5-YEAR ASSESSMENT QUESTIONNAIRE SURVEY ON A SELECTED SAMPLE OF FP3 AND FP4 PROJECTS

EXECUTIVE SUMMARY

The questionnaire report, prepared by ATLANTIS Research Organisation, contains the statistical analysis of the 2,275 questionnaires received and entered. The questionnaire was sent to about 12.000 project participations. The specific addresses' sample was provided by the European Commission services. Special emphasis was given however to reflect participation in terms of Specific Programme, organisational type and role in project (e.g. co-ordinator/non co-ordinator), countries as well as in terms of the internal structure of the specific programmes (organisational type and role in project, countries, etc).

The analysis of the results is categorized under the specific questionnaire sections, and is presented for the overall results, per specific programme (IST, GROWTH, QoL, EESD, ENVIRONMENT – MAST, THERMIE-JOULE, INCO-IHP-INNOVATION, INCO, IHP, INNOVATION), per type of participating organisation (large enterprises and SMEs together as "Industry", All the rest participating organisations together as "Research"), per country in specific cases, and per large enterprises and SMEs separately in specific cases, according to the specification and requirements of the Commission and the 5-Year Assessment Panel.

Sample of participants

Overall 61.5% of the sample of participants who participated in research projects under the 3rd and 4th Framework Programmes where research organisations, while 38.5% of the sample came from the industrial sector. Universities participated the most (overall and in the research community) at 30.3%. As for the industrial sector, as a group SMEs had a slightly higher percentage (20.6%) compared to large enterprises (17.9%), but large enterprises were the largest participant from the industrial sector.

SECTION A – CHARACTERISTICS OF THE PROJECTS

Type of projects

By far most of the projects taking part in the survey were shared cost projects (average of 70%), while the concerted actions received only 9% on average of the responses.

Average Funding

The average EC funding based on the overall results is around 1.22 M€, while the average total project cost is more than 2M€, and each participant takes approximately 185K€ (EC Funding of projects divided by average number of participants in a project). However, the average is affected by the IST results, whose total projects cost is above 4M€, with the Commission contributing around 2M€. In the other end of the spectrum is the INCO programme, with the total costs and Commission contribution reaching 335 K€ and 250 K€ respectively.

Number Of Participating Organisations
The overall average number of participants per project was 6.61. All the programmes were above 5.0 participants, (IST having the highest average at 8.64) except for the INCO, which averaged 3.38.

SECTION B – YOUR PARTICIPATION IN THE PROJECT

Strategic Importance of Project

Overall, the projects undertaken were of high strategic importance across all categories (all, all six programs, and for participants from the industry and research communities). Specifically, approximately 70% of respondents ranked the strategic importance of the project as either 4 or higher (1-5 scale) in all categories, while the most often chosen rank was 4 (approximately 40% of respondents in all categories).

Additionality and strategic importance.
Overall, as well as in the specific programmes cases and the "industry' – "research" cases it is obvious that the majority of 'pure additionality' participations, i.e. those which wouldn't have been undertaken at all in the absence of FP4, were of high strategic importance to the participants involved.

Type of participation in the project
For all participants, 43% were solely providers, 10% were users of the project results, and 45% were both providers and users of the project's results. Across all programmes and for the industry/research communities, at least 80% of the participants were either a provider or both a user + provider of the projects results. The highest percentage of participants who were solely users was in the industry community, with 18%.

Previous And New Participations And New Teams Developed
Overall the percentages for whether the project was the organisation's first participation in an EU program was 30% (yes) and 70% (no). The split was even (50-50) between whether it was the team's first participation in an EU program or not. As for the percentage of participants who worked with partners they have previously worked with and new partners, the results were even, 80% worked with known partners and 80% worked with new partners. The average number of known teams was 3, while the average number of new teams per project was 4.

Per program, the averages were approximately the same. Per country, there are three different distinctions. The `old` EU member states and especially the `developing ones` like Portugal showed a higher percentage of participants who were NOT taking part in their first EU project, approximately 70%, with the only exception of Greece where the respective percentage reached almost 90%. The `new` member states like the Scandinavian countries have the same percentages reversed meaning that about 70% of the respondents stated that they were taking part in their FIRST EU project. The third distinction refers to the `old` and `developed` EU members where the split is even (50-50) concerning their first or not participation in EU projects. As for known and new partners, at least 70% of all projects involved both new and known partners across all countries.

Primary Focus Of Participation
Since most of the respondents in the sample came from the research community it is expected that the primary focus of participation is research, either basic or applied. This is also proved by the distribution of the total results per programme. All the programme characterised by more research participations (IHP, QoL, EESD) indicate

high rates even for the basic research. On the other hand, in all the other programmes with more of an industrial orientation (IST, GROWTH) the first place is taken by applied research, while basic research is superseded by experimental development for example and other more "near to the market" activities.
In industry applied research and development have the first saying, while also options such as experimental design, demonstration and awareness actions, field trials, systems integration, field studies, technology transfer represent percentages above 20%. In research organisations, on the other hand, applied and basic research represents over 70 and 50% respectively, while all the other options are bellow 20% except for experimental development (25%).

Nature Of Research
The results show that the participants believe that the projects are of normal cost and risk. However, they are considered as technically complex and exciting while also necessary for the participating organisations and not just a luxury. Although, as it was shown above, the share of basic research was significant in the primary focus of the participations, the projects are characterised more as applied research, long term, and mission-oriented. In addition, they are more characterised as process- and RTD-oriented rather than product- and diffusion-oriented. Finally, most of the project belong in a core area for the participating organisation and wouldn't have been carried out without external collaborators. It is quite interesting that the same distributions are encountered both in the specific programme cases as well as in the industry – research cases.

Current R&D capability and the expected level of R&D capability in three years.
Over 60% of the respondents state that they have substantial or significant R&D capability. However, it is interesting to note that those who answer that they have substantial or significant R&D capability, expect to increase it in the next three years, while those who state that they have no or limited R&D capability now, feel that it is going to be decreased even more in the next three years. This applies for all specific programmes as well as for the "industry – research organisations" distributions.

SECTION C – GOALS AND ACHIEVEMENTS

As expected, the first places are taken by goals concerned with the enhancement and production of knowledge. However, the fact that "access to complimentary sources of expertise" takes the third place reveals the need of the participants to reach and have access to additional knowledge and expertise not found within their premises. This fact combined with the next goals ranked (Transfer of expertise, know-how, and technology, Formation of new EU research partnerships and networks) shows the major significance given to networking and acquisition of knowledge and know-how from the other partners to their organisations through the execution of a project. The dominance of knowledge and networking goals (against the strategic management and exploitation ones) show that the programmes of the Third and Fourth Framework Programmes concern mainly pre-competitive research with exploitation prospects in the long run. Through the participation in these programmes, the organisations mostly enjoy access to several indirect advantages mainly resulting from networking. Furthermore, no significant differences were recorded either between the different programmes or the "industry" and "research organisations" distributions.

SECTION D – OUTPUTS AND IMPACTS

Importance of outputs

Overall, as expected, due to the increased participation of the research organisations, the most important output is considered to be the publications. However, it has to be noted that the next outputs following in rank concern the production (demonstration, methods, processes, products, and services).

This kind of outputs (concerned with production) characterises also the programmes with increased participation of the industry, In addition, while in IST product outputs have the first saying, in GROWTH process outputs are first in rank. In the rest of the programmes the publications are first and also with significant difference from the second. It is also interesting to note that the research organisations have more interest in outputs that concern the industry (methods, processes, products, and services) rather than the industry in academic outputs (publications). Another interesting point is that the patents (either applications or granted) are chosen equally by both the industry and the research organisations, while the start ups / spin offs, joint ventures and licences, are chosen by the industry slightly more than the research organisations.

Dissemination activities

Overall, Presentations in seminars was chosen the most (94.6%) with the production of publications coming in second (89.2%). It is also worth noting that the organisation of seminars and Internet based dissemination were conducted as dissemination activities by approximately half of the respondents.

Use of outputs

Overall, results were demonstrated, evaluated, developed further and used regularly mostly in the respondents' own RTD unit, or the partners in the project. The use of the research results by the organisations' own production/business unit is low, thus indicating that the results are not yet ready to be used but need further demonstration, evaluation or development. It is important however that more than 50% of the participants (**TOTAL** row) state that the results are used either within their own or other organisations. As for the demonstration, evaluation and further development of the results, the percentages were between 63% and 67%. However while demonstration and further developed is carried out within the organisations' RTD unit, the evaluation takes place mostly by the partners of the project.

It is also worth noting that in IST, a programme with increased industry participation, the percentage of using the results in their own RTD unit is of the lowest ones, while the percentage of using the results in their own production/business units is the highest, thus showing the “readiness” of the IST results to be applied. In GROWTH and all the rest of the programmes the opposite happens; the results are used more in the RTD unit and less in the own production/business unit as compared to the overall results.

Users of project results

In all, about half of the respondents state that the intermediate user of the research results is the scientific community, while slightly over the one fourth of the respondents choose the manufacturing industry. However, when it comes to the end users the manufacturing industry is chosen by 39% and the scientific community by 39%. If we add the service sector to the manufacturing industry, then the industry in general is considered to be the end user of the research results by more than 70% of the respondents.

Commercial returns & Plans for future commercialization
Overall, those who stated that they already had commercial returns (scored 4 or 5) were slightly over 9% while about 59% stated that they did not have any commercial returns yet. From the combination of whether there have been any commercial returns in relation to whether there are any plans for the future commercialisation it can be concluded that those who already had some kind of commercial returns are those who have more plans for the future commercialisation as well.
It is characteristic that the Large enterprises stated by 18% that they have commercial returns, while the SMEs declared that by 11% (responded 4 or 5 on the 1-5 scale). The percentage of those who stated that they had no commercial results but had plans on the future commercialization was about the same (40%) in both large enterprises and SMEs. However, the percentage of the large enterprises who stated "no returns" and "no future plans for commercialization" was much higher than the SMEs, reaching 70%.

Furthermore, almost 80% of this group of respondents chose the EU market, without however putting aside the national markets (slightly over 60%) while almost 40% chose other international markets as the target market for commercializing the research results. As for the timing of commercial returns, the majority (60%) estimates that it will happen after one year after the project ends, thus strengthening the hypothesis made, that the framework programme funds pre-competitive research and a specific amount of time is required before the results can be turned into marketable products. The only case that is worth noting is the IST case where the number of respondents that estimated the date of first commercial returns within one year of project end is almost the same (around 40%) with those who chose "more than one year after the project", thus revealing the short time required for information technologies to enter the market.

Factors enhancing commercial exploitation
Overall, the question was answered by the 65% of the total respondents, thus showing that 35% of total respondents considered that there were no obstacles to commercial exploitation. From those who answered the question, 65% state that more development is needed for the commercial exploitation of the research results. An almost 50% estimates that further funding is also needed and about the same percentage (around 40%) believe that co-operation with the partners and further research are also factors enhancing the commercialisation prospects. Finally 32% state that further marketing is needed and 20% further acquisition of knowledge / know-how. In IST, however, the products born are more near to being commercially exploitable therefore marketing is ranked higher than in the other programmes as one of the remaining factors enhancing commercialisation. The difference between the "industry" and the "research" results is the expected one. Industry indicates that more development is needed, while the research community also chooses development but also ranks further research higher than industry.

Impact of participation
There was hardly any negative impact on Scientific & Technological standing, Productivity levels, Impact on Competitive position and Employment levels. But, across all categories, there was very little impact on Productivity and Employment levels, while the impact on Scientific & technological standing was significant across all categories, and the positive impact on the Competitive position of the participants was moderate, except in cases of more "industry-oriented" programmes like IST and GROWTH where it was ranked quite high.

Predicted future impacts
Improved scientific and technological capability, Implementation of Community goals in general, and improved cohesion across the EU where the three most highly ranked future impacts, regionally, nationally and through Europe, across all categories.

Personnel involved in the project
Overall, the average number of people involved in the projects is 7.34 (1.98 of them being women). The average number of men recruited specifically for the project was 1,71 and 0.95 were women. After the end of the project 1.76 men left and 0.88 women. In total, 0.02 people remained in the organisation after the end of the project and all of them women.
As for the analogy between men and women, it ranges between 20% (IST) and 35% (LIFE) concerning the personnel involved in the projects. However, when personnel is specifically recruited for the project, the percentage of women is increased ranging from 25% (IST) to 55% (LIFE). Finally, either men or women, most of the people involved or recruited specifically for the project were researchers. As for the country cases, the percentage of the women in the total average number of people involved in the project was about 29% on average and when recruited for the specific project the percentage was increased to 37 % (average for all countries).

Future plans after project is finished for project team
The overall impression is that the research efforts will continue with the specific project being one stage of the team's work-programme. More than half of the respondents stated that they would continue the research efforts with own resources or with EU or other funding. The efforts will continue with the same partners by more than 45%, while new collaborations with other partners will be pursued by 40%. An amount of 25% will begin commercialisation of research results. Less than 15% will dissolve the research team and even less than 5% will abandon the research efforts in this area. The industry results show that there is willingness in industry to continue their efforts either within other EU programmes or with own resources. In the research community, as expected, "own funding" is replaced by "other funding". The commercialisation of research results was chosen by almost 40% of the industry participants and only by about 15% of the research community. Both of the industry and research communities chose "collaboration with the same partners" over "new collaborations with other partners".

Additionality
The projects would not have been carried out without EU funding. Six out of 10 respondents believe that the projects would not have been carried out at all, while one out of ten thinks that they might have been carried out but they wouldn't have participated. Only a few (3%) of the participating organisations state that the projects would have been carried out at the same level and with the same partners. This makes the Framework Programmes unique in their contribution.

Initial relevance of projects to specific issues, calibre & impact of projects
The great majority of the participating organisations (over 85%) state that there was high relevance between the objectives set by them, their partners as well as by the EU, thus resulting in the production of quality results not only for their organisation but for science, technology and economy in general. Over 75% think that the overall performance and adequacy of the project research team was satisfactory and about 90% think that the timeliness of the project results was correct, and the quality and utility of the results / outputs produced was high as. Over 75% also state that the impact on all the participating organisations was high, as with the extend to which the project succeeded in addressing EU RTD policy goals. The results are similar both in the specific programme cases as well as in the "industry" – "research" cases.

Costs and benefits of participation
Overall, in two out of three projects it was stated that the benefits outweighed the costs, while one out of five states that costs and benefits were equal. Only one out of eight projects states that the costs outweighed the benefits. Both the research and the industry communities state that the benefits gained outweighed the costs of their participation in the projects.

Obstacles to growth
The views on the Commission's input are characterised by several different aspects. The procedures for submitting a proposal are considered as inadequate/complex, slow and costly. However, there is a positive reaction when it comes to the Commission Officials' input during the life of the project. On the other hand the contribution from the National officials is considered lower, mainly appearing at the proposal submission stage. As for the payment and reporting procedures, the participants seem satisfied. Less satisfied however are they with the evaluation procedures, where 42% stated "satisfied", 49% "neutral" and 18% "dissatisfied". Finally, the distribution of information was "satisfying" by 48%, "neutral" by 44% and "dissatisfying" by 8%.

In synopsis, the following major points can be noted:

- The Framework Programmes are primarily concerned with applied research, which is directly or indirectly used for producing economic results. The end user is in general the production sector, in its broad sense (services included), and this is acknowledged even by the research community. The entry of the research products into the market is not direct, as a specific time is necessary for the products to mature and adjust to the markets' needs. Part of the research results needs further research to be commercially exploited. Both the research and the industry communities state that the benefits gained outweigh the costs of their participation in the projects.
- The contribution of the projects in the competitiveness of the European economy as well as in the internationalisation of the participating organisations is widely acknowledged by the users who state that the great majority of the results produced are targeted at the European as well as other markets apart from the national ones.
- The "academic" results (publications, Ph.Ds, etc) are considered quite important; however, the research organisations do not limit their activities in only producing the project results but they often participate in using them as well.
- Apart from the economic results, there are also additional results reported, concerning the implementation of other EU policies, the cohesion across the EU, the quality of life, and preservation of the environment.
- The impact of the programmes in strengthening the scientific and technological capacity of the participating organisations is acknowledged by all as of major importance. However, the impact of the programmes to the employment levels of the participating organisation is insignificant.
- The participating organisations give major importance to the projects they participated in, as they consider them of strategic importance and within the core interests of their organisations. The results produced are characterised of high quality and their impact on their organisations as significant.
- The projects would not have been carried out without EU funding. Six out of 10 respondents believe that the projects would not have been carried out at all, while one out of ten thinks that they might have been carried out but they wouldn't have participated. Only a few (3%) of the participating organisations state that the

projects would have been carried out at the same level and with the same partners. This makes the Framework Programmes unique in their contribution.

- The collaboration between the partners will continue either for the execution of other projects within the framework programmes, or for continuing the research with their own or other funding. This reveals the fact that the collaborations are characterised by a more permanent nature and a solid European Research Area is built through the framework programmes.
- The "knowledge" and "networking" goals were the main goals achieved at a high degree by the participants. The "strategic management" and "exploitation" goals are next in degree of achievement as well as importance. In the programmes with more "industrial orientation" (e.g. IST) the production of new products is highly ranked.
- As expected, the industry and research communities, respond differently about the priorities, the goals, and the achieved results/outputs. However, when it comes to more general aspects, differences are insignificant, thus revealing a common view between the two communities.
- The obstacles to the projects' success are manageable. The intrinsic technological difficulties and the insufficient funding are the most important ones. The relations between the partners are also reported as obstacles but with relatively small percentages, which shows that the partnerships operated satisfactorily for their members.

The whole report (300 pages, 83MB) can be obtained on a CD-ROM from the DG Research Planning, Programming, Evaluation Unit
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