

European Commission



6<sup>th</sup> Framework Programme  
Anticipating scientific and technological needs

**NEST**

New and Emerging Science and Technology

WORKING DOCUMENT ON

**PATHFINDER INITIATIVES**

7 January 2003

**This is a working document of DG Research for consultation. It should not be taken as a definitive basis on which to prepare proposals for the NEST activity. Guidance to proposers will be provided for each NEST call for proposals.**

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# Working document on PATHFINDER initiatives

## 1 INTRODUCTION

The New and Emerging Science and Technology (NEST) activity falls within the FP6 specific programme “Integrating and Strengthening the European Research Area”.

NEST provides a means to anticipate scientific and technological opportunities and needs in new and emerging areas. It supports unconventional, exploratory research which cuts across or lies outside the thematic priority areas of FP6, in particular because it is highly interdisciplinary and/or multidisciplinary.

Within this framework, *PATHFINDER initiatives* will support:

*...NEST mandate  
for PATHFINDER  
initiatives...*

*Research on specific topics that are identified during the course of implementation of the 6<sup>th</sup> framework programme on the basis of their urgency and potential for future societal, industrial or economic relevance.*

PATHFINDER initiatives complement the other two lines of action under NEST, which will be launched on an entirely “bottom-up” basis:

- *ADVENTURE projects* support research in new and emerging areas of knowledge and on future technologies, in particular in multidisciplinary fields, which is highly innovative and involves high (technical) risks.
- *INSIGHT projects* support research aimed at assessing new discoveries and newly-observed phenomena, which may indicate important potential problems or risks to society.

This working document sets out the approach that NEST proposes to take in implementing PATHFINDER initiatives.

## 2 AIMS AND EXPECTED BENEFITS OF PATHFINDER INITIATIVES

*...role of NEST in  
relation to the  
thematic  
priorities...*

Under the sixth framework programme, Community research is organised to support the development of the European Research Area. Funding is focused on a small number of highly concentrated “thematic priorities” where research is expected to have the greatest potential to benefit Europe’s society and economy in the medium term and where support at European level is most critical. By necessity, the research fields associated with the thematic priorities are sufficiently well established to enable the future directions of scientific and technological progress to be sketched out with some confidence.

But if Europe is to maintain a truly dynamic research capability, it needs not only to support the critical research areas for tomorrow, but also to seek out

the most promising opportunities for the day after. This is the rationale for NEST.

*... PATHFINDER initiatives seed the development of emerging research fields...*

Within this arena, the specific role of PATHFINDER initiatives is to seed the early development of emerging research fields in Europe, that are assessed to have significant future potential. As the title PATHFINDER implies, they should help to clarify the real potential of the fields selected, and assess European needs. In those cases where the potential of the field is demonstrated, they could be a precursor to more widespread and intensive support, through national or Community programmes.

*...build European capabilities...*

By supporting collaborative research effort, PATHFINDER initiatives should start a process of building and consolidating European research capabilities around emerging areas of science and/or technology. They should help to create new “communities of knowledge” across Europe, with the competencies and outlook required to enable quick take-off and exploitation of science and technology in these areas. In addition, they should help to circulate information and expertise on new areas of research between the various stakeholders, including academia and industry.

*...complement other NEST activities...*

This role differentiates PATHFINDER initiatives from the “bottom-up” NEST actions (ADVENTURE and INSIGHT projects) which provide a means to allow researchers to identify and quickly respond to new opportunities and needs for scientific research and technology development on a “case by case” basis.

*...stimulate creativity...*

Because they will be concerned with exploratory research in emerging areas, PATHFINDER initiatives should help to draw out the creative potential of Europe's scientific community and its capacity for innovative and unconventional thinking, and attract young researchers into new areas with strong future potential. They should also assist the development of the European Research Area and the planning of future research initiatives in Europe.

### 3 SPECIFIC CHARACTERISTICS OF PATHFINDER INITIATIVES

*...no a priori constraints on research fields...*

PATHFINDER initiatives will address a variety of different research areas, selected on the basis of urgency and potential, and not restricted to any particular sector or discipline. They will necessarily vary in size, scope and organisation, reflecting the particular requirements of the field in question, and its state of development.

*...PATHFINDERS may be of different size and scope....*

The “archetype” PATHFINDER initiative would normally involve a number of different projects, in a co-ordinated group. At one end of the scale, they could amount to relatively extensive “pilot actions” (in a field, comprising a substantial number of STREPS, co-ordination actions) and/or integrated projects. At the other, they could however comprise, only a single co-ordination action designed to assess opportunities, or to draw up a “roadmap” of future prospects in a field.

A key aspect of PATHFINDER initiatives is that they should have a strong

*...strategic orientation...*

strategic orientation, which brings together, within a common perspective, research activities and participants, who may be operating in proximate fields and in different institutional locations. To achieve this, it is envisaged that each initiative would, as far as possible, focus on a tangible, highly ambitious, but potentially achievable research goal. This approach should provide a strong motivation to the participants, and assure the coherence of the various components of the initiative, each of which should contribute in a complementary way to achieving the strategic challenge that has been set. It should also convey a sense of excitement, and attract the most excellent scientists to the activities, particularly the young.

*...focus on ambitious but tangible objectives...*

As the opportunities for PATHFINDER initiatives are identified, they will be introduced into the work programme, and will be launched by means of calls for proposals. In some cases a progressive approach could be envisaged, whereby small scale initiatives could subsequently be reinforced, as the requirements and opportunities became clear. A single initiative could therefore involve one or more calls for proposals during the course of the framework programme.

*...progressive approach...*

*...variable budget...*

The budget of each PATHFINDER will be defined in relation to the needs of the research domain and the specific objectives; it could range up to more than EUR 10 million, depending on the scale of the initiative.

#### 4 IDENTIFICATION OF TOPICS FOR PATHFINDER INITIATIVES

*...prospective analysis...*

As indicated above, NEST will make the selection of topics for PATHFINDER initiatives on the basis of the opportunities and/or needs arising in the research base and their urgency and potential. This will involve close interaction with the research community, and high level consultation of experts, including in academia, public research and industry. It will also involve working in partnership with other actors (professional organisations, foresight institutes, technology assessment organisations...).

*...information from ADVENTURE and INSIGHT projects...*

Prospective analysis and assessment, to survey the research base and identify fields with a significant potential for future PATHFINDER initiatives, will be carried out by means of support measures under NEST: studies, working groups, workshops, surveys etc. Ongoing NEST projects and related proposals will also provide relevant information. On occasion, for example, it may be judged appropriate to develop an ADVENTURE or INSIGHT project into a PATHFINDER initiative, with a broader scope and larger budget.

*...open invitation for ideas...*

The Commission also envisages opening an invitation, possibly web-based, to the research community and other interested parties to put forward ideas. This would operate throughout the framework programme and provide an open forum for interaction with and between the research Community on the activities carried out through NEST.

The criteria adopted for the identification of fields of action for PATHFINDER initiatives will include:

*...criteria for selection of topics...*

- scientific and technological opportunities of the field, and potential impact of future developments.
- the potential contribution of the research topics proposed for innovation and the EU's competitiveness, the strengthening of its scientific and technological bases and the achievement of the European Research Area, including the effective integration of the candidate countries.
- the scientific relevance and timeliness of the research themes and approaches proposed.

**5 SELECTION OF PROJECTS***...annual calls for proposals...*

Calls for proposals for PATHFINDER initiatives will be published on a regular basis, approximately once per year. Each call for proposals will specify the research objectives and other requirements associated with one or more PATHFINDER initiative in terms that clearly indicate the challenge to be addressed, but which allow the broadest possible scope for innovative methodologies and solutions. The call for proposals will also specify the types of instrument(s) to be applied and the indicative budget.

The activities undertaken will normally involve research and technology and may also include, depending on the topic, demonstration, co-ordination of research activities, social and economic impact assessment, training, etc.

*...standard evaluation criteria...*

Proposals will be evaluated by means of independent peer review, according to the procedures and criteria laid down in the Manual of Proposal Evaluation Procedures, and the "standard" criteria for each of the relevant instruments set out in the work programme. These are reproduced in Annex 1.

The final short list of proposals drawn up by the Commission on the basis of the evaluation scores will take account of the need, as appropriate, for a properly balanced strategic portfolio of activities.

**6 MANAGEMENT OF PATHFINDER INITIATIVES***...co-ordinated management...*

The projects selected following a call for a particular PATHFINDER initiative will need to be managed in a co-ordinated fashion, to ensure cohesion and effective coverage of the area, as well as to ensure that adequate interfaces to other projects in the same initiative are maintained. They may need to adjust their workplan at the negotiation stage to ensure appropriate complementarity between the projects.

A "roadmap" may be elaborated jointly by the chosen projects with the supervision of the Commission, or within the framework of a co-ordination action.

*...flexibility to adjust objectives as a function of progress in the field...*

During the lifetime of projects, new solutions and ideas could emerge that are more suitable for the achievement of the objectives of a proactive initiative than the solutions originally envisaged. A flexible management approach is therefore necessary, with the ability to re-orient existing projects if parts of them become obsolete, or shifting resources from one task to another if required by the evolution of the subject.

## 7 KEY DATES AND CONTACTS

### **Timetable:**

*...timetable for calls for proposals...*

Publication of an invitation to submit ideas is envisaged for early-mid 2003.

Publication of the first call is envisaged for late 2003.

### **Additional information:**

NEST web-site: <http://www.cordis.lu/nest>

*...contact points...*

6<sup>th</sup> framework programme: <http://www.cordis.lu/fp6>

Contact point for further information and the provision of comments on this working document: [rtd-nest@cec.eu.int](mailto:rtd-nest@cec.eu.int)

## Annex 1

### Evaluation criteria : Specific targeted research projects

The following set of issues is intended to be a common basis for the evaluation of proposals for Specific Targeted Research Projects.

**1. Relevance (threshold score 3 out of 5)**

The extent to which the proposed project **addresses the objectives** of the work programme.

**2. S&T excellence (threshold score 4 out of 5)**

The extent to which:

- the project has clearly **defined and well focused objectives**.
- the objectives represent **clear progress beyond the current state-of-the-art**.
- the **proposed S&T approach** is likely to enable the project to achieve its objectives in research and innovation

**3. Potential impact (threshold score 3 out of 5)**

The extent to which:

- the proposed project is likely to have an **impact on reinforcing competitiveness or on solving societal problems**.
- the proposal demonstrates a clear **added value** in carrying out the work at European level and takes account of research activities at national level and under European initiatives (e.g. Eureka).
- exploitation and/or dissemination plans are adequate to ensure **optimal use of the project results**.

**4. Quality of the consortium (threshold score 3 out of 5)**

The extent to which:

- the participants collectively constitute a **consortium of high quality**.
- the participants are **well-suited and committed to the tasks** assigned to them.
- there is **good complementarity** between participants.
- the opportunity of involving SMEs has been adequately addressed.

**5. Quality of the management (threshold score 3 out of 5)**

The extent to which:

- the **project management** is demonstrably of high quality.
- there is a satisfactory plan for the **management of knowledge**, of intellectual property and of other innovation-related activities.

**6. Mobilisation of resources (threshold score 3 out of 5)**

The extent to which:

- the project foresees the **resources** (personnel, equipment, financial...) necessary for success.
- the **resources** are **convincingly integrated** to form a coherent project.
- the overall **financial plan** for the project is **adequate**.

Overall threshold score 21 out of 30.

### Evaluation criteria : Co-ordination actions

The following set of issues is intended to be a common basis for the evaluation of proposals for coordination actions.

**1. Relevance (threshold score 3 out of 5)**

The extent to which the proposed project **addresses the objectives** of the work programme.

**2. Quality of the coordination (threshold score 4 out of 5)**

The extent to which:

- the research actions/programmes to be coordinated are of **demonstrably high quality**.
- the **coordination mechanisms** proposed are sufficiently **robust** for ensuring the goals of the action

**3. Potential impact (threshold score 3 out of 5)**

The extent to which:

- the proposal demonstrates a clear **added value** in carrying out the work at European level and takes account of research activities at national level and under European initiatives (e.g. Eureka).
- the Community support would have a real impact on the action and its scale, ambition and outcome.
- the project mobilises a critical mass of resources in Europe
- exploitation and/or dissemination plans are adequate to ensure **optimal use of the project results**, where possible beyond the participants in the project.

**4. Quality of the consortium (threshold score 3 out of 5)**

The extent to which:

- the participants collectively constitute a **consortium of high quality**.
- the participants are **well-suited to the tasks** assigned to them.
- the project combines the **complementary expertise** of the participants to generate added value with respect to the individual participants' programmes.

**5. Quality of the management (threshold score 3 out of 5)**

The extent to which:

- the **project management** is demonstrably of high quality.
- there is a satisfactory plan for the **management of knowledge**, of intellectual property and of other innovation-related activities.

**6. Mobilisation of resources (threshold score 3 out of 5)**

The extent to which:

- the project provides for the **resources** (personnel, equipment, financial...) necessary for success.
- the **resources** are **convincingly integrated** to form a coherent project.
- the overall **financial plan** for the project is **adequate**.

Overall threshold score 21 out of 30.