practically the first experience for Estonian institutions in participation in European research and development

programmes as equal partners. Estonia had participated in the limited areas of FP4 with the status of a third country. Therefore FP5 can be seen above all as an opportunity for obtaining additional experience and contacts with other European specialists in the field.

Exchange of information and communication with partners, general shortage of information and the fact that there was none to consult were the least important problems for Estonian organisations. Rather, the general attitude seems to be positive - the number of responses bringing them out as a "definite" problem accounted for 10 per cent of the total volume, but the number of responses in which they were "definitely not" a problem accounted for as much as 61 per cent. When looking at the problems by types of organisations we can see that research institutions and companies had similar predominant problems, which can also be seen above.

It is also quite logical that communication and exchange of information with partners did not cause much headache to Estonian organisations. Most respondents (90%) had at least one cooperation partner in the project consortium with whom they had had earlier contacts and whom they knew well (see Figure 2 - Familiarity with cooperation partners, p. 9).

Surprisingly, in the areas, which caused problems most of all a significant part of Estonian organisations did not need additional information or consultations. 49 per cent of the respondents for whom shortage of time proved to be a definite problem in the preparation of the proposal responded that they needed neither additional information nor consultations. In case of lack of earlier experience that indicator was 42 per cent. In case of a lack of a general understanding, 2/3 still felt the need for additional information and consultations. As seen also from the preparation of the content of project proposals, approximately 50 per cent of the participants are so-to-say active participants.

What may be the reasons why some of the respondents did not feel the need for additional information when problems appeared?

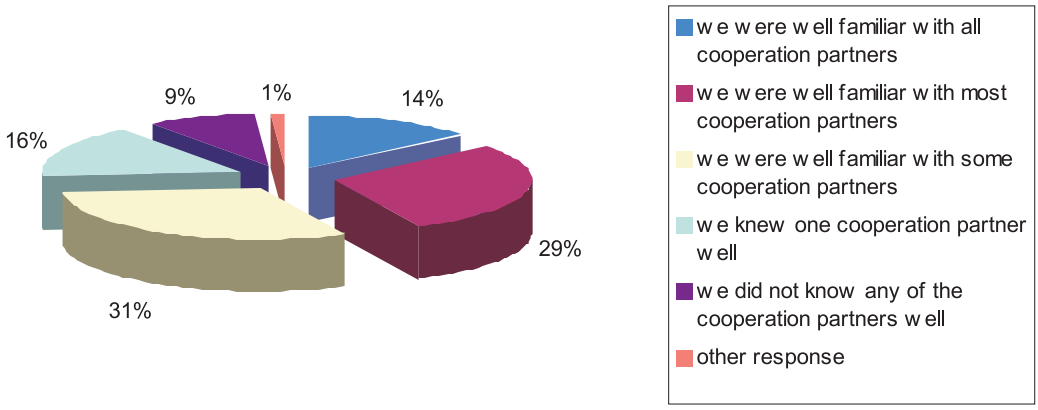
- Good communication with partners - the problems that appeared could be solved efficiently within the consortium, therefore they felt no need for additional information or consultations offered by the Estonian NCP of the Framework Programme.
- It can be further explained also with little interest in the project, in case the main motivation is finding additional financing. These aspects could cause problems, but no considerable steps were taken for the improvement of the situation and the matters were allowed to take their course. Such an attitude shows certain superficiality in dealing with the project and no doubt decreases the potential effect of the projects.
- The responding organisations may not be well aware of the services provided by NCPs. Even if they are, there is no direct feedback on the efficiency of such consultations.

54 per cent of Estonian coordinators felt the need for additional information and consultations. An additional role of the NCP of the Framework Programme in addition to direct consultations and organisation of information days consists also in raising general awareness of the Framework Programme in participants and also in the potential target group.

FAMILIARITY WITH COOPERATION PARTNERS

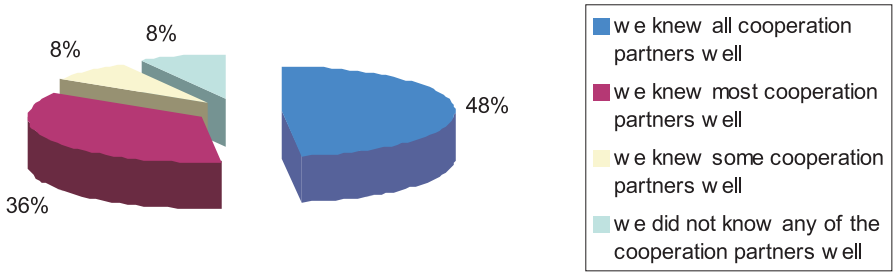
43 per cent of the respondents were well familiar with either all or most partners. 47 per cent of the participants of the 5th Framework Programme were well familiar with some or one of the partners. Thus, 90 per cent of Estonian organisations had at least one familiar partner in the consortium, with whom they had had earlier contacts and whom they knew well. Only 9 per cent of respondents did not know any of the partners well.

FIGURE 2 - FAMILIARITY WITH COOPERATION PARTNERS



It is understandable that participants wanted to have cooperation with familiar partners, with whom the communication would be more efficient. For companies, whose one aim could be to find a way to new markets through partnership, the issue of trust is certainly also important. 34 per cent of companies knew all cooperation partners well, but the respective indicator for research institutions and universities was 10 per cent. Otherwise the results are rather similar in different target groups.

FIGURE 3 - TO WHAT EXTENT DID ESTONIAN COORDINATORS PROCEED FROM EARLIER CONTACTS IN THE SELECTION OF PARTNERS?

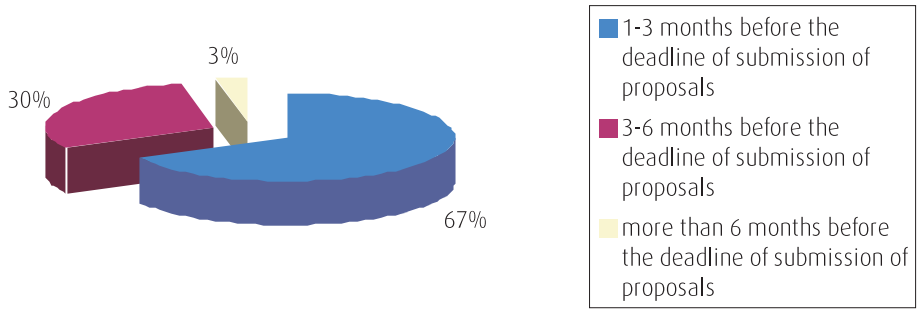


With respect to successful projects coordinated by Estonia the familiarity with partners is even more topical - 84 per cent of respondents knew all or most of their cooperation partners well. Putting together the project consortium is a difficult task and the process certainly proceeds more smoothly, if organisations, which are already known, are involved. Such an attitude restricts, however, Estonian participation and also the opportunities obtained.

SEARCH FOR COOPERATION PARTNERS

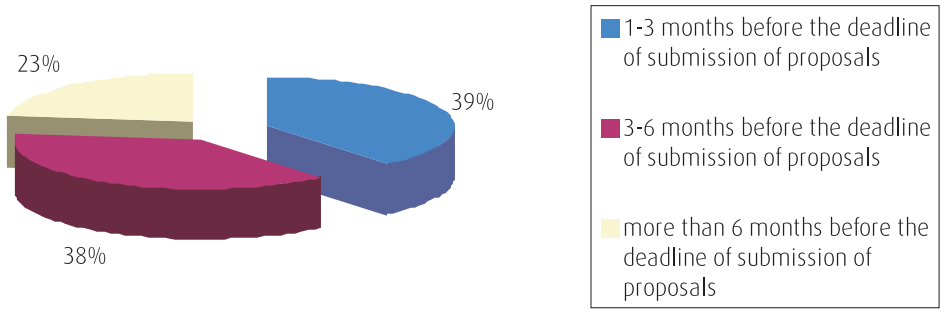
Having too little time for the preparation of the proposal has been mentioned as a definite problem. One reason seems to be the late search for partners - in 67 per cent of cases the Estonian organisations made a proposal to cooperation partners for participation in the project 1-3 months before the date of submission of the proposal. In 30 per cent of cases the cooperation was planned 3-6 months in advance and in only 3 per cent of cases the cooperation was planned for more than a half a year before the deadline for the submission of the proposal. Consequently, Estonian organisations had too little time because they started the preparation of the proposal too late. When we link the earlier search for cooperation partners with the need for information and consultations, we can see that the organisations, which began to search for cooperation partners 3-6 months before the deadline of submission of project proposals, needed much less additional information and consultations. 88 per cent of Estonian coordinators, who started to look for cooperation partners 3-6 months before the deadline, did not need any additional information or consultations, but the same indicator for organisations, which started to search for cooperation partners 1-3 months before the deadline, was 42 per cent.

FIGURE 4 - HOW MANY MONTHS BEFORE THE DEADLINE OF SUBMISSION OF PROPOSALS DID ESTONIAN ORGANISATIONS MAKE A PROPOSAL TO COOPERATION PARTNERS FOR PARTICIPATION IN THE PROJECT?



When we compare these percentages with coordinators from foreign countries who made proposals to Estonian organisations for participation in projects, the numbers are somewhat different - activities are planned much more in advance. Coordinators from foreign countries contacted Estonian partners in most (61%) cases 3-6 months or more than half a year earlier and in 39 per cent of cases up to 3 months before the deadline of submission of project proposals. Shortage of time in the preparation of proposals was one of the problems mentioned most.

FIGURE 5 - HOW MANY MONTHS BEFORE THE DEADLINE OF SUBMISSION OF PROPOSALS DID ESTONIAN ORGANISATIONS GET A PROPOSAL FOR PARTICIPATION IN THE PROJECT?



One of the reasons why Estonian organisations start to prepare the project and look for partners later may lie in the timing of the calls for project proposals, which are usually opened 3-4 months before the deadline of submission of projects. Information days organised by support structures are also held after the opening of the calls for projects, as a rule. Participants from foreign countries may be also more aware of the problems related to timing due to their earlier experience.

Information days should be held approximately a half a year before the deadline for the submission of projects. Necessary information on the calls for proposals should be sent a couple of months before their opening. This recommendation is also confirmed by the aspects mentioned, with respect to which help was needed most from the NCP of the Framework Programme (see Figure 6 - Assistance from Archimedes).

REASONS FOR FAILURE

The following tables try to give an overview of the reasons for the failure of projects coordinated by Estonia - in which areas of evaluation of different programmes did Estonian coordinators get the weakest scores and which of the areas proved to be the strongest.

Five evaluation criteria were applied to projects, as a rule:

1. Scientific and technological quality and innovation
2. Community added value and contribution to EU policies
3. Contribution to Community social objectives
4. Economic development and scientific and technological prospects
5. Resources, partnership and management

Quality of life and management of living resources	Score 1[12]	Score 5[13]	Score 2	Score 3	Score 4
Average score	3,05	3,2	3,48	3,6	3,48
Projects passing the threshold (%)	37	33,3	100	100	100

In the Quality of Life programme the most important criteria were the innovativeness and the aspects related to resources, partnership and management. These two criteria were evaluated first and if one of them did not pass the necessary threshold, the evaluation of the project proposal was automatically stopped[14]. 58 per cent of project proposals failed with the two first evaluation criteria. Therefore the idea should be emphasised in the future, analysing whether the idea is innovative enough to succeed on the European scale. The remaining three criteria did not have a separate threshold and all projects were evaluated. The general success rate of the projects with Estonian coordination in the Quality of Life Programme was 29 per cent.

Environment/ Energy	Score 1	Score 2	Score 3	Score 4	Score 5
Average score	2,89	2,40	2,66	2,70	2,80
Projects passing the threshold (%)	29	50	40	40	60

In the Energy and Environment programmes the minimum threshold was 3. It is difficult to bring out the maximum score, since additional coefficients could be used with respect to different criteria of certain calls for proposals, proceeding from the peculiarity of the call. In the Environment and Energy programmes the innovativeness of ideas proved to be the most critical criterion. The reason why the percentage of projects passing the threshold is rather high is in the small size of the sample and in the exclusion of failed projects from this table. The scores of failed projects were rather low and remained much lower than the minimum threshold. In the Energy and Environment programmes the percentage of successful projects with Estonian coordination was very low and in the Environment programme nonexistent.

User-friendly information society	Score 1	Score 2[15]	Score 3[16]	Score 4	Score 5[17]
Average score	3	3,43	2,57	2,71	2,43
Projects passing the threshold (%)	71,4	100	100	57,1	100

[12]Threshold 4/5

[13]Threshold 4/5

[14]http://www.cordis.lu/fp5/src/evalman.htm

[15]The threshold was 2/5, except in case of projects of accompanied measures, for which the threshold was 4/5

[16]There was no threshold in this area of the User-friendly Information Society Programme.

[17]The threshold was 2/5, except in case of "best experience" for which the threshold was 3.

In the IST Programme the main reasons for failure were related to the innovativeness of the idea and to the economic, scientific and technological prospects. It is important to remember that the User-friendly Information Society Programme was perhaps the most applied research area of FP5, therefore there was a special emphasis on the broader economic value of the research and development activities - projects had to conform also to the needs of the market[18]. The success rate of the projects of the IST Programme that were coordinated by Estonia was rather high - 45%.

Improvement of Human Potential	Score 1	Score 2	Score 3	Score 5
Average score	2,5	2,5	2,14	2
Projects passing the threshold (%)	28,57	42,86	100[19]	14,29

Unlike in other programmes, four evaluation criteria were used in the Improvement of Human Potential Programme - the economic/scientific and technological prospects were left aside. The average scores were considerably lower than in the remaining subprogrammes, also the percentage of projects passing the threshold under different criteria was rather low. The general success rate of Estonian coordinators was only 5,3 %. In the Improvement of Human Potential Programme the resources, partnership and management proved to be the weakest evaluation criterion.

In the Competitiveness and Sustainable Growth (GROWTH) Programme only one project with Estonian coordination was submitted and also proved successful, which is why it is not possible to analyse reasons for failure, since they simply did not exist. In the international cooperation programme of EU research and development activities (INCO II) the European experts gave only the final score to the proposal, therefore it is not possible to draw any conclusions concerning the weaknesses or strengths of projects.

There is no information on the Programme for the Promotion of Innovation and Encouragement of SME Participation.

ISSUES OF INTELLECTUAL PROPERTY

The issue of intellectual property had been discussed by approximately a half of companies, in case of universities and research institutions the percentage was much lower (22%). This shows to some extent the low commercial orientation of Estonian research institutions and universities. When we look separately at research and development projects, in relation to which the issue of intellectual property should be very topical, the results are not significantly different. In 69 per cent of all RTD projects neither Estonian partners nor coordinators discussed the issue of intellectual property. 30 per cent of participants of RTD projects had discussed the issue of intellectual property. Therefore it seems that Estonian organisations do not see enough added value in possible patents. It may seem to make no sense to take out a patent within Estonia, since the domestic market is too small for the marketing of the product. Application for a patent in foreign countries is difficult and expensive. Estonian organisations may also equate the issue of intellectual property with only obtaining a patent and when no real possibility for a patent is seen they also give up the discussion of that issue.

Among Estonian coordinators, 45 per cent of respondents had discussed the issue of intellectual property with their partners, which shows low innovativeness of projects with Estonian coordination in the development of anything realistic. More than a half of RTD projects did not include any issue of intellectual property. It is evident that several projects with Estonian coordination do not contain actual research and development activities and are rather accompanying measures for the enhancement of research and development activities.

[18] Analyses of Estonian Participation in the European Union Fifth RTD Framework Programme, User Friendly Information Society, Tarmo Pihl, Archimedes Foundation.

[19] There was no threshold for this criterion.

STRENGTHS AND WEAKNESSES OF PROJECTS

Estonian organisations regard FP5 projects with their participation as considerably strong in practically all areas. The respondents had to evaluate the following characteristics of the project with their participation:

- Scientific and technological level
- Innovation
- Competence of cooperation partners
- Adequate project management
- Methodology and work plan for the achievement of the objectives
- Practical/economic value of the application of results

Since all these aspects of successful projects were mostly considered to be strong, it is quite complicated to look for weaknesses. Project management was regarded as the weakest and the high scientific and technological competence of cooperation partners as the strongest aspect. Such a positive evaluation may have been caused to some extent by the tough competition in FP5, in which only the strongest projects that passed the required threshold survived, considering the different evaluation criteria. Such a high evaluation may have been also due to little experience of Estonian institutions and organisations from participation in similar projects.

Estonian organisations gave remarkably high evaluations to projects that they had coordinated. Such a situation can also be explained by the lack of a concrete possibility for comparison due to little earlier experience. It is interesting to note that the broader economic value of projects was evaluated as "strong" most of all, which is actually very surprising, considering that commercialisation of results and obtaining new patents were the two weakest motivations and these were not particularly strong indicators when looking at the application of results.

Several indicators have shown that opportunities provided by the NCP are not used much or are unknown. The following section describes the main functions of NCPs that are available free for participants in the Framework Programme and writers of project proposals.

FUNCTIONS OF THE NATIONAL CONTACT POINT

The variety of areas, regulation and the resulting complexity of the Framework Programme increased the need for competent consultants, whose main task is to distribute first-hand information to people interested in the programme and to support them during the entire cycle of project writing. According to this principle the network of NCPs has been created all over Europe with the basic national financing and with the approval of the European Commission. In Estonia the Archimedes Foundation has been appointed to that task with the authorisation and coordination of the Ministry of Education and Research.

Since the Framework Programme is one of the application mechanisms of the research and industrial policy of the European Union, the basic documents and logic of the programme have a much broader dimension than just a means for the financing of research and development activities. In order to write a successful proposal, the applicant has to be aware of the European socio-economic developments and political priorities for the implementation of which the Framework Programme has been created. It is possible to acquire such awareness with the assistance of the NCP and to combine one's knowledge of the sector with the political philosophy inherent in EU projects.

The competence of the NCP includes the following tasks:

- Awareness raising on the Framework Programme and distribution of general information
- Evaluation of a potential project idea and its positioning in the context of the priorities of the Framework Programme
- Consultations for project writing during the entire cycle of project writing
- Assistance in filling in administrative forms accompanied with the proposal
- Search for suitable partners to obtain the international dimension for the project
- Review of the project proposal at the final stage of preparation of the proposal
- Communication with the European Commission for the purposes of operative handling of information

The selection presented may not be complete, since the role of the NCP as an organisation in the society often exceeds its formal limits and proceeds from the expectations and interests of clients, certainly within the limits of its competence. Therefore it is advisable to make use of the free services of local consultants before the final preparation and submission of proposals to the European Commission.

AWARENESS OF THE ARCHIMEDES FOUNDATION - NCP OF FP5

Awareness of the Archimedes Foundation as the NCP has considerably increased during FP5. While during the first half of FP5 the indicator was 72 per cent, it had increased already to 95 per cent by the end of the programme.

TABLE 5 - CONNECTION WITH ARCHIMEDES[20]

Connection with Archimedes	No	Yes
I am a subscriber to Innovaatika	60	40
I have read Innovaatika but I am not a subscriber	85	15
I am a reader of the IRICIS list	60	40
I have participated in information days	48	52
I consulted the contact person of the area during the preparation of the proposa	72	28
I asked additional information during the preparation of the proposal	84	16
I have heard about Archimedes but I have had no direct contacts	86	14

Although most respondents had heard about the Archimedes Foundation, this indicator is rather superficial. Only 28 per cent of respondents had consulted the contact person of the respective area and 16 per cent had asked additional information during the preparation of the proposal. The respective indicators of Estonian coordinators are somewhat more positive, namely 47 per cent of Estonian coordinators had consulted the contact person of the respective area and 43 per cent had also asked additional information during the preparation of the proposal.

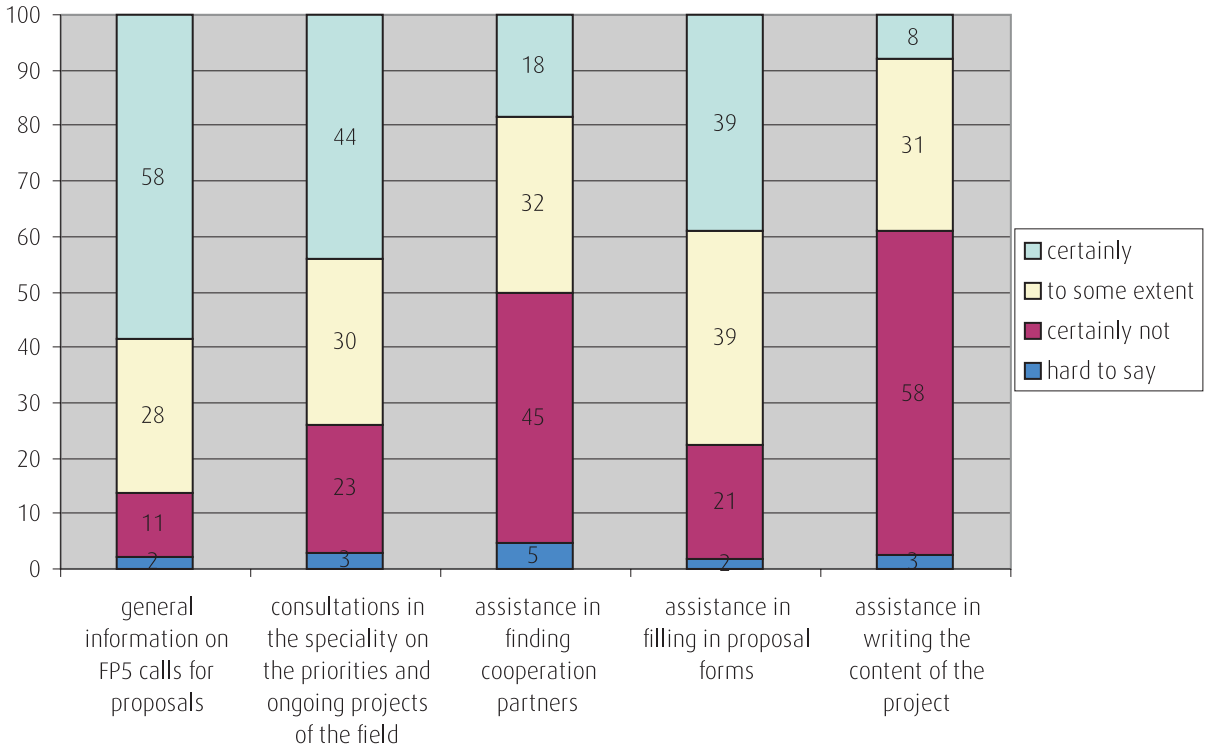
Wider distribution of Innovaatika, the information bulletin of the EU Innovation Centre of the Archimedes Foundation, should be promoted among participants of the Framework Programme and the potential target group. Currently, 40 per cent of Estonian institutions and organisations, which participated in the Framework Programme, have subscribed to Innovaatika. 14 per cent of respondents had had no prior contacts with Archimedes and had only heard of the NCP. Approximately a half of the respondents have participated in some information days, seminars or thematic conferences organised by Archimedes. Information days are one of the best ways for the NCP to inform its target group of the different free services provided by Archimedes, such as partner search. Only in 2.5 per cent of cases cooperation partners for FP5 were found through Archimedes. Information days are also a good means for introducing and advertising different information channels. Currently, participants in the Framework Programme fail to use many opportunities, which have been made available to them free of charge. Such opportunities should be promoted and introduced more.

ASSISTANCE EXPECTED FROM ARCHIMEDES

Information was needed most of all about the different calls for proposals of FP5. 58 per cent certainly needed assistance from Archimedes in that area. Consultations in the speciality were also certainly needed about the priorities and ongoing projects of the sector, 44 per cent of respondents found that they certainly need the respective assistance. 39 per cent need help also in filling in the proposal forms. Assistance was needed least in writing the content of the project and in finding cooperation partners. Since Archimedes as the NCP of the Framework Programme does not provide actual project-writing services to participants, the percentage of necessity for that service is also low. While Archimedes provides consultations during the entire preparation of proposals, it does not write the full proposal itself.

[20]The table shows percentages of the main areas by which Archimedes is known.

FIGURE 6 - ASSISTANCE FROM THE ARCHIMEDES FOUNDATION[21]



The nature of assistance needed from Archimedes by the two major target groups (research institutions/universities and companies) is somewhat different from general results. While the general statistics show that assistance in finding cooperation partners has a rather marginal importance, the analysis by target groups shows that 79 per cent of companies participating in FP5 would certainly like to have the assistance of Archimedes in finding cooperation partners. This is rather natural, since research institutions have stronger cooperation networks from earlier activities and Estonian companies are mainly orientated towards the domestic market. For companies it was an unknown territory, in which they lacked earlier experience. Companies also needed more administrative assistance in filling in proposal forms - 91 per cent of respondents regarded such assistance necessary.

[21]The table shows in percentages what kind of assistance was needed most from Archimedes.

MAIN MOTIVATORS FOR PARTICIPATING IN THE FRAMEWORK PROGRAMME

TABLE 6 - OBJECTIVES OF PARTICIPATION FOR RESEARCH INSTITUTIONS AND UNIVERSITIES[22]

Objectives	Percent
Obtaining additional financing	92
Acquisition of new knowledge	90
Finding new opportunities for cooperation	89
Solution of an interesting scientific problem	73
Training of personnel	71
Publication of results	70
Keeping up with scientific and technological innovations in the field	69
Development of new or existing research methods/equipment	68
Solution of an important problem of applied research on the local level	55
Improvement of the image through participation in FP5	53
Qualitative development of products	40
Creation of new or improvement of existing production processes	29
Extension of the range of products	24
Expansion of markets	21
Raising the productivity	20
Monitoring of the activities of competitors	19
Obtaining new patents	18
Distribution of results for commercial purposes	15

For research institutions the main motivation for participation in FP5 was obtaining additional financing - the indicator was regarded important in 92 per cent of cases. It was followed by the acquisition of new knowledge with 90 per cent and finding new opportunities for cooperation with 89 per cent. **The first three motivators have rather indirect effects on the Estonian research and development activities.** Solution of an interesting scientific problem, training of personnel and publication of results have been evaluated highly as well. **In general, objectives of participation of research institutions reflect to some extent the apprenticeship status of Estonia in the European context. This is somewhat natural, since the participating Estonian organisations largely lacked any earlier experience in participating in similar research and development programmes. Estonian research institutions are trying to acquire as much experience and new knowledge as possible hopefully for further application. Mentioning the publication of results by research institutions is very positive, since it is the main channel for obtaining international recognition and credibility, which both serve as a basis for further cooperation projects.** Keeping up with scientific and technological innovation in the field was also an important motivation for Estonian research institutions.

Obtaining new patents has proved to be one of the weakest types of motivation for the participation of research institutions. The fact confirms also the existence of a gap between the academic and business communities - research institutions do not think about the direct market value of their results. Distribution of results for commercial purposes proved even the weakest motivation for participation in FP5.

[22]The percentage shown in the table contains responses "very important" and "somewhat important".

TABLE 7 - OBJECTIVES OF PARTICIPATION FOR COMPANIES[23]

Objectives	Percent
Acquisition of new knowledge	88
Finding new opportunities for cooperation	88
Keeping up with scientific and technological innovations in the field	82
Obtaining additional financing	79
Qualitative development of products	77
Expansion of markets	77
Extension of the range of products	74
Solution of an important problem of applied research on the local level	72
Development of new or existing research methods/equipment	71
Creation of new or improvement of existing production processes	71
Distribution of results for commercial purposes	68
Training of personnel	65
Improvement of the image through participation in FP5	63
Solution of an interesting scientific problem	53
Raising the productivity	48
Publication of results	39
Obtaining new patents	39
Monitoring of the activities of competitors	33

For companies the Framework Programme is above all an opportunity to find financing for the development and commercialisation of innovative products. The Framework Programme consists in applied research - an idea has to have economic perspective as well as scientific and technological value - a product has to have actual market value.

Companies were mainly motivated by the acquisition of new knowledge and finding new opportunities for cooperation, 88 per cent of responding companies considered these objectives important. For companies it is also important to keep up with scientific and technological innovation in their field. Surprisingly, finding additional financing is not such an important motivation for companies as for research institutions. **It is difficult to draw more general conclusions here on the participation of Estonian companies, since companies participating in Framework Programme are maybe the most progressive companies in Estonia. Although financing is rated highly among the objectives, since 79 per cent regard it rather important or very important, companies value also new knowledge and opportunities for cooperation.** Considering the small size of Estonia, the Framework Programme constitutes a wonderful opportunity for the achievement of one's objectives on the wider European markets. Expansion of markets has also been mentioned as a main motivator for participation in FP5. The same argument is also supported by the wish of companies to find new opportunities for cooperation. Qualitative development of products and extension of the product range were also regarded as important objectives - in both cases they were related to science-intensive activities.

For 53 per cent of responding companies the solution of an interesting scientific problem was also a motivation. It is a step forward in the advancement of cooperation between academic and business communities, which is very important from the aspects of improvement of the competitiveness of Estonia.

Surprisingly enough, obtaining new patents turned out to be one of the weakest motivations for companies, although it is the direct output in the creation of an innovative product and patents could actually be one of the main objectives of the research and development programmes of companies. Therefore we can assume that participating Estonian companies do not believe very much in the possible commercial success of results or that the possible solutions are simply not patentable.

[23]The percentage shown in the table contains responses "very important" and "somewhat important".

OBJECTIVES ACHIEVED

When we look at objectives that were achieved to a rather or very large extent, the acquisition of new knowledge takes the first place with 80 per cent in case of research institutions. It was followed by finding new opportunities for cooperation with 83 per cent and solution of an interesting scientific problem with 72 per cent. Additional financing was achieved to a rather or very large extent by 64 per cent of research institutions[24] . 58 per cent succeeded in training the personnel of their group through the Framework Programme and 59 per cent succeeded in keeping up with the scientific and technological innovation in their field. 55 per cent of research institutions succeeded in publishing their results in journals with international distribution.

When we compare these results with the main motivators, we can see that all the objectives achieved were also the main motivators for research institutions for participation in FP5. The fact that none of the research institutions interviewed succeeded in obtaining a patent in the course of FP5 was a negative aspect and shows again the low commercial orientation and actual market value of the activities of Estonian research institutions. Another explanation may be the shortage of resources for application for patents and the inadequate support of universities/research institutions. This statement is confirmed by the fact that only 7 per cent of research institutions succeeded in commercial distribution of the results.

When we look at companies and the objectives achieved by them, we can see that acquisition of new knowledge was achieved most - a hundred per cent of all companies surveyed had achieved that objective. It is not possible to draw more specific conclusions from that indicator, however, since the nature of new knowledge may be rather vague. Both finding new opportunities for cooperation and improvement of the image were achieved by an equal percentage of companies - 86 per cent. Before starting the project the latter had been an important motivation for approximately a half of the companies. Image in this context somewhat coincides with credibility, which has been one of the main problems of Estonian companies up to now in breaking out of the domestic market and in the efficient use of their potential in foreign markets. This lack of credibility or its doubtful value is mainly caused by the small size of Estonia and by orientation of companies towards the domestic market. 83 per cent of companies managed to obtain additional financing to a rather or very large extent. This was followed by keeping up with scientific and technological innovations and expansion of markets with equal percentages - 67 per cent, which is particularly positive for the growth and development of companies, considering the small domestic market of Estonia. Taking into account the productivity of companies, exactly a half of them achieved the following aspects to a rather or very large extent:

- qualitative development of products
- extension of the product range
- raising the productivity
- creation or improvement of production processes

Consequently, approximately a half of companies managed to achieve also actual aspects of product development with the assistance of FP5. 33 per cent of Estonian companies succeeded in the distribution of results for commercial purposes to a larger extent. Not all projects of FP5 have come to an end yet, which is why it is difficult to give a final evaluation.

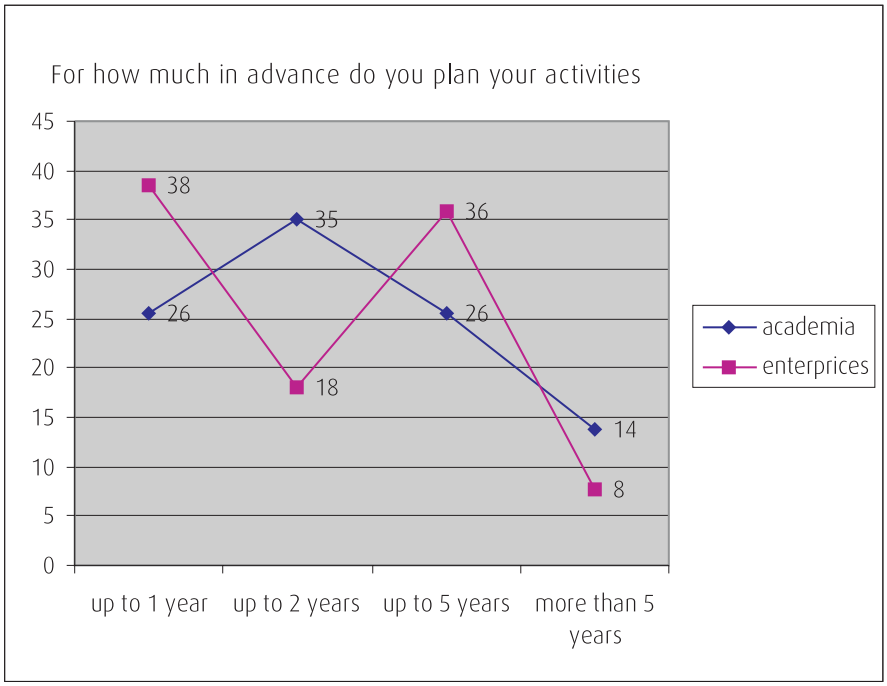
When talking about the opportunities opened up for companies for obtaining patents or commercial distribution of results, it is better to monitor the results of only co-financed research and development projects. A few companies related to direct research and development projects managed to obtain new patents in FP5.

The achieved objectives and direct benefit gained by Estonian organisations are enough for 88 per cent of respondents to intend to participate also in some future Framework Programme. Only 4 per cent of respondents found that they did not want to participate in further programmes, and 7 per cent of respondents did not know whether they would participate or not.

[24] Interviews were conducted also with some Estonian coordinators, who had proved successful according to the evaluation of experts but had not been able obtain financing as a result of further negotiations. The budgets of many projects were also reduced, therefore the amount obtained could be less than expected.

STRATEGIC PLANNING

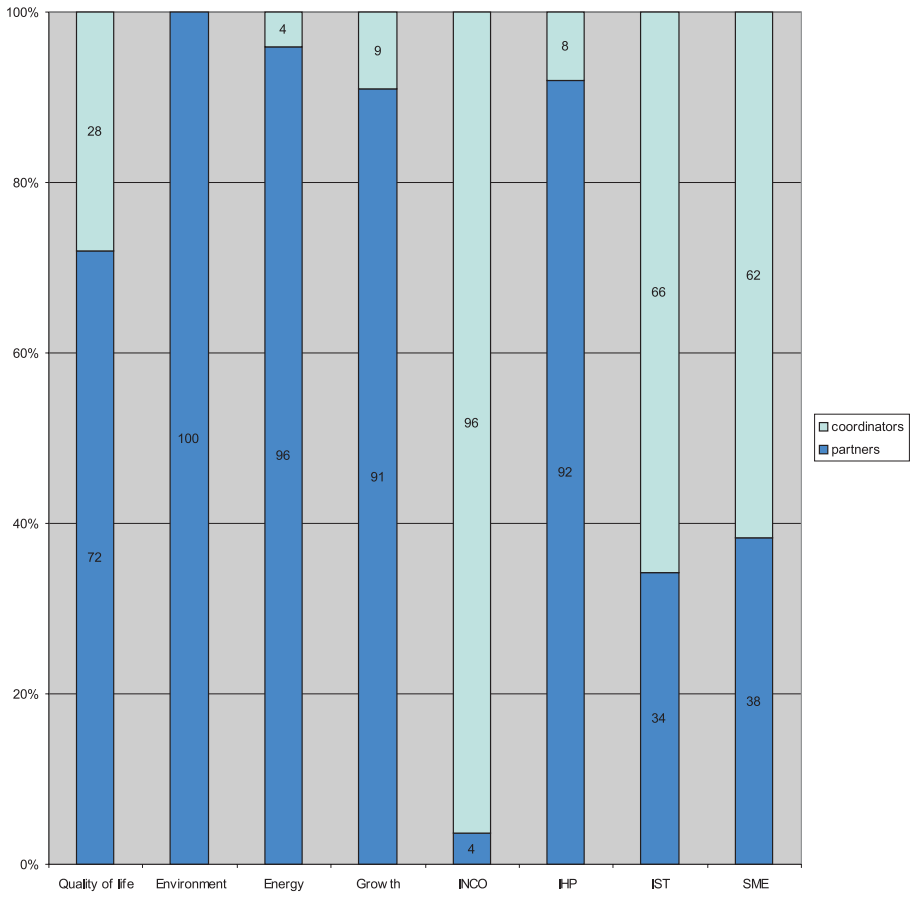
FIGURE 7 - STRATEGIC PLANNING[25]



This table shows the nature of strategic planning performed by the organisations of all successful projects interviewed in FP5. Since these are the main Estonian companies with innovation potential, the strategic planning of their activities remain somewhat short. 56 per cent of the responding companies plan their activities for 1 to 2 years in advance, which is clearly too short for major research and development activities. 36 per cent of companies plan their activities in advance for up to 5 years and 8% of the responding companies plan their activities for more than 5 years in advance. Long-term research and development activities assume also the existence of resources to reduce the accompanying risks. The usual duration of a research and development process is 3-4 years before a product can be marketed. Succeeding in the market may take one more year - therefore a normal cycle of strategic planning would be 4-5 years. A gap between the research sector and companies in Estonia has been much talked about and differences in strategic planning have been mentioned as one of the reasons. More specifically, overly short-term planning of activities of the business sector, which does not permit to implement more extensive research and development activities. When we look at the nature of strategic planning performed by research institutions and companies, the situation is not significantly different. Research institutions obviously may not take into account the marketing of the product and therefore plan their activities less in advance.

[25]The table presents the strategic planning of companies and research institutions in percentages.

FIGURE 8 - DISTRIBUTION OF FUNDS BETWEEN COORDINATORS AND PARTNERS IN DIFFERENT PROGRAMMES[26]



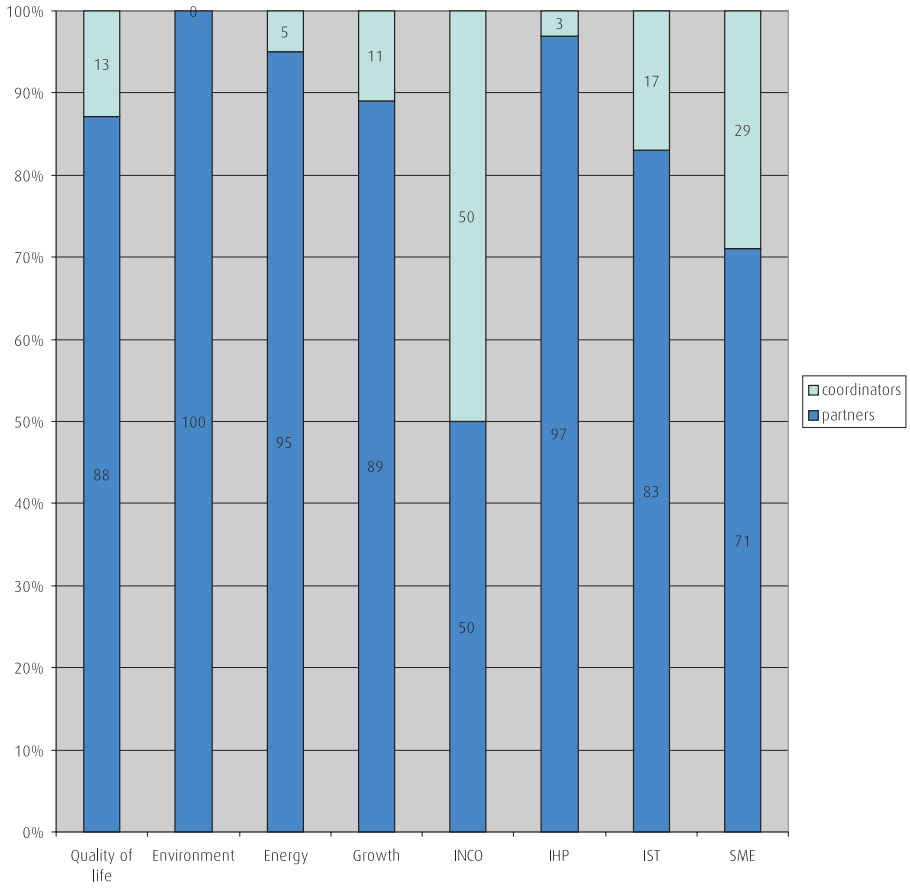
According to general statistics, Estonian organisations who participated as partners in FP5, brought in 71% of the total financing, the proportion of coordinators was 29%. Distribution of funds between partners and coordinators varies very much by programmes. While in the INCO and IST programmes the coordinators have the main role, in the remaining subprogrammes the role of coordinators is rather marginal. In case of the INCO Programme the importance of coordinators may also depend on the peculiarities of the programme. Such a difference in distribution is also reflected in the peculiarities of the work of the NCP in FP6. In the IST Programme and to some extent also in the Quality of Life Programme there should be more emphasis on assisting the coordinators, helping them first to develop the idea and further to adapt it to the European context. Potential coordinators should be helped in writing the project, which is in essence not one of the obligations of a NCP. It is certainly necessary to give a certain preliminary evaluation of the project, proceeding from the criteria set by the European Commission. As to the entire Framework Programme, the Estonian partners had more weight and brought in also more financing as a whole.

From the aspects of the effect of the projects the distribution between partners and coordinators is rather important. There is reason to believe that in programmes, where the percentage of coordinators was higher, the effect on Estonian research and development activities and on the development of the state was more considerable, since coordinators get more financing than on an average and therefore the distribution of funds is less fragmented and more funds can be allocated at a time for the achievement of a certain objective. When we look at the IST Programme, an average project with Estonian coordination brought in approximately a half a million , at the same time the average funding of a partner was approximately 60 thous.

[26]The table shows the distributions of funds in percentages among partners and coordinators.

In the INCO Programme these indicators vary even more - while an average financing by the European Commission of a project coordinated by Estonia was approximately 600 000, the budget of an average partner was approximately 15 000. We certainly shouldn't think that programmes in which partners had the most important role had just a marginal effect in the Estonian context. In the Environment and Energy programmes the average funding received by partners was approximately 80 000 and the result was similar also in the IHP Programme, where 97 per cent of Estonian organisations participated as a partner.

FIGURE 9 - DISTRIBUTION OF COORDINATORS AND PARTNERS BETWEEN PROGRAMMES[27]



[27]The table shows the distribution of Estonian partners and coordinators in the 5th Framework Programme.

CONCLUSIONS AND RECOMMENDATIONS

1. Approximately a half of Estonian organisations participated in the preparation of the content of the project proposal, pursuing through that their specific interests. The effect of projects, in which the Estonian partner had a relatively modest role, if any, in shaping the content part of the proposal, is not quite simple, however, since Estonian partners cannot pursue their interests directly. In that case the benefit of the project consists more in the experience gained and in cooperation which allows to create new contacts for further research and development activities.

2. Shortage of time in the preparation of proposals is one of the most common problems among Estonian organisations, one of the reasons seems to be delayed planning - most Estonian coordinators begin to look for cooperation partners 1-3 months before the deadline of submission of project proposals. If we link the earlier search for cooperation partners with the need for information and consultations, we can see that the organisations which started to look for cooperation partners 3-6 months before the deadline for the submission of project proposals needed also much less additional information and consultations. Information on calls for proposals is also one of the areas in which assistance was expected most from the NCP of FP5. **Therefore it would be necessary to organise information days and notify potential project writers about the future priority topics of the calls for proposals already 6 months before the deadline of submission of project proposals. The respective information day should provide information about the activities that can be performed before the opening of the call for proposals.**

3. Estonian organisations preferred to have cooperation with the partners whom they already knew and with whom the communication would be more efficient. For companies, for whom finding a way to new markets through partnership could be one of the objectives, each potential partner may also be a competitor and the issue of trust is very important. Estonian organisations may also lack a realistic opportunity for participation in projects, if they have had no earlier contacts with members of the consortium. Estonian coordinators also wish to have cooperation with already familiar partners. Putting together a project consortium is a difficult task and the process certainly proceeds more smoothly, if organisations which are already known are involved. Such an attitude restricts, however, Estonian participation and the opportunities. Therefore the role of the NCP of the Framework Programme in the search for cooperation partners remains very insignificant or participants in the Framework Programme have simply been unaware of the existence of that opportunity. **Since mediation of partner search would help Estonian organisations to join new project consortia, it would be necessary to prove the quality and reliability of that service.** Importance of partner search is particularly evident in case of projects coordinated from Estonia, since putting together large consortia is a difficult task.

4. The lack of earlier experience in the preparation of similar proposals, shortage of time in the preparation of the proposal and lack of a general understanding of FP5 were the most important problems for Estonian organisations in the preparation of the project proposal. General shortage of information and having no one to consult were the least important problems for Estonian organisations. Approximately a half of respondents, who experienced different problems in the preparation of the proposal, needed no additional information or consultations from the support structure of the Framework Programme. This leaves the impression that participants in FP5 were not fully aware of the services provided by the NCP of FP5 or that they had simply had no feedback on the adequacy of that service. **The NCP should promote more widely the opportunities it is providing.** It currently seems that the participants in FP5 largely fail to make use of the assistance available to them for the preparation and also implementation of the project proposal. **One of the best channels for the introduction of the services provided, apart from information days and personal communication, is the Innovaatika information bulletin of the EU Innovation Centre of Archimedes.**

5. While reasons for the failure of project proposals vary with programmes, the main reason lies in the inadequate innovativeness and scientific and technological quality of the idea. The IST Programme also showed insufficient market-orientation of Estonian organisations - the projects are not in conformity with the general economic development trends of the European Union and have no sufficient scientific or technological perspective[28].

[28] Analyses of Estonian Participation in the European Union Fifth RTD Framework Programme, User Friendly Information Society, Tarmo Pihl, Archimedes Foundation.

6. Although most participants in FP5 are aware of the existence of the Archimedes Foundation, the knowledge is still superficial. When we look at the main functions of the NCP, we can see that only 28 per cent of respondents consulted the contact person of the respective area and only 16 per cent asked additional information in the preparation of the proposal. This fact confirms again that participants in FP5 either fail to make use of the available opportunity or are simply unaware of it. **We would recommend here to change the nature of information days, relating them more with the problems of organisations.** Still, awareness of the NCP of the Framework Programme had considerably increased in the course of FP5.

7. Although Estonian organisations had a relatively marginal role in the preparation of the content of the project proposal, the projects were in harmony with the activities and objectives of the Estonian companies and research institutions themselves. For 70 per cent of companies, participation in FP5 was important also from the aspects of their strategic development. Still, a considerable part of research institutions and companies plan the activities of their group only up to 2 years in advance, which may make such a development too short. Although both companies and research institutions considered obtaining additional financing a very important objective, they could join projects, which would have important perspective also for their general development.

8. The issues of intellectual property and patents did not prove attractive or motivating enough for Estonian organisations, which is a rather worrying indicator. Approximately a half of companies and only a fifth of universities discussed the possible issue of intellectual property with their cooperation partners. Estonian companies and research institutions may therefore be deprived of many opportunities, since they are rather indifferent about patents and the issues of intellectual property. Domestic patents may not be attractive enough and it is too complicated and expensive to obtain a patent on the European scale. Also in the IST[29] Programme, which is one of the subprogrammes of the Framework Programme that is related most to applied research, the participants were not very much interested in the issues of intellectual property and patents. Different departments and research groups of universities may lack actual motivation for allowing the university to patent the results of their research. Therefore universities could be more researcher-centred in their patent policy, allowing him to retain the intellectual property rights for the work performed. There should also be respective support mechanisms on the national scale to facilitate application for patents on the European level and the respective process[30]. The current policy of universities does not also provide for significant support for obtaining international patents.

9. Most Estonian organisations seem to be satisfied with their participation in FP5. The satisfaction is expressed by the considerable achievement of the main objectives mentioned and by the fact that 88 per cent of respondents intend to participate also in the next framework programmes. The main benefit of FP5 consisted in the acquisition of new knowledge and experience by Estonian partners and coordinators and gaining a firm footing in the European research and business communities. Although the main objectives of Estonian organisations do not reflect particular commercial orientation, the financing obtained from FP5 has played a significant role in the development of the Estonian research institutions, universities and the more progressive business sector. Although FP5 was largely seen as a source of additional financing, the projects financed were in harmony with the fields of activities of the Estonian organisations and had an important role in their strategic development.

[29] User-friendly Information Society.

[30] Analyses of Estonian Participation in the European Union Fifth RTD Framework Programme, User Friendly Information Society, Tarmo Pihl, Archimedes Foundation.

ANNEX: STATISTICAL OVERVIEW OF ESTONIAN PARTICIPATION IN FP5

TABLE 8 - GEOGRAPHICAL DISTRIBUTION OF THE PROJECTS SUBMITTED

Programmes	Project proposals submitted			
	Tallinn[31]	Tartu[32]	Other	Total
Quality of life and management of living resources (QoL)	85	178	13	276
User-friendly information society (IST)	108	48	5	161
Competitive and sustainable growth (GROWTH)	24	4	1	29
Environment and sustainable development (EESD)	47	9	16	72
Energy and sustainable development (EESD)	90	78	17	185
Confirming the international role of Community research (INCO)	8	11	0	19
Promotion of innovation and encouragement of SME participation (Innovation & SME)	27	38	2	67
Improving the human research potential and the socio-economic knowledge base (IHP)	70	65	2	137
Total	459	431	56	946

TABLE 9 - GEOGRAPHICAL DISTRIBUTION OF SUCCESSFUL PROJECTS

Programmes	Successful projects			
	Tallinn	Tartu	Other	Total
Quality of life and management of living resources (QoL)	14	41	5	60
User-friendly information society (IST)	20	10	2	32
Competitive and sustainable growth (GROWTH)	7	3	0	10
Environment and sustainable development (EESD)	18	1	4	23
Energy and sustainable development (EESD)	10	22	4	36
Confirming the international role of Community research (INCO)	0	8	0	8
Promotion of innovation and encouragement of SME participation (Innovation & SME)	9	14	0	23
Improving the human research potential and the socio-economic knowledge base (IHP)	19	16	1	36
Total	97	115	16	228

TABLE 10 - DISTRIBUTION OF SUBMITTED PROJECTS BY TARGET GROUPS

Programme	Number of projects	Universities/ research institutions	Com-panies	State agencies	Other	Organi-sations
Quality of life and management of living resources (QoL)	256	213	26	13	24	276
User-friendly information society (IST)	126	58	49	19	35	161
Competitive and sustainable growth (GROWTH)	27	14	11	3	1	29
Environment and sustainable development (EESD)	156	135	15	13	22	185
Energy and sustainable development (EESD)	61	36	15	9	12	72
Confirming the international role of Community research (INCO)	18	12	0	1	6	19
Promotion of innovation and encouragement of SME participation (Innovation & SME)	51	18	12	5	32	67
Improving the human research potential and the socio-economic knowledge base (IHP)	114	103	11	1	22	137
Total	809	589	139	64	154	946

TABLE 11 - DISTRIBUTION OF SUCCESSFUL PROJECTS BY TARGET GROUPS

Programme	Number of projects	Universities/ research institutions	Com-panies	State agencies	Other	Organi-sations
Quality of life and management of living resources (QoL)	56	45	6	2	7	60
User-friendly information society (IST)	28	10	12	5	5	32
Competitive and sustainable growth (GROWTH)	9	4	4	1	1	10
Environment and sustainable development (EESD)	31	26	0	1	8	35
Energy and sustainable development (EESD)	18	9	5	4	5	23
Confirming the international role of Community research (INCO)	8	5	0	1	2	8
Promotion of innovation and encouragement of SME participation (Innovation & SME)	14	7	2	1	13	23
Improving the human research potential and the socio-economic knowledge base (IHP)	31	27	2	0	8	37
Total	195	133	31	15	49	228

TABLE 12 - DISTRIBUTION OF COORDINATORS BY COUNTRIES

Country	Total projects coordinated with Estonian participation	Of which successful
Germany	121	25
United Kingdom	111	37
France	49	9
Finland	94	10
Sweden	70	12
Netherlands	67	18
Denmark	31	10
Estonia	79	23
Italy	32	9
Austria	40	7
Iceland	3	1
Belgium	16	8
Spain	21	5
Ireland	13	3
Poland	10	3
Latvia	6	3
Norway	13	5
Slovenia	2	2
Portugal	6	2
Luxembourg	2	
Hungary	3	1
Lithuania	2	
Greece	12	1
Czech Republic	2	
Israel	1	
Cyprus	2	
Switzerland	1	1
Total	809	195

TABLE 13 - PARTICIPATION OF WOMEN IN FP5

Programme	Number of projects submitted	Projects with the participation of women	% of projects submitted with the participation of women	Successful projects with the participation of women	Success % of women	Missing data
Quality of life and management of living resources (QoL)	256	48	18,8	10	21	3
User-friendly information society (IST)	126	14	11,1	4	29	17
Competitive and sustainable growth (GROWTH)	27	4	14,8	1	25	0
Environment and sustainable development (EESD)	156	24	15,4	3	13	3
Energy and sustainable development (EESD)	61	8	13,1	4	50	1
Confirming the international role of Community research (INCO)	18	2	11,1	1	50	0
Promotion of innovation and encouragement of SME participation (Innovation & SME)	51	8	15,7	3	38	3
Improving the human research potential and the socio-economic knowledge base (IHP)	103	41	39,8	14	34	0
Marie Curie	11	4	36,4	3	75	2
Total	809	153	19,6	43	37	29