

**SIXTH FRAMEWORK PROGRAMME  
PRIORITY  
Coordination of National and Regional Activities  
(ERA-NET Scheme)**



**Contract for:**

**COORDINATION ACTION**

***Annex I - "Description of Work"***

Project acronym: Complexity-NET

Project full title: European Network of Funding Agencies- Coordination of National Complexity Research and Training Activities

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## 1. Project summary

Complexity and complex systems is an emergent and rapidly growing research field with a large technological potential, in which Europe has fostered scientific excellence with extensive collaborations across Europe and abroad. Based on the need to put stronger focus on this field and to further its high growth potential, nine European Research Councils and Ministries initiated a consortium, in the form of a Specific Support Action, aiming to establish the necessary environment for coordinating nationally strategically planned research activities. The consortium has identified national research and training programmes which target or overlap on Complexity issues and established contacts with major Complexity research groups funded by the programmes and EU networks. The SSA has identified a significant need for better coordination of European activities in Complexity and Complex Systems and has demonstrated that good opportunities exist for exploiting the great growth potential there is for Complexity research. Our ambition is the formation of a nationally coordinated European setting on Complexity with the aim of further common use of experimental facilities, enhanced international training and mobility, supporting international scientific communications, promoting public dialogue and awareness, and catalysing innovation. The coordinated action proposed here is the work needed to establish this setting. The consortium will continue their collection and exchange of information and analyse and discuss the material to a level where a joint action plan can be formulated and agreed upon. The consortium also plans to expand its activities by inviting other countries, which were not part of the original SSA, to join in this proposal, thus broadening further Europe's potential to achieve a truly transnational cooperation programme on Complexity.

## 2. Project objective(s) and state of the art

Strategic objectives of the consortium:

1. To obtain and disseminate information documenting Complexity related national programmes, with their respective implementation approaches and Complexity RTD landscapes. *Milestones: Month 6 for exchange of information.*
2. To work out analysis reports on the national landscapes with focus on strengths, weaknesses, opportunities and threats. *Milestones: Month 12 for completion of reports.*
3. To document and analyse the overall European Complexity RTD landscape and its strengths, weaknesses, opportunities and threats, identify and recommend strategies to exploit the opportunities and oppose the threats. *Milestones: Month 12 for exchange of information. Month 19 for completion of SWOT reports.*
4. To prepare and carry out a joint plan describing actions to be carried out in order to exploit the opportunities identified, including possible joint calls, joint training activities, use of experimental facilities, joint dissemination activities, and joint exploitation activities for new technologies. *Milestones: Month 22 for initial drafting of joint action plan. Month 33 for the implementation of transnational research activity. Month 36 for formulation of self-evaluation. Month 42 for completion of Implementation and Evaluation reports.*
5. To establish and ensure the effective operation of a dissemination and co-ordination office, and a smooth framework for the Network Steering Committee and the Work Programme and Task Management. *Milestones: Month 1 for opening of dissemination and coordination office.*

### 2.1 Complexity – An emerging science and technology

A simple search on the internet shows that “complexity, complex systems, complexity research or complexity science” result in millions of hits in line with a search on nanoscience or

nanotechnology. It is estimated that thousands of researchers are operating within this field with the EU.

The globalisation and the ongoing transfer of information in an increasingly knowledge based society has resulted in a great demand for:

- a) More effective analysis, decision support and process control tools for the production industry (food, materials, chemicals and drugs etc.),
- b) The development of new mathematical models to analyse complex organisms in the bio-sector and to analyse the dynamics of wind and water systems, and
- c) The development of new signal and image processing techniques, including tools for use in modern information and communication technologies.

The understanding of such complex systems and the development of new ideas, models and methods to improve and control the processes based on this knowledge is central for survival in the highly competitive global environment of the world today.

New complex methodologies, strategies and approaches are increasingly required for future social, economical and financial analyses. Processes involving many interacting components (companies, enterprises, organizations, social units, or simply people!) are generally complex, and new fields have emerged to undertake research of such complex processes. One such field e.g. is econophysics, using physical principles to deal with the complex dynamics of economy and the financial markets, based on the ample evidence available for non-standard distributions of fluctuations in prices and exchange rates. The understanding of complexity in economics through econophysics has provided the field with new technical indicators, with new insight in risk and volatility, and new measures for putting together a portfolio of stocks.

The basic research and development behind the above mentioned methods and tools has grown within the last decades to a science called Complexity, indicating the acceptance of a world that does not consist of simple linear relations but rather shows features that originate entirely from inherent nonlinearities, a world that evolves and adapts dynamically, often driven far away from simple equilibrium. A rapidly increasing number of new measuring devices and software technologies is being developed by innovative enterprises that have opened new markets, introducing the novel and exciting methods derived from complexity research.

Many complex systems behave in a fundamentally deterministic way, but their long time evolution may not be predictable from the initial conditions. Understanding therefore the concept of deterministic chaos and the complex dynamics due to nonlinearities has been central in the scientific development of the last 3 decades. Moreover, driven out of equilibrium, complex systems generate fractal structures and scale invariant distributions, leading to the discovery of anomalous transport properties and new types of phase transitions with a potentially great impact for future technologies and new material designs. The observations have given rise to new concepts such as multifractality and self-organised criticality, while entirely new non-equilibrium statistical methods have been introduced to understand the variety of complex phenomena encountered.

Complexity research has its origins in the “natural sciences” of Mathematics, Physics, Chemistry, Biology and Computer Science, but has spread by now in the realm of Economics and other Social Sciences. It is holistic and a multi-disciplinary field covering nonlinear dynamical systems, systems out of equilibrium, control theory, adaptive and self-organising systems and complex dynamical networks of interacting units. The systems investigated differ widely in character, size and time scale: From the complex process of a power station to the spreading behaviour of a micro-organism, from the fast reactions in a chemical reactor to the complex evolution of our geography and universe and from fluctuations in the sea level to fluctuations in prices and exchange rates. That this remarkable variety of phenomena can exhibit surprisingly similar features makes it plausible that

mathematical analysis and modelization can be used to improve our understanding of complex systems.

Complexity is ubiquitous, producing some of the most intriguing patterns and forms. Scientific research has traditionally examined simplified systems composed of a small number of elements in an attempt to establish principles on which they operate and, where possible, formulate a mathematical model reproducing the behaviour of the original system. In many cases, these systems are assumed to be close to an equilibrium situation and hence perturbation theory can be invoked to study their deviation from the unperturbed state. However, there is an overwhelming number of problems involving many interacting components far from equilibrium, which show remarkable properties of self – organization. In such cases, coherent structures emerge from the system as a whole, which cannot be explained by the behaviour of the single elements. Such systems, consisting of a large number of interactive elements which may organised on many scales, are known as complex systems.

The intriguing thing about complex systems is that they include examples from almost all aspects of the real and conceptual world, where interactions are associated with exchange of energy or information. Among such examples is the metabolic and signalling network in a living cell of a biological organism, growth of bacterial colonies, spread of diseases, the evolution of life encountered in ecosystems (including processes like natural selection), earthquakes, forest fires, and the evolution in financial markets and social networks. Certain chemical reactions and the transport of light, sound, fluids, and even cars and of course people generate complex phenomena like turbulence, emerging traffic jams and crowd behaviour.

In parallel to the development of a theoretical framework and the numerous experimental discoveries of complex phenomena, a wide variety of numerical techniques and mathematical models have been developed. This and the advent of powerful computers have enabled researchers to study in greater detail the emergence and development of complex systems and phenomena. Computers with massive data-handling capacity are constantly being updated to compute ocean and weather conditions. New and better neural network algorithms are being built and refined to imitate the learning process of our brains and adaptive robots based on artificial intelligence are constructed to solve complex problems or control complex systems. Bioinformatics programmes are developed to analyse genomic information from DNA chips in order to reveal the genetic secrets behind our cellular functions.

Complexity is one of the fastest growing research areas in the world. There is already an explosive growth in the number of scientific articles and new journals focusing on Complexity, and an equally rapidly increasing number of small and medium sized enterprises developing new tools originating from the results of complexity research, the field of complexity research. A simple search on the internet shows that “complexity, complex systems, complexity research or complexity science” result in millions of hits in line with a search on nanoscience or nanotechnology.

Especially in the U.S.A., complexity research and research training has created one of the most promising growth bases for emerging technologies capable of dealing with the increasingly complex tasks of a knowledge-based society. A strong strategic effort has been formulated and implemented in U.S.A. in order to benefit from the relatively low-cost and value – making processes taking place in the field of complexity today. As a result, many of the best young researchers as well as experienced scientists of Europe are attracted to U.S. universities and enterprises to carry out complexity research and to develop new businesses in U.S. However, Europe can no longer afford to lose ground, and effective steps must be taken immediately to improve the European situation. Coordinated complexity research and research training efforts and the development of novel and more effective solutions to the large class of complex systems and

processes characterising the technological frontline is not only necessary but also crucial in order to stay competitive in a highly globalised world.

## *2.2 Complex coordination*

To repair the very threatening situation of being left behind in an expanding market, the Complexity-NET cooperation intends to improve the stimulation of complexity research and innovation through a dedicated strategic plan where coordination of funding for complexity research and research training in Europe is a central element in order to succeed. To this end European Research Ministers have already acknowledged the importance of the opening of national programmes as a key step forward in the construction of the European Research Area. Also, focus has been brought to the subject of complexity through CREST which has supported the ERA-NET initiative by identifying complexity as one of the top five priority areas.

The ERA-NET on complexity, called the Complexity-NET, was initiated by 9 European Research Councils and Ministries (Belgium, Denmark, Estonia, Greece, Ireland, The Netherlands, Portugal, Spain, and U.K.) in the form of a Specific Support Action, on August 1, 2004. Through an analysis of national research funding activities and funding procedures, it has been possible to define and specify a Coordinated Action on complexity, which can set the scene for a strategic funding of complexity research and research training on the European level, through a joint action plan, which includes the opening of national programmes and the possibility of joint research or research training programmes. One of the steps in this action plan towards a joint European Complexity Programme is the ongoing recruitment of new partners, including new member and candidate countries.

The vision of the Complexity-NET is the creation of strategic activities that can advance the common use of experimental facilities, enhance European research training and mobility and scientific communication, (workshops, summer schools, etc.), promote public dialogue and catalyse innovation throughout Europe. In EU, where the population percentage of researchers is 10 % smaller than the U.S. percentage and the percentage of highly cited articles are about half of that of the U.S., coordination seems to be highly needed. A comparison between EU and U.S. funding shows that since 1995 public R&D investments have on the average increased four times faster in U.S., and private R&D investments have in average increased twice as fast in U.S. This further underlines the strong urgency for coordinating European funding efforts.

## *2.3 Related European activities*

Within the last ten years, the science of complexity has become one of the newly emerging technologies at both the national and the European level. Some EU member states have begun specific national research programmes or included complexity in more general initiatives. One of the initiatives has been EXYSTENCE, the complex systems network of excellence that was funded by the FP6 IST Programme on Future and Emerging Technologies. Another initiative is the FP6 new and emerging science and technology (NEST) initiative on ‘Tackling Complexity in Science’. Yet another is the COST action “Risk”, which brings together scientists applying complexity methods to quantitatively analyse risks in, e.g., financial markets. The Complexity-NET consortium is in contact with all these initiatives, which all provide very helpful steps in the process of coordinating national research and research-training programmes involving complexity researchers.

The European Science Foundation (ESF) has gained valuable experience from their EUROCORES initiative and other ERA-NET initiatives. The Complexity-NET has close contacts to ESF and direct contact to the ESF Governing Council.

The European Physical Society has formed a Division on Statistical and Nonlinear Physics (EPS-SNP) with high focus on complexity, helping with coordination and communication on the more practical level.

Both ESF and EPS-SNP are key organisers of European complexity-related conferences. The possibility to have workshops combined with major scientific events in complexity organised by ESF or EPS-SNP allows a broad dissemination of the Complexity-NET idea and added value in terms of a valuable dialogue with the complexity-science community.

The dialogue with a number of European committees provides important contributions to the development of the Complexity-NET. Among these committees are EUROHORCs (European Heads of Research Councils) and EUPRO (European Union of Physics Research Organisations).

### 3. Participants list

#### List of Participants

Partic. Role*	Partic. No.	Participant name	Participant short name	Country	Date enter project**	Date exit project**
CO	1	Engineering and Physical Sciences Research Council	EPSRC	U.K.	Month 1	Month 42
CR	2	Fonds National de la Recherche Scientifique	FNRS	Belgium	Month 1	Month 42
CR	3	Ministry of Science, Technology and Innovation	MSTI	Denmark	Month 1	Month 42
CR	4	Eesti Teaduste Akadeemia	EAS	Estonia	Month 1	Month 42
CR	5	General Secretariat for Research and Technology	GSRT	Greece	Month 1	Month 42
CR	6	National Office for Research and Technology	NKTH	Hungary	Month 1	Month 42
CR	7	Irish Research Council for Science, Engineering and Technology	IRCSET	Ireland	Month 1	Month 42
CR	8	Consiglio Nazionale delle Ricerche	CNR	Italy	Month 1	Month 42
CR	9	Nederlandse Organisatie voor Wetenschappelijk Onderzoek	NWO	Nederlands	Month 1	Month 42
CR	10	Fundacao para Ciencia e Tecnologia	FCT	Portugal	Month 1	Month 42
CR	11	Ministerio de Educación y Ciencia	MEC	Spain	Month 1	Month 42

\*CO = Coordinator  
CR = Contractor

The Centre National de la Recherche Scientifique (CNRS) from France and the Deutsche Forschungsgemeinschaft (DFG) from Germany will also be joining the network in an Observer status.

#### **4. Relevance to the objectives of the specific programme and/or thematic priority**

Complexity research and development is an emerging interdisciplinary scientific and technological frontline in Europe, and a scientific excellence has developed over the last two decades with extensive collaborations on the project level across Europe and abroad. The time is now ripe for a coordinated motion on the program level.

The present Coordinated Action (CA) will involve the collection and exchange of documentation describing complexity relevant national programmes, the implementation approaches and the description of the national complexity RTD landscapes and the overall European Complexity RTD landscape with focus on strengths, weaknesses, opportunities and threats. Based on a strategic analysis, common paths to exploit the opportunities and oppose the threats are identified, and a joint action plan is formulated and implemented in order to exploit the opportunities identified, including possible joint calls, joint training activities, use of experimental facilities, joint dissemination activities, and joint exploitation activities for new technologies. The CA will ensure effective operation and dissemination through workshops, an established co-ordination office, and Network Steering Committee meetings as well as meetings at the Work programme and task management level.

At the end of this CA, a joint action plan for transnational research activities will have been implemented. Also a basic communication, dissemination, and exploitation plan will have been established for an on-going systematic exchange of information and best practices.

#### **5. Potential Impact**

##### ***5.1 Contributions to standards***

One of the key issues of the present CA is the large potential impact the CA may have on future complexity programmes. Complexity is an emergent field of increasing importance for the development of new knowledge-based innovations. With the formation of co-ordinated actions on the programme level Europe will be better prepared for carrying out strategic efforts in order to benefit from the value-creating process in the area of complexity and transfer knowledge into viable Community results

##### ***5.2 Contribution to policy developments***

The CA will stimulate complexity research and innovation, and promote Europe's reputation as an attractive environment for scientific and technological excellence and education in complexity. The reports resulting from the CA have the potential of setting a useful base for European programmes, not only in the field of complexity, but also in other concept-driven areas of research and technology.

The planned workshops and meetings will bring increased focus to the complexity area on a superior level, which will be useful in further co-ordinated activities.

##### ***5.3 Risk assessment and related communication strategy***

Based on carefully selected tools and channels, a dissemination plan including a communication, knowledge dissemination and exploitation platform and portal is established with the clear objective to enhance scientific, industrial and public dialogue and awareness, and to catalyse innovation within the field of complexity and related technologies.

Efforts will be taken in the CA process to disseminate the results of the CA and to ensure that the methods used become generally available for following co-ordinated networks of national research and research-training activities.

## **6. Project management and exploitation/dissemination plans**

### ***6.1 Project management***

The consortium partners are all government agencies with a strong knowledge on research funding and strategies, including national research and research training programmes and other co-ordinating activities. Each agency will have a representative on the Network Steering Committee; each representative will have delegated authority from the agency to be able to comment on policy decisions. The agencies will also have scientific assistance from representatives that have documented a very high level of competence in terms of professional qualifications and experience in Complexity. Profiles (general and within complexity) and CVs of the participants are appended. The scientific advisors will attend and contribute to the work package workshops providing technical assistance and guidance to the Network Steering Committee.

A Network Steering Committee with partner representatives from the National agencies will be established and will take all management decisions and ensure smooth day to day running of the project, including the organisation of the dissemination and coordination office and the platforms, and ensure that work packages and tasks are carried out and deliverables are delivered according to the time plan, milestones and budget.

The Network Steering Committee will meet at the workshops and at half-annual management meetings as a steering group headed by the co-ordinator, and will here make the necessary decisions to conclude and initiate tasks according to the activity plan and budget.

Every work package is headed by a partner with special insight in the concerned activities. The work package leader will be responsible for the coordination, planning, monitoring and reporting of the work package within the planned milestones, including contributions to progress reports, and for the detailed coordination of the work package with the other work packages. Work package management meetings will take place in conjunction with the planned workshops under the work package.

Task leaders are responsible for coordinating their respective tasks and providing the work package leader with the required reports and progress statements.

Work package leaders and task leaders are members of the Network Steering Committee, and will be responsible for presenting progress at the Network Steering Committee meetings.

Work packages will be completed by each Partner Country, through a process of internal discussion with relevant parties and assistance from the scientific advisors and then reporting back at the workshops. The representative for each Partner Country will be responsible for ensuring that each deliverable is produced and disseminated as required. Internal discussion may be in the form of Nation wide participation (such as a National level workshop) or by separate discussions between the National Representative and the scientific advisor and other relevant researchers.

Before any European wide activities for developing Complexity Science as a competitive research area are decided upon, each Partner Country will have an opportunity for further Internal Discussions followed by a further workshop to raise any outstanding issues with the entire consortium. Any decisions on European wide activities will be made by the Network Steering Committee.

### ***6.2 Plan for using and disseminating knowledge***

A dissemination and coordination office will be established to ensure that a successful communication and dissemination of results is obtained, and the office will handle the organisation of the many workshops in close dialogue with the work package and task managers. The coordination office will be valuably exposed by placing workshops and meetings in coordination with highly attractive conferences within the field of complexity. Moreover, the coordination office will undertake the communication and reporting with the European Commission, including progress reporting and common dissemination activities.

Also, the coordination office will take the contacts to Research Councils and Ministries in all EU member states and candidate states to examine their interest in being involved in the Complexity-NET action.

In terms of exploitation issues, the coordination office will be in close contact with the European Commission to facilitate the necessary discussions on intellectual properties where needed.

### ***6.3 Raising public participation and awareness***

The group of representatives may change to include further partners in the Complexity-NET. The formation of national platforms with advising scientific representatives is encouraged and has already been initiated in most of the participating countries. The European Complexity-NET platform will ensure a viable and result-oriented communication between these national platforms. Furthermore, the links with other European committees (including EUROHORCs and EUPRO) will enable greater participation from the Complexity community.

A dedicated website will be developed, as part of the responsibilities of the coordination and dissemination office, which will provide a focus and reporting conduit for interested parties.

## **7. Detailed Implementation Plan– for whole duration of the project**

### ***7.1 Introduction - general description and milestones***

Our ambition is the formation of a nationally coordinated European setting (e.g. ERA-NET) on complexity with the purpose to further common use of experimental facilities, enhance international training and mobility, support international scientific communication (workshops etc.), promote public dialogue and awareness, and catalyze innovation in the European complexity area.

To this end the consortium shall continue their collection and exchange of information on strategically funded complexity-related national research and research-training activities, procedures and best practices, and analyse and discuss the material to a level where a joint action plan can be formulated and agreed upon, leading eventually to transnational research activities. It is essential to share this information again as new partners have joined the consortium and new programmes have been launched by previous members.

### ***7.2 Work planning and timetable***

In order to achieve the goal of the CA, it is necessary to obtain and exchange openly further information on RTD priorities and national programmes supporting complexity, and the type of research and research training activities they cover (WP 1). For each programme, the content, evaluation process, tools for reporting and dissemination, the management approach and the administrative procedures shall be described and discussed. In this process, platforms of representatives, both on European and national level, will be established forming fora for a systematic exchange of information and best practices. The investigations will be carried out in close dialogue and with active participation from scientists responsible for major research activities.



Work-package <sup>1</sup> No	Work package title	Lead contractor <sup>2</sup> No	Person-months <sup>3</sup>	Start month <sup>4</sup>	End month <sup>5</sup>	Deliverable <sup>6</sup> No
WP 1	Exchange of inform.	MSTI	51.5	0	12	D1.1-3
WP 2	Strategic activities	NWO	46.0	6	19	D2.1-2
WP 3	Joint activities	GSRT	36.5	16	30	D3.1-3
WP4	Transnat. Research act.	IRCSET	24.0	30	42	D4.1-2
WP5	Dissemin. & coordin.	EPSRC	59.0	0	42	D5.1-7
WP6	Management	All	14.3	0	42	D6.1-2
	<b>TOTAL</b>		<b>231.3</b>			

### *7.5 Deliverables list*

<sup>1</sup> Workpackage number: WP 1 – WP n.

<sup>2</sup> Number of the contractor leading the work in this workpackage.

<sup>3</sup> The total number of person-months allocated to each workpackage.

<sup>4</sup> Relative start date for the work in the specific workpackages, month 0 marking the start of the project, and all other start dates being relative to this start date.

<sup>5</sup> Relative end date, month 0 marking the start of the project, and all ends dates being relative to this start date.

<sup>6</sup> Deliverable number: Number for the deliverable(s)/result(s) mentioned in the workpackage: D1 - Dn.

Del. no. <sup>1</sup>	Deliverable name	WP no.	Lead participant	Estimated person-months	Nature <sup>2</sup>	Dissemination level <sup>3</sup>	Delivery date <sup>4</sup> (proj. month)
D1.1	Report on complexity relevant national programmes	1	NWO	8.0	R	PU	12
D1.2	Report on implementation approaches	1	NWO	7.5	R	PU	12
D1.3	Report on national Complexity RTD landscapes, incl. swot analysis	1	MSTI	36.0	R	PU	12
D2.1	Report on strategies and implementation options	2	NWO	18.0	R	PU	19
D2.2	Report on the European Complexity RTD landscape, incl. swot analysis	2	MSTI	28.0	R	PU	19
D3.1	Joint action plan	3	GSRT	19.5	R	PU	27
D3.2	Joint action proposal	3	EPSRC	3.0	R	RE	27
D3.3	Cooperation agreement	3	EPSRC	4.5	R	RE	30
D3.4	Refine WP4 and report	3	EPSRC	9.5	R	RE	30
D4.1	Implementation report	4	FNRS	12.0	R	RE	42
D4.2	Evaluation report	4	IRCSET	12.0	R	RE	42
D5.1	Workshop announcements and memoranda	5	EPSRC	8.5	R	RE	0-42
D5.2	Documentation / manual of communication platform (portal)	5	EPSRC	13.2	R	RE	6
D5.3	Dissemination plan	5	EPSRC	13.2	R	PU	12
D5.4	Complexity-NET brochures and presentations	5	EPSRC	17.0	R	PU	6-42

<sup>1</sup> Deliverable numbers in order of delivery dates: D1 – Dn

<sup>2</sup> Please indicate the nature of the deliverable using one of the following codes:

**R** = Report  
**P** = Prototype  
**D** = Demonstrator  
**O** = Other

<sup>3</sup> Please indicate the dissemination level using one of the following codes:

**PU** = Public  
**PP** = Restricted to other programme participants (including the Commission Services).  
**RE** = Restricted to a group specified by the consortium (including the Commission Services).  
**CO** = Confidential, only for members of the consortium (including the Commission Services).

<sup>4</sup> Month in which the deliverables will be available. Month 1 marking the start of the project, and all delivery dates being relative to this start date.

D5.5	Minutes from Network Steering Committee management meetings	5	EPSRC	2.9	R	RE	0-42
D5.6	Minutes from Work Package management meetings	5	EPSRC	4.2	R	RE	3-42
D6.1	Audit and other financial documentation	6	EPSRC	11.3	O	PP	0-42
D6.2	Progress reports	5	EPSRC	3.0	R	RE	6-42
TOTAL				231.3			

### 7.6 Milestones

Month	Milestones <sup>11</sup> and expected result
1	Opening of dissemination and coordination office.
6	Information on national programmes and representatives, implementation approaches and complexity landscapes will have been obtained and exchanged electronically and through two workshops to a degree that allows the initiation of the strategic analysis and drafting of the reports.
12	The reports D1.1-3 will have been worked out, their content broadly presented through two workshops and disseminated to all interested parties.
12	Additional information on implementation approaches, possible strategies and the European complexity landscape will have been obtained and exchanged electronically and through two workshops to a degree that allows the initiation of the strategic analysis and drafting of the reports.
19	The reports D2.1-2 will have been worked out, their content broadly presented through two workshops and disseminated to all interested parties.
22	The strategic reports of WP2 will have been analysed and discussed electronically and through two workshops to a degree that allows the initiation of the drafting of a joint action plan.
25	The joint action plan will have been formulated and its content broadly presented through two workshops and disseminated to all interested parties.
27	The joint action proposal will have been decided upon.
30	The cooperation agreement on the joint action plan will have been decided upon.
30	A report on programme development and a detailed description of WP4 will have been submitted to the Commission, and approval for continuation of the project will have been obtained.
33	The implementation of transnational research activities and the monitoring and self-evaluation process of the procedure will have been initiated.
36	The monitoring and self-evaluation process will have reached a level where the formulation of future recommendation regarding the entire Complexity-NET process can be initiated.
42	The reports D4.1-2 will have been worked out, and future recommendations will have been broadly presented through two workshops and disseminated to all interested parties.

<sup>11</sup> Milestones are control points at which decisions are needed; for example concerning which of several technologies will be adopted as the basis for the next phase of the project.

### ***7.7 Reporting***

There will be 3 reporting periods during the project: at month 18, 30 and 42. Furthermore the following progress reports are due:

- Months 6, 12, 18, 24, 30, 36 and 42: short interim activity report (2-3 pages) detailing progress at the management level
- Months 18 and 30: report on suggested review of the description of work
- Months 18, 30 and 42: progress/activity report and management (financial) report
- Months 18 and 42: audit certificates
- Month 42: publishable final report, dissemination report, gender action plan, information questionnaires (society, gender, workforce)
- After the final payment: report on the final distribution of the Community contribution

## 7.8 Work package descriptions

<b>Workpackage number</b>	1	<b>Start date or starting event:</b>	0
<b>Participant id:</b>			Total
<b>Person-months per participant:</b>			51.5

### Objectives

To obtain and exchange information documenting Complexity related *national* programmes, with their respective implementation approaches and Complexity RTD landscapes, and to work out analysis reports on the *national* landscapes with focus on strengths, weaknesses, opportunities and threats. Work package leader: MSTI

### Description of work

#### Task 1.1: Programme contents and implementations. (Task leader: NWO)

The partners exchange openly all information concerning the existing programmes, running projects and RTD priorities. The exchange will be organised via four workshops and through the coordination office (see WP5). The task leader will act as a “rapporteur” supported by the coordination office. He will propose the appropriate format for the information exchange and for reporting, and collect all the relevant information agreed to be exchanged.

For each programme, the content, evaluation process, tools for reporting and dissemination, the management approach and the administrative procedures shall be described and discussed. Each Partner Country will be expected to prepare this information prior to the workshops.

A questionnaire may be used to aid the gathering of relevant information and to enable useful comparisons to be made between implementation processes, peer review and timescales for programme decisions (which will take place in WP2). Partners will also be asked to consider their IPR requirements which will also be reported in WP2

#### Task 1.2: Complexity actors and the RTD landscapes. (Task leader: MSTI)

Investigations are carried out to establish and document the strengths, weaknesses, opportunities and threats characterising national complexity research and research-training activities supported by the national programmes. The following topics are considered for the strategic analysis:

1. Multidisciplinary complexity research goals and objectives
2. Approaches to solve complex problems arising in scientific, social, and technical applications
3. Technological initiatives aimed to exploit the innovations of Complexity research
4. Research training activities, graduate schools
5. Conference organisation
6. Exchange activities
7. Promotion of gender equality
8. Infrastructures aimed to improve RTD operations
9. Management structures
10. Dissemination of results, products and innovations

The national Complexity RTD landscapes will be described and the information exchanged. The exchange will be organised via four workshops in connection with the workshops of task 1.1 and through the coordination office. The investigations will be carried out in close dialogue with and with active participation from scientists responsible for major research activities (national platforms of experts). Partner countries will decide how this will be best achieved, but it may be through a national level workshop or through individual discussions with the National experts. The task leader will act as the “rapporteur” supported by the coordination office. He will propose the appropriate format for the information exchange and for reporting, and collect all the relevant information agreed to be exchanged. He will be in close dialogue with the coordinator to ensure that all Partner Countries are aware of the requirements for reporting prior to the final workshop.

**Deliverables**

D1.1: Report on complexity relevant National programmes.

D1.2: Report on implementation approaches.

D1.3: Report on National Complexity RTD landscapes, incl. swot analysis.

**Milestones<sup>12</sup> and expected result**

Month 6: Information on national programmes and representatives, implementation approaches and complexity landscapes has been obtained and exchanged electronically and through two workshops to a degree that allows the initiation of the strategic analysis and drafting of the reports.

Month 12: The reports D1.1-3 has been worked out, their content broadly presented through two workshops and disseminated to all interested parties (see WP5).

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<sup>12</sup> Milestones are control points at which decisions are needed; for example concerning which of several technologies will be adopted as the basis for the next phase of the project.

<b>Workpackage number</b>	2	<b>Start date or starting event:</b>	6
<b>Participant id:</b>			Total
<b>Person-months per participant:</b>			46

### Objectives

To document and analyse the overall *European* Complexity RTD landscape and its strengths, weaknesses, opportunities and threats based on the reports obtained in WP1, and to identify and recommend strategies to exploit the opportunities and oppose the threats.

Work package leader: NOW

### Description of work

#### Task 2.1: Strategies and implementation options. (Task leader: NWO)

Based on the information on programme content, evaluation processes, tools for reporting and dissemination, the management approaches and the administrative procedures collected in WP1, the practical limitations and possible solutions for co-ordinated networking of national research activities (incl. mutual opening of national programmes) are analysed and described. The questionnaires completed in WP1 should aid discussions at this stage, and my need to be further developed to ensure a full understanding of Partner Country's requirements are achieved. A full analysis of comparisons between implementation processes, peer review and timescales for programme decisions will be made to enable an understanding of potential joint programme options. An overall view of IPR will also be discussed and considered.

The strategic activities will be organised via four workshops involving representatives from the National Funding Bodies, the first two in continuation of the last two WP1 workshops. Additional information will be communicated through the coordination office. The task leader will act as a "rapporteur" supported by the coordination office. He will propose the appropriate format for the strategic report and collect all the additional information agreed to be exchanged.

#### Task 2.2: The European Complexity RTD landscape. (Task leader: MSTI)

Based on the information on the strengths, weaknesses, opportunities and threats characterising the national complexity landscapes supported by the national programmes, investigations are carried out to identify and document the overall strengths, weaknesses, opportunities and threats characterising complexity research and research-training activities on the *European* level, giving ideas for potential future transnational research schemes.

As for task 2.1 the activities will be organised via four workshops in connection with the workshops of task 2.1. The investigations will be carried out in close dialogue with and with active participation from scientists responsible for major research activities (National experts, who will attend the discussion workshops). The task leader will act as the "rapporteur" supported by the coordination office. He will propose the appropriate format for the strategic report and collect all the communication needed for the report.

### Deliverables

D2.1: Report on strategies and implementation options.

D2.2: Report on the European Complexity RTD landscape, incl. swot analysis.

### Milestones<sup>13</sup> and expected result

Month 12: Additional information on implementation approaches, possible strategies and the European complexity landscape has been obtained and exchanged electronically and through two workshops to a degree that allows the initiation of the strategic analysis and drafting of the reports.

Month 19: The reports D2.1-2 has been worked out, their content broadly presented through two workshops and disseminated to all interested parties (see WP5).

<sup>13</sup> Milestones are control points at which decisions are needed; for example concerning which of several technologies will be adopted as the basis for the next phase of the project.

<b>Workpackage number</b>	3	<b>Start date or starting event:</b>	16
<b>Participant id:</b>			Total
<b>Person-months per participant:</b>			36.5

### Objectives

To prepare a joint action plan and cooperation agreement in accordance with the conclusions of WP2, describing joint actions to be carried out in order to exploit the opportunities identified in WP2, including possible joint calls, joint training activities, use of experimental facilities, joint dissemination activities, and joint exploitation activities for new technologies. Work package leader: GSRT

### Description of work

#### Task 3.1: Joint action plan. (Task leader: GSRT)

Based on the reports and recommendations from WP2 a durable joint action plan is formulated with the purpose to advance European co-operation between national complexity research and research-training activities and the dissemination and exploitation of their results, also beyond the ERA-NET (Complexity-NET) itself.

The plan will be developed through four workshops, the first in continuation of the last WP2 workshop. The plan is formulated in close dialogue with the key decision organs of the national funding organisations. The joint action may involve joint calls, joint training activities, use of experimental facilities, joint dissemination activities, and joint exploitation activities for new technologies. The task leader will act as a “rapporteur” supported by the coordination office. He will propose the appropriate format for the action plan and collect all the additional information needed. The coordinator will disseminate the proposed joint action plan with other interested Countries through a series of one-on-one visits with National Funding Organisations or an International level workshop.

#### Task 3.2: Cooperation agreement. (Task leader: EPSRC)

This task concerns the communication of remaining organisational, implementational, legal, and economic points needed to transform the action plan into an action proposal for final decision in the participating funding organisations, and further into a common cooperation agreement on the action plan. The task leader will act as a “rapporteur” supported by the coordination office. He will collect the additional information needed, propose the appropriate format for the action proposal and communicate the legal documents to be used.

Proposal and agreement drafts will be presented at the two last planned workshops of task 3.1. Partner Countries will be informed of developments on the Joint Activity through regular communications from the dissemination (coordination) office.

The proposal will be reviewed and a detailed description of WP4 will be produced and approved before further continuation of the project.

### Deliverables

- D3.1: Joint action plan.
- D3.2: Joint action proposal.
- D3.3: Cooperation agreement.
- D3.4 Review programme and provide a detailed description of WP4

### Milestones<sup>14</sup> and expected result

Month 22: The strategic reports of WP2 has been analysed and discussed electronically and through two workshops to a degree that allows the initiation of the drafting of a joint action plan.

Month 25: The joint action plan has been formulated and its content broadly presented through two workshops and disseminated to all interested parties (see WP5).

Month 27: The joint action proposal has been decided upon.

Month 30: The cooperation agreement on the joint action plan is decided upon.

<sup>14</sup> Milestones are control points at which decisions are needed; for example concerning which of several technologies will be adopted as the basis for the next phase of the project.

<b>Workpackage number</b>	4	<b>Start date or starting event:</b>	30
<b>Participant id:</b>			Total
<b>Person-months per participant:</b>			24

### Objectives

To carry out the action plan according to cooperation agreement.

Work package leader: IRCSET

### Description of work

#### Task 4.1: Implementation of action plan. (Task leader: FNRS)

Based on the formulated action plan and agreement hereon in WP3 (and with particular reference to Deliverable 3.4), the transnational research activities focussed on are implemented according to the cooperation agreement.

The implementation will be closely monitored and reported on through four workshops. The task leader will act as a “rapporteur” supported by the coordination office. He will propose the appropriate format for the monitoring process and collect all the communication obtained for reporting.

An implementation report will be presented at the last planned workshop.

Further details on the implementation of the action plan will be developed during WP3.

#### Task 4.2: Evaluation of procedure. (Task leader: IRCSET)

This task concerns the self-evaluation of the entire procedure followed through the Complexity-NET, from information exchange of national programmes to implementation of transnational research activities.

The self-evaluation will take place through the four workshops of task 4.1. The task leader will act as a “rapporteur” supported by the coordination office. He will propose the appropriate format for the evaluation process and collect all the communication obtained for reporting.

The evaluation is carried out in order to formulate future recommendations for transnational research activities carried out beyond the ERA-NET (Complexity-NET), which may also be helpful for common research and research-training activities in other fields than complexity. The draft of evaluation report and associated future recommendations will be discussed and presented at the last two planned workshops.

### Deliverables

D4.1: Implementation report.

D4.2: Evaluation report.

### Milestones<sup>15</sup> and expected result

Month 33: The implementation of transnational research activities and the monitoring and self-evaluation process of the procedure have been initiated.

Month 36: The monitoring and self-evaluation process has reached a level where the formulation of future recommendation regarding the entire Complexity-NET process can be initiated.

Month 42: The reports D4.1-2 has been worked out, and future recommendations has been broadly presented through two workshops and disseminated to all interested parties (see WP5).

<sup>15</sup> Milestones are control points at which decisions are needed; for example concerning which of several technologies will be adopted as the basis for the next phase of the project.

<b>Workpackage number</b>	5	<b>Start date or starting event:</b>	0
<b>Participant id:</b>			Total
<b>Person-months per participant:</b>			59

## Objectives

To establish and ensure effective operation of a dissemination and co-ordination office, and a smooth framework for the Network Steering Committee and the Work Programme and Task Management. Work package leader: EPSRC

## Description of work

### Task 5.1: Dissemination and coordination. (Task leader: EPSRC)

A dissemination and coordination office is established with the responsibility to

1. Act as joint secretariat
2. Handle the organisation of workshops
3. Establish and host a communication platform (portal) with public as well as restricted access (external portal provider)
4. Work out a dissemination plan
5. Identify, establish, and update list on interested parties
6. Collect and distribute reports to all interested parties (including decision makers) and communicate comments
7. Handle the recruitment of new partners, through communications and regular meetings with potential new partners, including arranging large scale international dissemination workshops and one-to-one meetings to discuss the proposed Joint Action Plan. The workshops may be organised to coincide with high profile Complexity related conferences or meetings and would include breakout sessions, plenary discussions and a large participation from across Europe. It is likely that the workshops would also cover overnight accommodation and evening meal activities.
8. Produce and distribute material to present the Complexity-NET and disseminate the obtained knowledge at conferences etc. where complexity actors convene
9. Undertake the communication and reporting with the European Commission
10. Ensure that all decision makers are informed of outcomes of each workpackage

The office will be staffed by a coordinator (part-time) and a full-time office secretary.

### Task 5.2: Coordination framework. (Task leader: EPSRC)

The Network Steering Committee will take all management decisions including the organisation of the dissemination and coordination office and the platforms, and ensure that work packages and tasks are carried out and deliverables are delivered according to time plan, milestones and budget.

Network Steering Committee management meetings will take place every 6 month starting with a kick off meeting at the start of the project.

Work package management meetings will take place in conjunction with the planned workshops under the work package. The coordination office will organise and arrange all necessary documentation and meetings for the Network Steering Committee.

## Deliverables

D5.1: Workshop announcements and memoranda

D5.2: Documentation / manual of communication platform (portal)

D5.3: Dissemination plan

D5.4: Complexity-NET brochures and presentations

D5.5: Minutes from Network Steering Committee management meetings

D5.6: Minutes from Work Package management meetings

**Milestones<sup>16</sup> and expected result**

Month 1: Opening of dissemination and coordination office.

<b>Workpackage number</b>	6	<b>Start date or starting event:</b>	0
<b>Participant id:</b>			Total
<b>Person-months per participant:</b>			14.3

**Objectives**

Management of workshops and report writing. Work package leader: EPSRC

**Description of work****Task 6.1: Achieving Deliverables.** (Task leader: EPSRC)

The work package leader will be responsible for the coordination, planning, monitoring and reporting of the work package, including contributions to progress reports, and for the detailed coordination of the work package with the other work packages.

Task leaders are responsible for coordinating their respective tasks and providing the work package leader with the required reports and progress statements.

Work package leaders and task leaders are members of the Network Steering Committee, and will be responsible for presenting progress at the Network Steering Committee meetings.

Each Partner Country will be responsible for:

1. Ensuring that all Workpackage leaders are able to achieve all deliverables.
2. Ensuring that each Partner Country is able to provide reports and deliverables as required by each of the workpackages 1-5.
3. Producing Audits and other documentation required, including financial control, as necessary

**Deliverables**

D6.1: Audits and other Financial documentation (as required)

D6.2: Progress reports to the European Commission

<sup>16</sup> Milestones are control points at which decisions are needed; for example concerning which of several technologies will be adopted as the basis for the next phase of the project.

## 8. Project resources and budget overview

All partners are contributing to the CA with their insight in the national issues raised (programmes etc.). All participants have spent several years within or in close contact to the central national funding agencies involved in this proposal, and they are key players in national programs or funding within the area of complexity.

The partners have each their background in the way national programmes are constructed, handled and evaluated. This shows a complementarity between the participants, that when put together will generate added value with respect to the formation of a Complexity-NET.

The Co-ordinator will lead and manage the dissemination and coordination office (WP5), which will be staffed with a scientific secretary (part-time) and an office secretary (full-time). This office establishes a communication platform (portal), and undertakes the handling of workshop organisation, communication and reporting, recruitment of new partners, and distribution and presentation of material exchanged, reports and brochures. The dissemination activities will take place in accordance with a well-organised dissemination plan.

### 8.1 Efforts for the project (Coordination Action Effort Form in Appendix I)

PERSON-MONTHS	EPSRC	FNRS	MSTI	EAS	GSRT	NKTH	IRCSET	CNR	NWO	FCT	MEC	Total
<b>WP1: Collection and exchange of inform.</b>	<b>5,0</b>	<b>3,0</b>	<b>8,0</b>	<b>3,0</b>	<b>4,5</b>	<b>6,0</b>	<b>3,0</b>	<b>6,0</b>	<b>5,5</b>	<b>3,0</b>	<b>4,5</b>	<b>51,5</b>
<b>Task 1.1: Programme contents &amp; implem.</b>	<b>2,0</b>	<b>1,0</b>	<b>2,0</b>	<b>1,0</b>	<b>1,5</b>	<b>2,0</b>	<b>1,0</b>	<b>2,0</b>	<b>2,5</b>	<b>1,0</b>	<b>1,5</b>	<b>17,5</b>
Coordinated activities	2,0	1,0	2,0	1,0	1,5	2,0	1,0	2,0	2,5	1,0	1,5	17,5
<b>Task 1.2: Complexity landscapes</b>	<b>3,0</b>	<b>2,0</b>	<b>6,0</b>	<b>2,0</b>	<b>3,0</b>	<b>4,0</b>	<b>2,0</b>	<b>4,0</b>	<b>3,0</b>	<b>2,0</b>	<b>3,0</b>	<b>34,0</b>
Coordinated activities	3,0	2,0	6,0	2,0	3,0	4,0	2,0	4,0	3,0	2,0	3,0	34,0
<b>WP2: Strategic activities</b>	<b>4,0</b>	<b>3,0</b>	<b>5,5</b>	<b>3,0</b>	<b>4,0</b>	<b>5,0</b>	<b>3,0</b>	<b>5,0</b>	<b>6,5</b>	<b>3,0</b>	<b>4,0</b>	<b>46,0</b>
<b>Task 2.1: Common path and implem.opt.</b>	<b>1,5</b>	<b>1,0</b>	<b>1,5</b>	<b>1,0</b>	<b>1,5</b>	<b>2,0</b>	<b>1,0</b>	<b>2,0</b>	<b>3,0</b>	<b>1,0</b>	<b>1,5</b>	<b>17,0</b>
Coordinated activities	1,5	1,0	1,5	1,0	1,5	2,0	1,0	2,0	3,0	1,0	1,5	17,0
<b>Task 2.2: The Europ. complexity landscape</b>	<b>2,5</b>	<b>2,0</b>	<b>4,0</b>	<b>2,0</b>	<b>2,5</b>	<b>3,0</b>	<b>2,0</b>	<b>3,0</b>	<b>3,5</b>	<b>2,0</b>	<b>2,5</b>	<b>29,0</b>
Coordinated activities	2,5	2,0	4,0	2,0	2,5	3,0	2,0	3,0	3,5	2,0	2,5	29,0
<b>WP3: Joint activities</b>	<b>4,0</b>	<b>2,5</b>	<b>3,0</b>	<b>2,5</b>	<b>5,5</b>	<b>3,5</b>	<b>2,5</b>	<b>3,5</b>	<b>3,0</b>	<b>2,5</b>	<b>4,0</b>	<b>36,5</b>
<b>Task 3.1: Joint action plan</b>	<b>2,0</b>	<b>1,5</b>	<b>2,0</b>	<b>1,5</b>	<b>4,5</b>	<b>2,5</b>	<b>1,5</b>	<b>2,5</b>	<b>2,0</b>	<b>1,5</b>	<b>2,5</b>	<b>24,0</b>
Coordinated activities	2,0	1,5	2,0	1,5	4,5	2,5	1,5	2,5	2,0	1,5	2,5	24,0
<b>Task 3.2: Cooperation agreement</b>	<b>2,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,5</b>	<b>12,5</b>
Coordinated activities	2,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,5	12,5
<b>WP4: Transnational Research Activities</b>	<b>2,0</b>	<b>2,5</b>	<b>2,0</b>	<b>2,0</b>	<b>2,0</b>	<b>2,0</b>	<b>3,5</b>	<b>2,0</b>	<b>2,0</b>	<b>2,0</b>	<b>2,0</b>	<b>24,0</b>
<b>Task 4.1: Implementation of action plan</b>	<b>1,0</b>	<b>1,5</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,5</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>12,0</b>
Coordinated activities	1,0	1,5	1,0	1,0	1,0	1,0	1,5	1,0	1,0	1,0	1,0	12,0
<b>Task 4.2: Evaluation of procedure</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>2,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>12,0</b>
Coordinated activities	1,0	1,0	1,0	1,0	1,0	1,0	2,0	1,0	1,0	1,0	1,0	12,0
<b>WP5: Dissemination, coordination and man.</b>	<b>49,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>1,0</b>	<b>59,0</b>
<b>Task 5.1: Dissemination and coordination</b>	<b>48,0</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>53,0</b>
Coordinated activities	6,0	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	11,0
Office secretary	42,0											42,0
<b>Task 5.2: Management framework</b>	<b>1,0</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>0,5</b>	<b>6,0</b>
Coordinated activities	1,0	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	6,0
<b>WP6: Management</b>	<b>4,0</b>	<b>0,8</b>	<b>1,3</b>	<b>0,8</b>	<b>1,1</b>	<b>1,2</b>	<b>0,8</b>	<b>1,2</b>	<b>1,2</b>	<b>0,8</b>	<b>1,1</b>	<b>14,3</b>
Management	4,0	0,8	1,3	0,8	1,1	1,2	0,8	1,2	1,2	0,8	1,1	15,5
<b>Complexity-NET Total</b>	<b>68,0</b>	<b>12,8</b>	<b>20,8</b>	<b>12,3</b>	<b>18,1</b>	<b>18,7</b>	<b>13,8</b>	<b>18,7</b>	<b>19,2</b>	<b>12,3</b>	<b>16,6</b>	<b>231,3</b>

## 8.2 Overall budget for the project (Forms A3.1 &amp; A3.2 from CPFs)

Proposal Number		36195		Proposal Acronym		Complexity-NET		
Financial information – whole duration of the project								
Participant n°	Organisation short name	Cost model used	Estimated eligible costs and requested EC contribution (whole duration of the project)		Costs and EC contribution per type of activities		Total (6)=(1)+(2)+(3)+(4)+(5)	Total receipts
					Co-ordination activities	Consortium Management activities		
1	EPSRC	FCF	Eligible costs	Direct costs (a)	535,000.00	22,530.00	<b>557,530.00</b>	
				of which subcontracting	75,000.00		<b>75,000.00</b>	
				Indirect costs (b)	92,000.00	4,506.00	<b>96,506.00</b>	
				Total eligible costs (a)+(b)	627,000.00	27,036.00	<b>654,036.00</b>	
				Requested EC contribution	627,000.00	27,036.00	<b>654,036.00</b>	
2	FNRS	AC	Eligible costs	Direct costs (a)	126,400.00	7,963.00	<b>134,363.00</b>	
				of which subcontracting			<b>0.00</b>	
				Indirect costs (b)	25,280.00	1,592.60	<b>26,872.60</b>	
				Total eligible costs (a)+(b)	151,680.00	9,555.60	<b>161,235.60</b>	
				Requested EC contribution	151,680.00	9,555.60	<b>161,235.60</b>	
3	MSTI	FCF	Eligible costs	Direct costs (a)	186,100.00	11,932.00	<b>198,032.00</b>	
				of which subcontracting			<b>0.00</b>	
				Indirect costs (b)	37,220.00	2,386.40	<b>39,606.40</b>	
				Total eligible costs (a)+(b)	223,320.00	14,318.40	<b>237,638.40</b>	
				Requested EC contribution	223,320.00	14,318.40	<b>237,638.40</b>	
4	EAS	FC	Eligible costs	Direct costs (a)	117,390.00	7,332.00	<b>124,722.00</b>	
				of which subcontracting			<b>0.00</b>	
				Indirect costs (b)	23,478.00	1,466.40	<b>24,944.40</b>	
				Total eligible costs (a)+(b)	140,868.00	8,798.40	<b>149,666.40</b>	
				Requested EC contribution	140,868.00	8,798.40	<b>149,666.40</b>	

5	GSRT	AC	Eligible costs	Direct costs (a)	152,700.00	9,594.00	<b>162,294.00</b>	
				of which subcontracting			<b>0.00</b>	
				Indirect costs (b)	30,540.00	1,918.80	<b>32,458.80</b>	
				Total eligible costs (a)+(b)	183,240.00	11,512.80	<b>194,752.80</b>	
			Requested EC contribution	183,240.00	11,512.80	<b>194,752.80</b>		
<b>Subtotal (1-5)</b>			<b>Eligible costs</b>	<b>1,326,108.00</b>	<b>71,221.20</b>	<b>1,397,329.20</b>	<b>0.00</b>	
			<b>Requested EC contribution</b>	<b>1,326,108.00</b>	<b>71,221.20</b>	<b>1,397,329.20</b>		
6	NKTH	AC	Eligible costs	Direct costs (a)	157,900.00	9,748.00	<b>167,648.00</b>	
				of which subcontracting			<b>0.00</b>	
				Indirect costs (b)	31,580.00	1,949.60	<b>33,529.00</b>	
				Total eligible costs (a)+(b)	189,480.00	11,697.60	<b>201,177.60</b>	
			Requested EC contribution	189,480.00	11,697.60	<b>201,177.60</b>		
7	IRCSET	FCF	Eligible costs	Direct costs (a)	129,400.00	8,173.00	<b>137,573.00</b>	
				of which subcontracting			<b>0.00</b>	
				Indirect costs (b)	25,880.00	1,634.60	<b>27,514.60</b>	
				Total eligible costs (a)+(b)	155,280.00	9,807.60	<b>165,087.60</b>	
			Requested EC contribution	155,280.00	9,807.60	<b>165,087.60</b>		
8	CNR	FC	Eligible costs	Direct costs (a)	242,900.00	15,698.00	<b>258,598.00</b>	
				of which subcontracting			<b>0.00</b>	
				Indirect costs (b)	48,580.00	3,139.60	<b>51,719.60</b>	
				Total eligible costs (a)+(b)	291,480.00	18,837.60	<b>310,317.60</b>	
			Requested EC contribution	291,480.00	18,837.60	<b>310,317.60</b>		
9	NWO	FC	Eligible costs	Direct costs (a)	158,500.00	10,000.00	<b>168,500.00</b>	
				of which subcontracting			<b>0.00</b>	
				Indirect costs (b)	31,700.00	2,000.00	<b>33,700.00</b>	
				Total eligible costs (a)+(b)	190,200.00	12,000.00	<b>202,200.00</b>	
			Requested EC contribution	190,200.00	12,000.00	<b>202,200.00</b>		
10	FCT	AC	Eligible costs	Direct costs (a)	121,300.00	7,606.00	<b>128,906.00</b>	
				of which subcontracting			<b>0.00</b>	

				<i>Indirect costs (b)</i>	24,260.00	1,521.20	<b>25,781.20</b>	
				<i>Total eligible costs (a)+(b)</i>	145,560.00	9,127.20	<b>154,687.20</b>	
				<i>Requested EC contribution</i>	145,560.00	9,127.20	<b>154,687.20</b>	
<b>Subtotal (6-10)</b>				<b>Eligible costs</b>	2,677,320.00	63,870.00	<b>2,741,190.00</b>	<b>0.00</b>
				<b>Requested EC contribution</b>	972,000.00	61,470.00	<b>1,033,470.00</b>	
11	MEC	AC		<i>Direct costs (a)</i>	145,000.00	9,055.00	<b>154,055.00</b>	
				<i>of which subcontracting</i>			<b>0.00</b>	
				<i>Indirect costs (b)</i>	29,000.00	1,811.00	<b>30,811.00</b>	
				<i>Total eligible costs (a)+(b)</i>	174,000.00	10,866.00	<b>184,866.00</b>	
				<i>Requested EC contribution</i>	174,000.00	10,866.00	<b>184,866.00</b>	
<b>Total</b>				<b>Eligible costs</b>	2,472,108.00	143,557.20	<b>2,615,665.20</b>	<b>0.00</b>
				<b>Requested EC contribution</b>	2,472,108.00	143,557.20	<b>2,615,665.20</b>	

#### Estimated breakdown of the EC contribution per reporting period

Reporting Periods	Start month	End month	Estimated Grant to the Budget (Euros)	
			Total	In which first six months
Reporting Period 1	1	18	1,506,547	
Reporting Period 2	19	30	581,507	293,767
Reporting Period 3	31	42	527,612	254,306

### 8.3 Management level description of resources and budget.

BUDGET (1000 Euro)	EPSRC	FNRS	MSTI	EAS	GSRT	NKTH	IRCSET	CNR	NWO	FCT	MEC	Total
<b>WP1: Collection and exchange of inform.</b>	<b>47.760</b>	<b>38.520</b>	<b>83.040</b>	<b>36.576</b>	<b>50.760</b>	<b>63.720</b>	<b>37.800</b>	<b>99.720</b>	<b>57.240</b>	<b>37.800</b>	<b>50.760</b>	<b>603.696</b>
<b>Task 1.1: Programme contents &amp; implem.</b>	<b>17.520</b>	<b>14.160</b>	<b>22.560</b>	<b>13.512</b>	<b>16.920</b>	<b>19.920</b>	<b>13.920</b>	<b>31.920</b>	<b>23.400</b>	<b>13.920</b>	<b>16.920</b>	<b>204.672</b>
Person costs	8.000	5.200	12.000	4.660	7.500	10.000	5.000	20.000	12.500	5.000	7.500	97.360
Travel and meeting costs (1)	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	66.000
Other costs (documents etc.)	0.600	0.600	0.800	0.600	0.600	0.600	0.600	0.600	1.000	0.600	0.600	7.200
Indirect costs (overhead)	2.920	2.360	3.760	2.252	2.820	3.320	2.320	5.320	3.900	2.320	2.820	34.112
<b>Task 1.2: Complexity landscapes</b>	<b>30.240</b>	<b>24.360</b>	<b>60.480</b>	<b>23.064</b>	<b>33.840</b>	<b>43.800</b>	<b>23.880</b>	<b>67.800</b>	<b>33.840</b>	<b>23.880</b>	<b>33.840</b>	<b>399.024</b>
Person costs	12.000	10.400	36.000	9.320	15.000	20.000	10.000	40.000	15.000	10.000	15.000	192.720
Travel and meeting costs (1)	12.000	9.000	12.000	9.000	12.000	15.000	9.000	15.000	12.000	9.000	12.000	126.000
Other costs (documents etc.)	1.200	0.900	2.400	0.900	1.200	1.500	0.900	1.500	1.200	0.900	1.200	13.800
Indirect costs (overhead)	5.040	4.060	10.080	3.844	5.640	7.300	3.980	11.300	5.640	3.980	5.640	66.504
<b>WP2: Strategic activities</b>	<b>31.920</b>	<b>31.440</b>	<b>53.040</b>	<b>29.496</b>	<b>36.720</b>	<b>42.720</b>	<b>30.720</b>	<b>72.720</b>	<b>52.920</b>	<b>30.720</b>	<b>36.720</b>	<b>449.136</b>
<b>Task 2.1: Common path and implem.opt.</b>	<b>11.520</b>	<b>10.560</b>	<b>15.120</b>	<b>9.912</b>	<b>13.320</b>	<b>16.320</b>	<b>10.320</b>	<b>28.320</b>	<b>23.040</b>	<b>10.320</b>	<b>13.320</b>	<b>162.072</b>
Person costs	6.000	5.200	9.000	4.660	7.500	10.000	5.000	20.000	15.000	5.000	7.500	94.860
Travel and meeting costs (2)	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	33.000
Other costs (documents etc.)	0.600	0.600	0.600	0.600	0.600	0.600	0.600	0.600	1.200	0.600	0.600	7.200
Indirect costs (overhead)	1.920	1.760	2.520	1.652	2.220	2.720	1.720	4.720	3.840	1.720	2.220	27.012
<b>Task 2.2: The Europ. complexity landscape</b>	<b>20.400</b>	<b>20.880</b>	<b>37.920</b>	<b>19.584</b>	<b>23.400</b>	<b>26.400</b>	<b>20.400</b>	<b>44.400</b>	<b>29.880</b>	<b>20.400</b>	<b>23.400</b>	<b>287.064</b>
Person costs	10.000	10.400	24.000	9.320	12.500	15.000	10.000	30.000	17.500	10.000	12.500	161.220
Travel and meeting costs (2)	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	66.000
Other costs (documents etc.)	1.000	1.000	1.600	1.000	1.000	1.000	1.000	1.000	1.400	1.000	1.000	12.000
Indirect costs (overhead)	3.400	3.480	6.320	3.264	3.900	4.400	3.400	7.400	4.980	3.400	3.900	47.844
<b>WP3: Joint activities</b>	<b>33.480</b>	<b>29.640</b>	<b>35.640</b>	<b>28.020</b>	<b>47.760</b>	<b>35.040</b>	<b>29.040</b>	<b>56.040</b>	<b>32.040</b>	<b>29.040</b>	<b>38.520</b>	<b>394.260</b>
<b>Task 3.1: Joint action plan</b>	<b>17.760</b>	<b>17.520</b>	<b>22.560</b>	<b>16.548</b>	<b>35.880</b>	<b>23.160</b>	<b>17.160</b>	<b>38.160</b>	<b>20.160</b>	<b>17.160</b>	<b>23.400</b>	<b>249.468</b>
Person costs	8.000	7.800	12.000	6.990	22.500	12.500	7.500	25.000	10.000	7.500	12.500	132.290
Travel and meeting costs (3)	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	66.000
Other costs (documents etc.)	0.800	0.800	0.800	0.800	1.400	0.800	0.800	0.800	0.800	0.800	1.000	9.600
Indirect costs (overhead)	2.960	2.920	3.760	2.758	5.980	3.860	2.860	6.360	3.360	2.860	3.900	41.578
<b>Task 3.2: Cooperation agreement</b>	<b>15.720</b>	<b>12.120</b>	<b>13.080</b>	<b>11.472</b>	<b>11.880</b>	<b>11.880</b>	<b>11.880</b>	<b>17.880</b>	<b>11.880</b>	<b>11.880</b>	<b>15.120</b>	<b>144.792</b>
Person costs	8.000	5.200	6.000	4.660	5.000	5.000	5.000	10.000	5.000	5.000	7.500	66.360
Travel and meeting costs (3)	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	4.500	49.500
Other costs (documents etc.)	0.600	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.400	0.600	4.800
Indirect costs (overhead)	2.620	2.020	2.180	1.912	1.980	1.980	1.980	2.980	1.980	1.980	2.520	24.132
<b>WP4: Transnational Research Activities</b>	<b>24.960</b>	<b>31.200</b>	<b>29.760</b>	<b>26.544</b>	<b>27.360</b>	<b>27.360</b>	<b>37.080</b>	<b>39.360</b>	<b>27.360</b>	<b>27.360</b>	<b>27.360</b>	<b>325.704</b>
<b>Task 4.1: Implementation of action plan</b>	<b>12.480</b>	<b>17.280</b>	<b>14.880</b>	<b>13.272</b>	<b>13.680</b>	<b>13.680</b>	<b>16.920</b>	<b>19.680</b>	<b>13.680</b>	<b>13.680</b>	<b>13.680</b>	<b>162.912</b>
Person costs	4.000	7.800	6.000	4.660	5.000	5.000	7.500	10.000	5.000	5.000	5.000	64.960
Travel and meeting costs (4)	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	66.000
Other costs (documents etc.)	0.400	0.600	0.400	0.400	0.400	0.400	0.600	0.400	0.400	0.400	0.400	4.800
Indirect costs (overhead)	2.080	2.880	2.480	2.212	2.280	2.280	2.820	3.280	2.280	2.280	2.280	27.152
<b>Task 4.2: Evaluation of procedure</b>	<b>12.480</b>	<b>13.920</b>	<b>14.880</b>	<b>13.272</b>	<b>13.680</b>	<b>13.680</b>	<b>20.160</b>	<b>19.680</b>	<b>13.680</b>	<b>13.680</b>	<b>13.680</b>	<b>162.792</b>
Person costs	4.000	5.200	6.000	4.660	5.000	5.000	10.000	10.000	5.000	5.000	5.000	64.860
Travel and meeting costs (4)	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	6.000	66.000
Other costs (documents etc.)	0.400	0.400	0.400	0.400	0.400	0.400	0.800	0.400	0.400	0.400	0.400	4.800
Indirect costs (overhead)	2.080	2.320	2.480	2.212	2.280	2.280	3.360	3.280	2.280	2.280	2.280	27.132

<b>WP5: Dissemination and coordination</b>	<b>488.880</b>	<b>20.880</b>	<b>21.840</b>	<b>20.232</b>	<b>20.640</b>	<b>20.640</b>	<b>20.640</b>	<b>23.640</b>	<b>20.640</b>	<b>20.640</b>	<b>20.640</b>	<b>699.312</b>
<b>Task 5.1: Dissemination and coordination</b>	<b>469.200</b>	<b>3.120</b>	<b>3.600</b>	<b>2.796</b>	<b>3.000</b>	<b>3.000</b>	<b>3.000</b>	<b>6.000</b>	<b>3.000</b>	<b>3.000</b>	<b>3.000</b>	<b>502.716</b>
Person costs	24.000	2.600	3.000	2.330	2.500	2.500	2.500	5.000	2.500	2.500	2.500	51.930
Office secretary	168.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	168.000
Travel and meeting costs (5)	122.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	122.500
Other costs (documents etc.)	14.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.000
Indirect costs (overhead)	65.700	0.520	0.600	0.466	0.500	0.500	0.500	1.000	0.500	0.500	0.500	71.286
Subcontract (portal provider)	75.000											75.000
<b>Task 5.2: Management framework</b>	<b>19.680</b>	<b>17.760</b>	<b>18.240</b>	<b>17.436</b>	<b>17.640</b>	<b>17.640</b>	<b>17.640</b>	<b>17.640</b>	<b>17.640</b>	<b>17.640</b>	<b>17.640</b>	<b>196.596</b>
Person costs	4.000	2.600	3.000	2.330	2.500	2.500	2.500	2.500	2.500	2.500	2.500	29.430
Travel and meeting costs (6)	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	12.000	132.000
Other costs (documents etc.)	0.400	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	0.200	2.400
Indirect costs (overhead)	3.280	2.960	3.040	2.906	2.940	2.940	2.940	2.940	2.940	2.940	2.940	32.766
<b>WP6: Management</b>	<b>27.036</b>	<b>9.556</b>	<b>14.318</b>	<b>8.799</b>	<b>11.513</b>	<b>11.698</b>	<b>9.808</b>	<b>18.838</b>	<b>12.000</b>	<b>9.127</b>	<b>10.866</b>	<b>143.558</b>
Management, direct costs	19.530	4.963	8.932	4.332	6.594	6.748	5.173	12.698	7.000	4.606	6.055	86.631
Financial Audit (7)	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	3.000	33.000
Management, indirect costs	4.506	1.593	2.386	1.466	1.919	1.950	1.635	3.140	2.000	1.521	1.811	23.926
<b>Complexity-NET Total</b>	<b>654.036</b>	<b>161.236</b>	<b>237.638</b>	<b>149.667</b>	<b>194.753</b>	<b>201.178</b>	<b>165.088</b>	<b>310.318</b>	<b>202.200</b>	<b>154.687</b>	<b>184.866</b>	<b>2615.666</b>
<i>Person costs (Euros/month):</i>	<i>4000.000</i>	<i>5200.000</i>	<i>6000.000</i>	<i>4660.000</i>	<i>5000.000</i>	<i>5000.000</i>	<i>5000.000</i>	<i>10000.000</i>	<i>5000.000</i>	<i>5000.000</i>	<i>5000.000</i>	<i>2615.666</i>

*Notes on travel and meeting costs*

Expenses are based on 1500 Euros / workshop participant

(1): Four workshops

(2): Four workshops, two overlap with (1)

(3): Four workshops, one overlap with (2)

(4): Four workshops

(5): Fifteen person-person travel, two wider presentation meetings (25,000 Euros each)

(6): Eight NSC management meetings

(7): Audit, two at 1500 Euros each

*Indirect costs (overhead): 20% except subcontracts**Management: 7%*

## **9. Other issues (optional)**

There are no specific ethical or safety issues associated with the subject of this work. The consortium does not envisage any potential ethical or safety aspects of the implementation of project results.

### ***9.2 Gender issues:***

The consortium has taken active steps and will take further active steps to promote gender equality within the Complexity-NET coordinated action to be formed, and the national focus on gender issues will naturally be a part of the investigations that will be carried out in this CA, see WP1. It is a task to consider the promotion of gender equality in the strategic analysis of strengths, weaknesses, opportunities and threats characterising national complexity research and research-training activities supported by the national programmes, see task 1.2. We also focus on the gender issue in setting the Complexity-NET representatives (see enclosed profiles/CVs of the partners), and women are directly involved at highest level in more than half of the countries (Belgium, Denmark, Greece, Ireland, The Netherlands, Portugal, U.K.).

### ***9.3 Policy issues:***

The work focuses on activities strengthening the European Research Area, which is a key objective of FP6.

The consortium shall make a dedicated effort (see WP5) to spread awareness and knowledge of our objectives and results to a maximally wide scientific, public, and industrial audience. This is necessary in the process of forming a strong Complexity-NET.

Furthermore, the consortium is aware of and value the synergies with education that rise from dedicated training programmes. There are generally in European countries strong efforts to establish international training programmes, involving the best research groups within a specific field. Within complexity, the European training networks and facilities play a very important role in educating young researchers. The Complexity-NET will form a strong basis for creating and establishing new important research-training networks.

## **Appendix A - Consortium description**

### *A.1 Participants and consortium*

Attached is the profile of the participants and their competences (short CVs). The broad number of dedicated participants from north, south, east, and west Europe represented in the consortium ensures a strong capability when dealing with the various challenges in coordinating national programmes throughout Europe. This can only be done in collaboration, and every participant must contribute to be successful. Every participant contributes information to the work packages from its special perspective, every participant contributes to the workshops where the information obtained is disseminated and discussed, and every participant contributes to the following analysis. It is the task for the work package leader to coordinate the work, and produce the associated reports (see deliverables), which forms the necessary basis for a coming strong Complexity-NET. Also, it is the task of the coordinator and the work package leader to involve and attain information from non-participating European funding agencies with high scientific activities within complexity. The consortium is at present in close contact with Research Funding Agencies in Austria, Bulgaria, Finland, Germany, Israel, Norway, Poland, and Romania.

## A1.1 Profile of the Participants

### **Participant 1: The Engineering and Physical Sciences Research Council (EPSRC).**

#### **Short profile of participant**

The Engineering and Physical Sciences Research Council (EPSRC) is the UK Government's leading funding agency for research and training in engineering and the physical sciences. EPSRC is a non-departmental governmental public body, funded by the Government through the Department of Trade and Industry's Office of Science and Technology.

We invest more than £400 million a year in world-class research that forms the basis for future economic development in the UK and leads to improvements in everyone's health, personal well-being and lifestyle. EPSRC also actively promotes public awareness of science and engineering.

Our five overarching strategic objectives are:

- supporting world-class research in the engineering and physical sciences, addressing the challenges facing the UK economy and society;
- developing talented scientists and engineers;
- supporting the knowledge economy;
- public engagement with research; and
- effective and efficient operations.

#### **Strategic research and research-training covering complexity funded by the partner.**

Research and training in complexity and complex systems is funded by EPSRC through a number of programmes, including Mathematical Sciences, Information and Communication Technologies, Engineering, High Performance Computing and the Life Sciences Interface.

Specific strategic activities funded in the area of complexity or complex systems are shown below, the dates referring to the years in which funding was released, not the duration of the programmes:

- Novel computational architectures (£20M, 2003-04)
- Complexity in Biology Sandpit (£1M, 2003)
- Multidisciplinary Critical Mass: Establishment of the University of Bath Centre for Complex Systems (£1M, 2003)
- Centres for Integrated Systems Biology (£15M, 2003-2005)
- Taught Courses in Complexity Science and Complex Systems (£0.6M, 2005)
- Novel Computation: Coping with Complexity (£10M, 2003-2006)
- Large Scale Complex IT (£9M, 2005)

The following programmes at the Isaac Newton Institute for Mathematical Sciences:

- Complexity, Computation and the Physics of Information, 10 May to 20 August 1999
- From Individual to Collective Behaviour in Biological Systems, 10 Sept – 19 Dec 2001
- Interaction and Growth in Complex Stochastic Systems, 21 Jul - 19 Dec 2003

#### **Personnel that take active part in the CA:**

Dr. Caroline Batchelor, Associate Programme Manager, Mathematical Sciences.

Dr Elizabeth Hylton, Programme Manager, Life Sciences Interface; Complexity.

Dr Annette Bramley, Programme Manager, Mathematical Sciences.

#### **Authorised Signatory:**

Dr Randall Richards, Director, Research and Innovation Directorate, EPSRC

#### **Expert:**

Prof Robert Mackay FRS FInstP, Director of the Mathematics Interdisciplinary Research Centre, University of Warwick.

(EPSRC will also undergo discussions with the whole UK Complexity Community, including other UK Research Councils.)

## **Participant 2: National Fund for Scientific Research (FNRS)**

### **Short profile of participant**

The National Fund for Scientific Research (FNRS) is an Institution of public interest devoted to the financial support and promotion of basic scientific research in the French-speaking community of Belgium. The FNRS was founded in 1928 by King Albert 1. Since 1947 it receives public subsidies, currently from the French-speaking Community of Belgium and the Federal Government of Belgium, as well as private funds like TELEVIE whose grants are targeted to leukaemia research. The FNRS also manages four associated and specialized funds: IISN (nuclear science), FRSM (medicine), FRFC (experimental equipment), FRIA (Ph. D. fellowships).

The annual budget of FNRS is 90,575 million Euros. It supports individual researchers on the basis of the criterion of excellence by offering temporary or permanent positions, research teams within Belgium, international collaboration and the award of scientific prizes. For its decisions the FNRS relies on the recommendations of 35 Scientific Committees. The fields covered by the research supported by the FNRS and by the expertise of the Committees span the range of engineering sciences, basic sciences, earth sciences, humanities and social sciences, life sciences, medical sciences and sciences of the matter.

### **Strategic research and research training covering complexity funded by the partner**

Complexity research is funded by FNRS mainly through the fields of Statistical Mechanics and Nonlinear Science. These fields are covered by the Mathematics, Physics and Physical Chemistry Committees of the basic science sector and, to a lesser extent, by Committees of the life sciences and medical sectors. Over the last 4 years the support amounted to about 2 million Euros for positions granted to individual researchers and 1,5 million Euros for projects awarded to research teams.

### **FNRS personnel taking part in the project**

M.-J. Simoen, Secretary General, FNRS (Authorised Signatory)

### **Experts**

M. Ausloos, Ph.D., professor at the Université de Liège

A. De Wit, Ph.D., professor at the Université Libre de Bruxelles

P. Gaspard, Ph.D., professor at the Université Libre de Bruxelles

**Participant 3: Ministry of Science, Technology and Innovation (MSTI)****Short profile of participant:**

The Ministry of Science, Technology and Innovation provide financial support to Universities, Research Institutes and Science Parks, and to research activities and research training through a number of agencies, including the Danish Research Councils and The National Research Foundation.

The members of Danish Research Councils are appointed by the Danish Minister for Science, Technology and Innovation in their personal capacity.

The Danish Research Councils and the National Research Foundation invest several hundred million DKK in research every year.

**Strategic research and research-training covering complexity funded by the partner.**

Centres of Excellence (2005-2008) 20 mio. DKK

Visionary Research Areas (2005-2007) 10 mio. DKK

Young Researchers (2005-2007) 10 mio. DKK

Research-schools (2005-2009) 10 mio. DKK

Research Consortia (2005-2009) 10 mio. DKK

Strategic IT-Research (2005-2009) 10 mio. DKK

**Personnel that take active part in the CA:**

Preben Alstrøm, dr. scient., Director of Center of Research and Exploitation (CORE A/S)

Holger Rasmussen, Senior Advisor, Ministry of Science, Technology and Innovation

Mrs Birgit Kjolby, Head of Division (Authorised Signatory)

***Experts, Danish complexity network:***

Mogens Høgh Jensen, Prof., University of Copenhagen

Preben Graae Soerensen, Prof., University of Copenhagen

Erik Mosekilde, Prof., Technical University of Denmark

Mads Peter Soerensen, Prof., Technical University of Denmark

Jens Juul Rasmussen, Res. Spec., Risoe National Laboratory

Paolo Sibani, Prof., University of Southern Denmark

**Participant 4: Estonian Ministry of Education and Research (Science Competence Council).**  
**Estonian Academy of Sciences (authorized by the Ministry). (EAS)**

**Short profile of participant**

The Science Competence Council provides funding of all the fields in science, humanities and social sciences. The Council provides advice to the Ministry of Education and Research and reports regularly to the Science and Development Council at Prime Minister Office. The Council provides block grants based on peer review, runs the Programme of Centres of Excellence in Research, gives grants to post-docs and PhD students. It advises the Ministry of Education and research on funding the research infrastructures.

The members of the Council are appointed by the Minister of Education and Research in their personal capacity.

In 2003, the Council granted directly 170 mio EEK to research , 15 mio EEK to Centres of Excellence, 14 mio EEK to PhD students, 4 mio EEK to post-docs. In addition 60 mio EEK was granted to research infrastructure. The Programme in consideration was allotted 15 mio EEK in 2003, 25 mio EEK in 2005, and 9.2 mio EEK with 25 mio EEK coming in 2005.

**Strategic research and research-training covering complexity funded by the partner**

Centres of Excellence include the Centre for Nonlinear Studies (CENS) and the Centre for Dependable Computing (CDC). In addition, block grants are given to the teams in the CENS and CDC with several individual grants from the Science Foundation. PhD students are supported, graduate schools organized.

Nonlinearity and fractality of natural processes  
Biocomplexity  
Complexity of dynamical processes  
Software complexity  
Complexity in software-intensive systems

**Personnel that take active part in the CA:**

Jüri Engelbrecht, born August 1, 1939, DSc, Math. Phys., Vice-President, Estonian Academy of Sciences, Prof. and Head of Department, Institute of Cybernetics at Tallinn University of Technology (Authorised Signatory)

**Experts:**

Leo Mõtus, born December 15, 1941, DSc, Eng., Secretary General, Estonian Academy of Sciences, Prof., Dept. of Computer Control, Tallinn University of Technology.  
Enn Tõugu, born May 20, 1935, D.Sc., Eng., Senior Researcher, Institute of Cybernetics at Tallinn University of Technology; Prof. Emeritus, Dept. of Microelectronics and Information Technology, Royal Institute of Technology (KTH), Sweden.

## **Participant 5: The General Secretariat for Research and Technology (GSRT), which belongs to Ministry of Development of Greece.**

### **Short profile of participant**

- Supports through its programs, the research activities of both the country's scientific research institutes and those of its productive industry.
- Promotes the transfer and dissemination of advanced technologies throughout the country's productive sector.
- Contributes to the reinforcement of the country's research manpower.
- Represents Greece in relevant institutions of the European Union, thus bringing the country's research and technology activities into line with the requirements of the international community.
- Promotes cooperation with other countries and international organizations on research and technology issues.
- Establishes new institutes and technological centers in support of sectors of high priority for the development of the Greek economy.
- Supervises underwrites the fixed costs of, and otherwise provides support for 32 of the country's best-known research and technological centers.
- Supports the dissemination of research and technology information throughout the country and internationally by means of advanced IT systems and networks.

### **Strategic research and research-training covering complexity funded by the partner.**

Operational Program for Research & Technology 1995-2000 (EPET II): During the five-year period 1994-1999, with co-funding from the European Union, GSRT successfully implemented the second Operational Program for Research and Technology (EPET II), thus helping to direct research towards areas of popular concern, including: HEALTH, ENVIRONMENT, NUTRITION, EDUCATION, COMMUNICATIONS, ADVANCED TECHNOLOGIES, AND INFORMATICS. The budget allocated was:

- Environment (total budget of approximately 23.5 million Euro)
- Biosciences (total budget of approximately 41 million Euro)
- Information technologies (total budget of approximately 38.2 million)
- New materials (total budget of approximately 35.2 million)

Sub-program I - "Industrial research, technology transfer - Innovation" (total budget of 192.2 million Euro).

Sub-program II - Support and restructuring of research facilities and programs (total budget of 124.4 million).

Sub-program III - Training of research and technology personnel (budget of approximately 54.9 million) promoted important programs such as: "Programme for the Enhancement of Research Manpower" (PENED). This program provided young scientists with the opportunity to use their skills in research projects, to gain further knowledge and experience and to obtain postgraduate degrees. During the period 1995-1999, 965 research projects with a budget of 44 million Euro.

The total budget of EPET II was 537 million Euro and accounted for approximately 2% of the Community Support Framework (CSF) for the five-year period 1995-2000.

The Operational Programme "Competitiveness" 2000-2006:

- Improving the Business Environment
- Support and Encouragement of Business Activities
- Promotion and Excellence in Business Activities
- Technological Innovation and Research

The GSRT's funding to complexity projects in the last 10 years is about 1.500.000 euros. This funding is made through the programmes – implementation tools PENED, PABET, etc. But also the Ministry of Education is very active and has also funded complexity projects through its programmes EPEAEK, Pythagoras, Herakleitos etc

### **Personnel that take active part in the CA:**

Dr Nikos Sidiropoulos, General Secretariat for Research & Technology, Ministry of Development, Greece.

### **Authorised Signatory:**

Prof Ioannis Tsoukalas, Secretary General, GSRT

### **Expert:**

Prof. Anastassios (Tassos) Bountis, Director of Center for Research and Application of Nonlinear Systems, University of Patras, Greece.

**Participant 6: National Office for Research and Technology (NKTH).****Short profile of participant**

NKTH is a government office responsible for the Hungarian Government's science, technology and innovation policy. NKTH has the following responsibilities and missions:

- elaborating the government strategy in the field of research, technology development, and innovation,
- forming the means and tools for the R&D and innovation policy at government level,
- preparing documents concerning the national science and technology policy,
- representing Hungarian interests in international and EU S&T affairs,
- co-ordinating the activity of the Research and Technology Innovation Fund,
- supervising the Agency for Research Fund Management and Research Exploitation,
- raising public understanding and awareness in research and innovation.

NKTH is the programme owner of the major research, development, and technological innovation programmes in Hungary. Three of them are of special importance as far as the study of complex systems is concerned. The **Ányos Jedlik Programme** (the former National Research and Development Programme, NKFP) supports long-term strategic research and development activities that promise major scientific and economic breakthrough in seven thematic subprogrammes: life sciences; information and communication technologies; environmental protection; agriculture and biotechnology; material sciences; social challenges of technological changes. The **Péter Pázmány Programme** supports the establishment of Regional University Knowledge Centers (RET) and their cooperation with industry, aiming to effectively utilize the results of research and development activities. The **Large International Projects** (NAP) scheme supports research and development projects realised in bi- and multilateral international cooperation provided there exists a mutual commitment between NKTH and the responsible ministry or government office in the partner country which precisely defines the scope of the joint research and development. The available annual budget for the above programmes is approx. of HUF 6000 M, i.e. approx. EUR 24 M.

**Strategic research and research-training covering complexity funded by the partner.**

The emphasis is on projects where the results of research and development are applicable in the practice, where these results can be transformed into products, and which generally improve the competitiveness of Hungary. Projects tackling problems of complexity have been supported from all three programmes mentioned above. The total grant for these projects amounts to approx. HUF 800 M, i.e. approx. EUR 3.2 M for three years.

**Personnel that take active part in the CA:**

Dr. Péter Hanák, National Office for Research and Technology, Hungary (NKTH)

**Authorised Signatory:**

Dr Miklos Boda. President, NKTH

**Experts:**

Prof. Imre Kondor, Rector of Collegium Budapest – Institute for Advanced Study

Prof. Gábor Vattay, Head of the Department of Physics of Complex Systems, Eötvös University, Budapest

**Participant 7: Irish Research Council for Science, Engineering and Technology. (IRCSET)**

**Short profile of participant**

The Irish Research Council for Science, Engineering and Technology (IRCSET) operates the Embark Initiative. Funded by the State under the National Development Plan, the Embark Initiative is aimed at knowledge creation for the long term benefit of society and the economy.

Embark takes a unique approach to funding people and ideas, providing direct financial support for researchers & research students. Its programmes do not target research projects with an industrial or economic focus but instead aim to support researchers in exploring ideas and bringing vision to reality.

**Strategic research and research-training covering complexity funded by the partner.**

The emphasis is on innovative, original and exploratory research, aimed at generating new knowledge and energising Ireland's future growth, development and national competitiveness. In relation to the sum of money available to postgraduate students and postdoctoral researchers both schemes are open to research in complexity. For the postgraduates it is €24000 per annum and approx 220 scholarships will be available for 2006. For the postdoctoral researchers it is €48000 per annum and 50 fellowships will be available. Approx 9.5M was spent on scholarships in 05 and 2.6M on postdoctoral researchers. Funding of complexity related research grants is in the area of €514000 (including Financial Complexity projects). Furthermore, arising from the ComplexityNET SSA action the IRCSET Council has decided to inaugurate some national actions that will stimulate concertation and development of networks in this space. Approximately €100,000 additional will be allocated if this project is successful.

**Personnel that take active part in the CA:**

Prof. Martin Hynes, Director, IRCSET Embark Initiative. (Authorised Signatory)

**Experts:**

Prof. Heather Ruskin, School of Computer Applications, Dublin City University  
Prof. Peter Richmond, Department of Physics, Trinity College

## **Participant 8: Consiglio Nazionale delle Ricerche (CNR).**

### **Short profile of the participant**

CNR (Consiglio Nazionale delle Ricerche) is the leading research institution in Italy and it covers many fields in science and technology. Recently it has absorbed the INFN and INOA with the aim of a rationalization of the research activities. The total budget of CNR from the government is 540 million Euros and together with all the external contracts and other sources it reaches 980 million Euros. The personnel consists of about 8000 people of which about 4000 are scientists. The mission of CNR is to develop knowledge through the activity of research laboratories and to enrich and utilize this patrimony. This is done via research and innovation networks which involve also Universities and other research institutions as well as industry. The targets are competitiveness, European integration and internationalization. Also it will develop technologies and solutions for mankind and society.

The new CNR is being structured in 11 Departments:

1. Earth and Environment
2. Energy and Transportation
3. Food and Nutrition
4. Medicine
5. Life Sciences
6. Molecular Engineering
7. Materials and Devices
8. Production Systems
9. Information and Communication Technologies
10. Cultural Identity
11. Cultural Patrimony

### **Strategic research and research-training covering complexity funded by the partner**

**ISC-CNR** (Istituto dei Sistemi Complessi = Institute of Complex Systems) is an Institute specifically dedicated to the study of Complex Systems. There are also collaborations with other Institutes on specific projects in the broad Programme of Complexity. The main subjects in this area are:

- Interdisciplinary applications of Complex Systems in Physics, Chemistry, Biology and information Theory
- Theoretical models, applications and analysis of real systems
- Critical systems fractal structures, glasses and turbulent fluids. Genetic and Neural Networks. Self-organized critical systems
- Analysis and control of nonlinear dynamics.
- Complex materials: disordered, glassy, porous and granular
- Innovative analysis and characterization of materials: Heterogeneous catalysis. New superconducting materials. Mesoscopic systems and complex nanostructures. Experimental studies of complex materials with light scattering, neutrons and X-rays.

The total budget dedicated to Complex Systems is about 15 million Euros (full cost) for 2005. This budget arises from various sources: institutional CNR budget from MIUR, European and National Research projects, projects in collaboration with industry.

The duration varies from project to project. In most cases it is of 3 (three) years.

The total number of people involved is about 300, including collaborations with Universities. STATPHYS 23: this is the world Conference of Statistical Physics which takes place every 3 years in a different continent. This is the scientific area from which the field of Complexity has originated. In 2007 it has been assigned to Italy and it will take place in Genova. This is a unique opportunity to give strong visibility to the European activities in the field of Complexity. CNR and other Italian institution will be directly involved in the organization of this important event for which more than 1500 participants are expected. In addition there will be satellite meetings all over Europe.

### **Persons (personnel/experts) that will take part in the Network**

Luciano Pietronero (science) (**Authorised signatory**)

**Participant 9: The Netherlands Organization for Scientific Research (NWO).****Short profile of participant.**

The Netherlands Organization for Scientific Research (NWO) is the central Dutch organization in the field of fundamental and strategic scientific research. NWO encompasses all fields of scholarship. Consequently, NWO plays a key role in the development of science, technology and culture in The Netherlands.

NWO acts as the national research council in The Netherlands. NWO is an independent organization established by Act of Parliament in 1988.

NWO's budget totals about 300 million Euros. Of this amount about 15% is allocated to large-scale investments in scientific equipment, much of it in international cooperation. NWO is the largest national sponsor of fundamental scientific research at the thirteen Dutch universities.

**Strategic research and research-training covering complexity funded by the partner.**

Research programs covering complexity:

- Computational Science  
Duration 2000-2006, chairman: Prof. W.C. Nieuwpoort  
Cost estimate: M€ 4.1
- Collective and cooperative statistical physical phenomena  
Duration 2001-2009, manager: Prof. W. van Saarloos  
Cost estimate M€ 6.2
- Physics of granular matter  
Duration: 2004-2011, manager: Prof D. Lohse  
Cost estimate : M€ 3.5
- Dynamics of Patterns (under development)  
Duration 2004-2009, manager: Prof A. Doelman  
Cost estimate: M€ 2.5

**Personnel that take active part in the CA.**

Dr. Lex Zandee, program manager mathematics.

Dr Annejet Petra Medler, Director, NWO (authorised Signatory)

**Participant 10: Fundação para a Ciência e a Tecnologia (FCT)****Short profile of participant.**

The Fundação para a Ciência e a Tecnologia (FCT) is the Portuguese Government's funding agency for research and training. It is devoted to the financial support and promotion of scientific research and training in Portugal, in all areas of science. Founded in 1997, FCT is a public body, funded by the Government through the Ministry of Science and Higher Education.

It supports centres of excellence and research centres through rolling grants and post-doctoral and research fellowships (for periods of 3-5 years, following external evaluation by international panels of experts), research projects (in all areas of science) through specific (usually annual) calls, and individual PhD and post-doctoral fellowships (with calls twice a year) on a competitive basis at the national level. FCT also supports international conferences and collaborations.

FCT bases its funding decisions on the evaluation and reports of (appointed) panels of international experts. It is also advised by permanent scientific committees covering the various scientific disciplines.

**Strategic research and research-training covering complexity funded by the partner.**

Research and training in complexity and complex systems is funded by FCT through a number of programmes, including Physical and Mathematical Sciences, Information and Computer Science and Technologies, Engineering and the Life Sciences.

Specific activities funded in the area of complexity or complex systems are indicated below:

- Excellence and research centres (1M euro)
- Projects (0.5M euro)
- Individual grants (0.5M euro)

**Personnel that take active part in the CA:**

Prof Joao Sentieiro, President, FCT (authorised Signatory)

**Scientific Expert:**

Margarida Telo da Gama, PhD, Professor of Physics, Faculty of Sciences, University of Lisbon, and Director of the Centre of Theoretical and Computational Physics.

**Participant 11: Ministry of Education and Science, Spain.****Short profile of participant.**

The Ministry is a full eligible partner, using the additional cost (AC) model. Through its different National Research Programmes, the Ministry allocated 249 million euros for basic research in 2003. It is the main funding agency for basic science in Spain. Research groups in all disciplines apply for research grants in a competitive basis. Through peer-review process the funds are distributed in typically 3-years research projects.

**Complexity is funded by the partner.**

Complexity research is in Spain divided over different programs and initiatives. Projects are evaluated and funded following annual calls for proposals. The Ministry has a number of different panels covering diverse scientific discipline. Due to the inherent interdisciplinary of Complexity research projects dealing with this topic are funded in different panels:  
Physics, Mathematics, Biological science, Social sciences, etc...

**Persons in charge:**

Prof. Pablo Artal, Chair of the Spanish National Research Program on Physics, Professor of Optics, Universidad de Murcia, Spain

**Authorised Signatory:**

Salvador Ordoñez-Delgado, Secretario de Estado de Universidades e Investigacion MEC

## **A1.2 Short curriculum vitae of selected personnel**

### **Short curriculum vitae, Annette Bramley**

Annette Bramley, Dr. Phil. Metallurgy, Programme Manager, Mathematical Sciences, Engineering and Physical Sciences Research Council (EPSRC).

Developing and managing a portfolio of research and postgraduate training in Mathematical Sciences, aligned to priorities defined by the EPSRC Council and delivering the programme within an annual allocated financial target. Acting as a contact point between the various communities and the EPSRC. Working with the Mathematical sciences community and a Strategic Advisory Team (SAT), to define the programme. Exploring new programme opportunities with potential collaborators - including opportunities for international collaboration. Programme Managers have access to teams (Sector Teams) of Associate Programme Managers and support staff to assist the development and delivery of the programme, the evaluation process, and other aspects of the programme.

Previous tasks: Managing the scientific appraisal and evaluation of research grants. Managing the EPSRC input to the European framework for Collaboration in Scientific and Technological research (COST) for the domain of Chemistry.

17 papers published in scientific journals.

### **Short curriculum vitae, Marie-José Simoen**

Marie-José Simoen, born January 3, 1943, Doctor of Political Sciences and international Law. Secretary General of the National Fund for Scientific Research - French Community of Belgium (F.N.R.S.- C.F.B.) and of its associated Funds: The Inter-University Institute for Nuclear Sciences (I.I.S.N.), The Medical Scientific Research Fund (F.R.S.M.), The Joint Basic Research Fund (F.R.F.C.), The Industry and Agriculture Research Training Fund (F.R.I.A.). Secretary General of the Finance Committee of the F.N.R.S. Secretary General of the Rector's Council (CRef).

Member of the board of directors of the University Foundation. Administrator of the King Léopold III Fund for Nature Exploration and Conservation. Associated member of the Belgian Royal Academy Council of Applied Sciences (B.A.C.A.S.). Member of the board of directors of the Royal Belgian Society for engineers and manufacturers (S.R.B.I.I.). Member of the Industrial Award Committee of the Royal Belgian Society for engineers and manufacturers (S.R.B.I.I.). Consultant for the International Relations Commissariat of the French-speaking Community of Belgium (C.G.R.I.). Member of the Finance Committee of the European Organisation for Nuclear Research (C.E.R.N.). Chair of the C.E.R.N. Council working group about the C.E.R.N. staff rejuvenation. Member of the Investment Committee of the Pension Fund of the C.E.R.N.

Member of the Belgian delegation at: European Science Foundation (E.S.F.), European Medical Research Council (E.M.R.C.), European Science Research Council (E.S.R.C.). Member of the board of directors of the Agence Universitaire de la Francophonie (University Agency for the French-speaking World) (A.U.F.). Member

of the management committee of the Fonds Universitaire de Coopération et de développement de l' Agence Universitaire de la Francophonie (University Fund for Co-operation and development of the University Agency for the French-speaking World A.U.F.). Member of the consortium European Centre for Atomic and Molecular Computations (C.E.C.A.M.). Board Member of the International Federation of Social Sciences organisation (I.F.S.S.O.). Member of the European Union Research Organisations, Heads of Research Councils (EUROHORCs). Member of the committee of European or non-European science exchange programmes between the International Relations Commissariat of the French-speaking Community of Belgium C.G.R.I.), the National Fund for Scientific Research - French Community of Belgium (F.N.R.S.) and foreign countries or institutes. Chair of the management committee of the WERNAERS International Fund for the Research and the Dissemination of Knowledge. Administrator of the Academia Belgica.

### **Short curriculum vitae, Preben Alstrøm**

Preben Alstrøm, born 1957, PhD, dr.scient., Director of Center of Research and Exploitation (CORE A/S). Co-Founder of ComplexityLab /CATS at the Niels Bohr Institute, University of Copenhagen.

Danish representative and SSA co-ordinator of Complexity-NET, Research Council member 1999-2003. Danish Research Council representative in the European Union of Physics Research Organizations and in COST TC Physics. EU expert-evaluator within Physics. Served as chairman of the European Physical Society Division for Statistical and Nonlinear Physics, and as chairman of the Danish Physical Society. Advisory editor of Physica A.

More than 100 publications in international journals.

### **Short curriculum vitae, Jüri Engelbrecht**

Jüri Engelbrecht, born August 1, 1939, DSc, Math. Phys., President, Estonian Academy of Sciences, Prof. and Head of Department, Institute of Cybernetics at Tallinn Technical University.

Member of Estonian Science and Development Council, Science Competence Council at Ministry of Education, chairman (1997 – 2003), State Science Awards Committee, chairman, ESF, member of the Governing Council.

7 books, about 160 papers in refereed journals, about 150 articles on science management and philosophy in general.

### **Short curriculum vitae, Péter Hanák**

Dr. Péter Hanák received MSc in Electrical Engineering in 1969, and Dr. Univ. in 1984 at the Budapest University of Technology. Between 1969 and 1991 he worked at the Department of Measurement and Instrument Engineering, and between 1991 and 1997 at the Department of Computer Science and Information Theory of the same university. In 1997, he joined the Hungarian National Committee for Technological Development (OMFB, the predecessor of NKTH). Between 1997 and 2003, at OMFB and later at its successor, he was responsible for several national R&D programmes in infocommunications and related fields, among others calls for proposals in infocommunications technologies and applications (under the umbrella of the R&D

programme IKTA). He has worked closely with the members of the academic and research computer network and GRID communities in Hungary. Recently, he has been active in the *Embedded Systems* and the *Ambient Assisted Living* initiatives in Europe. Currently, he is the Hungarian team leader of the ERA-Pilot project *Coordinating Strategies for Embedded Systems in the European Research Area* (COSINE), related to ARTEMIS. He is member of several committees related to the Framework Programmes of the European Commission, e.g. the *Programme Committee Configuration for Research Infrastructures*, and the *Public Authorities Group for the Embedded Systems European Technology Platform ARTEMIS*. He is the Hungarian National Contact Point (NCP) for *Research Infrastructures*, and the NCP for *New and Emerging Sciences and Technologies* (NEST). He was member of the *Electronic Infrastructures Reflection Group* (eIRG), and contributed to an early version of eIRG's White Paper in 2004.

### **Short curriculum vitae, Gábor Vattay**

Gábor Vattay, born 1965, PhD (statistical physics, 1994), full professor and head of the Department of Physics of Complex Systems at Eötvös University. He is the coordinator of the Large International Project "Cooperative Center for Communication Network Data Analysis" which includes the Complex Networks Research Center at Collegium Budapest – Institute for Advanced Study. He is board member of EXYSTENCE, a network of excellence in complex systems and subproject manager of the IST FET Complex Systems Integrated Project EVERGROW. His research interest includes modeling of dynamical systems, interdisciplinary application of statistical physics. In 2000 he funded the Communication Networks Laboratory at Eötvös University with the support of ERICSSON Research Sweden and his research interest shifted towards computer and communication networks. He published one book and about 50 per reviewed publications.

### **Short curriculum vitae, Imre Kondor**

Imre Kondor obtained his M.Sc. from Eötvös University (ELTE), Budapest, in 1966, and the candidate of sciences and doctor of physical sciences degree from the Hungarian Academy of Sciences (HAS) in 1984 and 1988, respectively. From 1966 to 1989 he held various positions in the Research Group for Theoretical Physics of HAS, in 1989 he became professor of physics at the Institute for Theoretical Physics, Eötvös University, and between 1998 and 2000 he was head of the Department of the Physics of Complex Systems at the same university, where presently he has the position of full professor. During the same period he had various visiting positions at ICTP, Trieste, Italy (1972-73), Goethe University, Frankfurt, Germany (1981), CEN, Saclay, France (1982), Victoria University, Manchester, UK (1984-86).

In 1992 he founded the Bolyai College, a school of excellence for science students, where he served as director until 1998. From 1998 he started lecturing also at the Budapest University of Economic Sciences, and from 1998 to 2002 he was the head of the Market Risk Research Department of Raiffeisen Bank, Budapest.

Presently he is the rector of Collegium Budapest – Institute for Advanced Study. During the first few years of his research career he worked on condensed Bose systems, from the early 70's on static and dynamic critical phenomena. Around 1980 his research interest turned to random systems, in particular to the replica field theory

of spin glasses. His present research subject is the application of the methods of statistical physics to problems in quantitative finance.

### **Short curriculum vitae, Martin Hynes**

Martin Hynes, B.E., M.B.A., Director, The Embark Initiative, Irish Research Council for Science, Engineering and Technology. Martin Hynes is Executive Director of The Embark Initiative, a major national research funding initiative operated by the Irish Research Council for Science, Engineering and Technology. Through a range of highly innovative schemes, the Embark Initiative invests in People and Ideas, addressing individual research funding needs at Masters, Doctoral and Postdoctoral level and encouraging the most talented researchers to advance their careers in Ireland. The Irish Research Council has major research funding reserves under the National Development Plan and operates under the auspices of the Department of Education and Science.

Martin was formerly Senior Science Advisor with Science Foundation Ireland and a Senior Policy Analyst with Forfás. He has been instrumental in the formulation of major national funding initiatives supporting research in the ICT and biotechnology sectors. He also contributed to the formulation of first National Framework of Research Needs and won funding for the development of the National Metrology Laboratory. An Engineering and MBA Graduate, he has considerable commercial experience having mentored private sector start-ups during a three year career break. He also worked for several years in product line management with Westinghouse Electric.

### **Short curriculum, Luciano Pietronero**

Born in Roma on 15-12-1949, Physics Degree in Rome. Vast international experience in Industrial (Xerox, Brown Boveri, IBM) and academic research, France, USA, Switzerland and The Netherlands. Professor of Physics at the University of Groningen (1983-87). From 1987 at the University of Rome La Sapienza. Author of over 300 papers in international journals and editor of 5 books. Scientific activity in Condensed Matter Theory, High Temperature Superconductivity, Statistical Physics, Complex Systems and Interdisciplinare applications. Fellow of the American Physical Society and editors of various International Journals. Responsible and coordinator of various European and National Projects. Proponent of the new CNR Institute of Complex Systems. Chairman of the next STATPHYS 23 conference (Genova 2007)

### **Short curriculum vitae, Lex Zandee**

Lex Zandee, born March 12, 1949, PhD (molecular physics), Programme Manager Mathematics, Netherlands Organisation for Scientific Research (NWO).

Initiate new mathematical research programmes. Stimulate joint European research in the sciences and improve cooperation with other research councils. Acquire additional funding from government and industry.

1997-2000 Shell New Ventures, Head Geophysics, responsible for geophysical research in several countries. 1994-1996 Kazakhstan Caspian Sea Consortium, Project leader, heading team from 7 oil companies to conduct seismic research in Caspian Sea. 1992-1994 Shell Australia, Chief Geophysicist. 1987-1992 Shell

Indonesia, Operations Geophysicist, conducted seismic research in many parts of Indonesia. 1979-1987 Shell Research, Section head, developed airborne electromagnetic system (several patents).

Member of NNV, EPS, APS.

### **Short curriculum vitae, Paul Bourguine**

Paul Bourguine is Senior Researcher in Ecole Polytechnique, head of the Complex Systems Institute of Paris. PhD in Economics (1983), PhD in cognitive science (1989). Scientific interest: complex adaptive systems, large interactive networks. Current research fields: genetic networks, neural networks, social networks and social cognition, learning and co-evolutionary dynamics. Co-chair of the two first conferences in Economics and Artificial Intelligence (CECOIA, 1986,1990), of the first European Conference of Artificial Life (ECAL,1990), of the first European Conference in Cognitive Economics (ECCE 1, 2004). Chair of the European Conference on Complex Systems (ECCS'05). Three books, seventy articles.

### **Short curriculum vitae, Margarida Telo da Gama**

Margarida Telo da Gama, born 1956, PhD, Professor of Physics, Faculty of Sciences, University of Lisbon, and Director of The Center of Theoretical and Computational Physics. More than 100 publications in international journals.

### **Short curriculum vitae, José M. Fernández de Labastida**

José M. Fernández de Labastida, Ph.D. Physics, Deputy Director General for Research Programmes, Ministry of Science and Technology of Spain, 2001-2004. Professor of Theoretical Physics, University of Santiago de Compostela (USC), Santiago de Compostela, Spain, 1991-present.

Member of The Institute for Advance Study, Princeton, NJ, 1985-1988. Fellow of CERN, Geneva, Switzerland, 1988-1991. Scientist of the Spanish Research Council (CSIC), 1987-1990. Dean of the Physics Department of USC, 1994-1997. Scientific Associate of CERN, Geneva, Switzerland, 1997-1998. Director of the Graduate School of USC, 1999-2001.

### **Short curriculum vitae, Ramón López de Arenosa**

Ramón López de Arenosa, PhD Chemistry. Head Production and Communications Technical Department, DG Research, Ministry of Science and Technology of Spain, 1990-2004. Assistant Professor of Chemical-Physics, University Complutense of Madrid, Spain, 1981-present.

Assistant Professor of Chemical-Physics, University of Cadiz, Spain, 1980-81. Deputy Director General for Fellowship Programmes, Ministry of Science and Technology of Spain, 1986-90. Responsible for scientific management and coordination of National Research Programmes (Materials Research, Physics, Mathematics, Astrophysical, Space Res., Information and Communications Tech., Design and Industrial Production Res.).

**Short curriculum vitae, Enrique Zuazua**

Enrique Zuazua, Ph.D. Mathematics, Numerical analysis. Manager of the National Research Program on Mathematics. Professor of Applied Mathematics in universidad Complutense de Madrid since 1990.

Assistant at College the France, Paris, 1987-1988. Extrenal collaborator of Ecole Polytechnique de Paris, 1998-2002. In leave at Universidad Autónoma de Madrid since 2001. Editor in Chief of ESAIM:COCV (Control Optimization and the Caclus of Variations) and member of the Board of other international Journals like SIAM J. Control and Optimization, Mathematical Models and Methods in Applied Sciences, etc.

## **A.2 Sub-contracting**

A Sub-contract is planned for 75.000 Euro for design of the communication platform (portal). The portal will be produced by the subcontractor but will be managed on a day-to-day basis by the Coordinator (through WP5)

### **Sub-contractor**

The sub-contract will be put out to tender, so it is not yet known who the sub-contractor will be.

## **A.3 Third parties**

Besides the contacts to and contributions from other European Funding agencies, no part of the work is foreseen to be carried out using financial resources or resources in kind provided by third parties.