



Project no.: 043338

Project acronym: EMERGENCE

Project title: A foundation for Synthetic Biology in Europe

Instrument: NEST Pathfinder

Thematic Priority: Synthetic Biology

# Periodic Activity Report

Period covered: from 1.12.2006 to 30.5.2008 Date of preparation: 10.9.2008

Start date of project: 1.12.2006 Duration: 36 months

Project coordinator name: Prof. Dr. Sven Panke

Project coordinator organisation name: ETH Zurich

# Publishable executive summary

## Summary description of project objectives

Synthetic biology has emerged as a very recent but highly promising approach to re-organizing the biotechnological endeavor by integrating central elements of engineering design. By applying the tool box of engineering disciplines such as electrical, mechanical, or chemical engineering and computer sciences, including the vigorous application of modeling techniques and organizing the development of novel biological systems along a hierarchical systems architecture with defined and standardized interfaces, synthetic biology aims at no less than revolutionizing the way we do bioengineering today. If successful, synthetic biology will transform bioengineering into a highly successful and sustainable life science industry.

The objective of this coordination action EMERGENCE is to provide a communication and working platform for the emerging European synthetic biology community in order to strengthen the organizational and conceptual basis of the synthetic biology as a true engineering discipline in biological engineering.

These issues will be addressed in terms of

1. Integration, i.e., providing an organizational forum for the various ongoing activities in the field of synthetic biology (such as the projects that originated from the FP 6 NEST calls under the Pathfinder - Synthetic Biology initiative).

2. Common concepts and agenda, e.g., providing a common IT-infrastructure to include data sets relevant to synthetic biology as well as tools dedicated to biological design.

3. Standardization, e.g., implementing standards and gene regulations to define the meaning of a number of imprecise terms and concepts.

4. Education, e.g., analyzing the case for a European and world-wide community ('education focus groups' to coordinate initiatives as participating in the iGEM competition, establishing a 'European Master of Synthetic Biology').

5. Embedding industry, e.g., integrating representatives from industry into the synthetic biology community as the implementation of widely accepted standards will facilitate the development of novel industries.

## Contractors involved

| | Institution | Group | PI | Country |
|---|---|---|---|---|
| 1 | ETH Zurich | Institute of Process Engineering, Bioprocess Laboratory<br>Institute of Computational Science<br>Computational Systems Biology | S. Panke<br>J. Stelling | CH |
| 2 | Consejo Superior de Investigaciones Scientificas | Department of Microbial Biotechnology | V. de Lorenzo | ES |

| | | | | |
|---|---|---|---|---|
| | (CSIC) | | | |
| 3 | Spanish National Cancer Reasearch Centre (CNIO) | Structural Biology and Biocomputing group | A. Valencia | ES |
| 4 | Helmholtz Zentrum für Infektionsforschung (HZI) | Systems and Synthetic Biology group | V. Martins dos Santos | DE |
| 5 | Royal DSM | | L. Passamontes | CH |
| 6 | University College London (UCL) | Department of Biochemical Engineering | N. Szita | GB |
| 7 | Geneart AG | | R. Wagner | DE |
| 8 | Center for Genomic Regulation (CRG) | Systems Biology | L. Serrano | ES |
| 9 | University of Cambridge | Department of Plant Sciences | J. Haseloff | GB |
| 10 | Ecole Polytechnique (EP) | Biochemistry Faculty | A. Jaramillo | FR |

**Co-ordinator contact details:**

Prof. Sven Panke
ETH Zurich
Bioprocess Laboratory
CAB H88
Universitätsstrasse 6
8092 Zurich
panke@ipe.mavt.ethz.ch
Telephone: +41-44-6320413
Fax: +41-44-6321993

EMERGENCE has started in a period in which synthetic biology has been recognized as a promising topic by many neighbouring scientific communities and consequently has been discussed at many meetings. Consequently, networking activities were plenty, and in particular work towards a common IT infrastructure was deemed most urgent to take up the various activities of the community. Here, important ground work was performed, leading to an extension of the capabilities of the MIT registry (connection with novel information databases based on the CARGO system), which ultimately allows the consideration of a European registry connected to the general bioinformatics infrastructure. Furthermore, first computational tools to rationally assemble parts into circuits have been developed, making the engineering process in synthetic biology much better accessible to the biological part of the community. Another focus of the first period was fundamental work in the area of education, where a first draft for a European Master in Systems and Synthetic Biology has been produced and is currently awaiting approval. Other activities were and continue to be directed at the academic/industrial interface, the standardization of promoter performance description, and the production of general communication tools. Overall, EMERGENCE has played an active role in the process of building a synthetic biology community in Europe over the last 18 months.

The overall objective for EMERGENCE is the thriving of the synthetic biology community in Europe. As part of this activity, the results produced during the first project period will be a contribution to structuring the European educational landscape in synthetic biology and to the development of common design standards in biological system engineering. Furthermore, the members of the EMERGENCE consortium are actively involved in the promotion of synthetic biology at various European and national levels (EU, ESF, national) with the objective of fostering a favourable research environment that will allow synthetic biology to develop into the potentially revolutionary bioengineering methodology that is broadly envisioned in the community.

## Section 1 – Project objectives and major achievements during the reporting period

EMERGENCE aims at creating a foundation for Synthetic Biology in Europe. However, such an endeavor requires urgently a coordination effort from the very beginning in order to point the transitions into the most promising directions. For that, we will establish this coordination on several levels such as:

[i] Including the majority of European scientists and engineers currently active in the field and reach out to include crucial developments in the USA and Asia via a communication platform;

[ii] Establishing the intellectual foundation for synthetic biology by recruiting the required competence from neighbouring engineering disciplines;

[iii] Contributing to the formation of concepts and the implementation of state-of-the-art design methodology by starting to implement a dedicated IT infrastructure;

[iv] Starting to provide the intellectual fundamentals to map the most promising approaches to standardizations of procedures and parts; and

[v] Embedding the early development of synthetic biology into the most meaningful industrial context by exploring the industrial interface including IP issues.

### Summary of each workpackage

#### WP1: General Networking Activities

This work package aims at: a) establishing a networking platform for current and future synthetic biology projects bundling the diverse competencies and concertedly working towards the translation of this joint know-how into scientific, technological and economical developments; and b) setting a European-wide, cross-disciplinary framework for discussion on the possibilities, needs, boundaries, implications and advancements of synthetic biology.

This has been done through the development of an efficient (web-based) communication workflow among stakeholders and a standardized meeting structure that allows efficient review of the conclusions obtained at individual meetings. Strong emphasis is put on peer-to-peer networking, workshops and meetings in a wide range of settings. Several such meetings and thematic workshops of different sizes have been organized throughout Europe (Germany, Spain, Austria, UK, France, Portugal) and beyond (namely

Tokyo and Toronto) on a series of scientific issues relating to common standards and practices, computational design tools, academia-industry interfaces, IP-related issues and ethics and safety related matters. Several study groups were established on specific subjects such as Computational Design Methods in SB or Orthogonalization of Genetic Tools. Outreach to extra-European settings has been intensively pursued through the above-mentioned peer-to-peer communication, personal networking and meetings/workshops.

### WP2: Attracting talent to synthetic biology

Synthetic biology is a new interdisciplinary endeavor which involves the adoption of engineering principles in biology. We need to facilitate the recruitment of new students and workers into the field from diverse areas of biology, engineering, computing and the physical sciences.

Workpackage 2 aims at attracting interdisciplinary talent to the novel field of synthetic biology by a) hosting 2 to 3 summer schools; b) investigating the possibilities of launching a MSc program in Synthetic Biology; and c) by implementing a web resource for educational material that is available to the interested public.

Crucial progress was made towards the establishment of a European MSc-level curriculum that includes synthetic biology as a focus. The lead in this activity was taken by the Ecole Polytechnique, together with the ETHZ and the University of Cambridge. The program is at the moment tailored towards the structure of 2 year French MSc courses and contains central elements of synthetic and systems biology. This reflects the philosophy that synthetic biology can be understood as the application discipline of systems biology and many elements in education overlap (especially the mathematical training, modeling, and many of the analytical techniques). The current program is designed as a 2$^{nd}$ year master that would build on a first year of MSc-level education in a similar field and would include course work in Paris and a lab rotation through the participating universities.

Furthermore, we finalized the planning for hosting the summer schools, which will consist of 2 weeks of intertwined theoretical/practical education.

We aim to provide specialized training material for this new field, including educational and review materials. In cooperation with the Institute of Engineering and Technology (http://www.theiet.org), a web-based Technical and Professional Network has been established for communication and distribution of information and educational material. This web based resource is hosted by the IET and associated with a new journal, IET Synthetic Biology (http://www.theiet.org/synbio). The web resource is being expanded to include downloadable teaching materials, video presentations, online reviews and technical articles. For example, a video server at http://www.iet.tv provides dual screen, streaming video containing review and technical material covering Synthetic Biology (e.g. http://tv.theiet.org/search.cfm?syear=&schan=&stext=synthetic%20biology).

In addition, we have established a complementary web resource for Synthetic Biology at UCAM (http://www.synbio.org.uk). This is a dynamic Web 2.0 site with online access to news articles and links to people and events in the field of Synthetic Biology. Both resources are available free of charge, and are being updated and actively extended.

### WP3: Work on setting an IT infrastructure for SB

Considerable progress was made towards the objectives of information integration and simulation methods and tools for circuit design. For the former objective, the MIT registry of Standard Biological Parts was connected via DAS servers to exchange sequence identities, sequence annotation information, and uniprot-based information. The information is made accessible via the CARGO protocol, a protocol to make additional information easily accessible in databases for the user. Furthermore, a drag-and-drop tool was developed that allows to assemble parts from the registry together with the associated ODE-based mathematical descriptions in such a way that the different outputs from the one (sub)part can serve as an import for the next part. Together, these tools will make a substantial contribution to facilitating any registry-based biological design project.

The availability of the information in the form of DAS servers will be a key step in the integration of the registry with the rest of the European infrastructures in Bioinformatics, which are basically based on this protocol for the exchange of genomic information. The prototypes for integration of the information in the analysis and modelling workbenches can be considered as the first steps toward the creation of the European infrastructure for data handling in Synthetic Biology.

### WP4: Standardization of promoter components

In our view, the key to fulfilling the potential of Synthetic Biology—in terms of scientific *and* technological breakthroughs -is not about societal acceptance or ethics, but rather [i] about understanding the biological building blocks that can be used for robust engineering [ii] about adopting a descriptive, quantitative language for biological transactions; and [iii] identifying and managing the physical and chemical constraints that frame the functioning of any autonomous biological system. We need a better conceptual frame to understand what minimal biological building blocks are and how they can be defined. Our argument is that calling them Biobricks™ and regarding them as singular biological components—as in the MIT-run catalogue of biological parts (http://partsregistry.org) -can give a misleading perception of the issues at stake. Furthermore, the nature and description of such parts depends on the scale of the engineering objective. While genetic circuits may rely only on defined promoters and reporters, designing a whole cell will require complete functional modules (translation, energy generation, replication etc) as building blocks. Similarly, whole cells will be the parts for microbial community design and tissue engineering, and so on. We have initiated contacts with transcription experts at both sides of the Atlantic to put together a dedicated Workshop in 2009 to come to some science-based consensus on transcription units and measurements of signal-carrier molecules.

### WP5: Building the academia/industry interface

WP5 is addressing the integration of the European industry into the European SB development. In a first assessment it is important to learn from industrial representatives about the conditions and requirements for an active participation. A major problem that has to be addressed right at the beginning is the accessibility of not only shared parts and pieces but more importantly of jointly developed intellectual property and its

commercialisation. To address this elementary issue we organized an expert meeting composed of two independent experts from the IP environment and Emergence partners (ETH, DSM and Geneart). The meeting is scheduled for the 16th of June in Munich. The result of this round table discussion is expected to give some guidance and hopefully helps to develop a proposal for the management of IP-related questions within a scientific and technological network. The outcome of this meeting will be presented at a workshop (WS) that has been organized in order to define the industrial priorities and concerns. For this WS we invited a limited number of high-ranking industry representatives from different fields to promote an interdisciplinary prolific discussion. The WS will be held at the Munich airport on the 25th of June 2008. The registration is currently ongoing.

## Section 2 – Workpackage progress of the period

**Work package 1:** 'General networking activities' (coordination HZI)

**Contractors involved:** All EMERGENCE participants

### Work package objectives for this period

a) To establish a networking platform for current and future synthetic biology projects

b) To rapidly organize workshops for urgent issues in European synthetic biology

c) To implement a Europe-wide, cross-disciplinary framework for discussion on the possibilities, needs, limitations, and implications of synthetic biology.

d) To foster interactions with extra-European initiatives, with special emphasis on US, the Mid-East and Asia

### Progress towards objectives – tasks worked on and achievements made with reference to planned objectives

Owing to its global outreach, work in this WP involved in all tasks foreseen as follows:

Task 1: A standardized three-tiered meeting structure that allows efficient review and distribution of the conclusions obtained at individual meetings was developed, maintained, and evaluated. A simple web-based template was produced and disseminated whereby interested researchers/institutions can propose to the Steering Board of Emergence an initial meeting to discuss a particular subject of acute interest in SB. Proposers detail the topic, relevance to the CA, deliverables, number (and, whenever relevant, identity of participants), anticipated costs and requested contribution, location etc. Once the proposed meeting is approve, financed, successfully conducted and deliverable (usually a report) produced, further meetings of increasing dimension or complementary can be proposed along the same basic structure. This simple and iterative procedure provides a swift means to react to acute needs in the field, and enables consolidation and deepening when the topics so demand. The materials and rules for this meeting organization and structure correspond to deliverable D1.1.

Task 2: Workshops on development of an European IT infrastructure for synthetic biology, on design tools for synthetic biology and standardization of biological parts, among other, have been (co-)hosted and promoted.

The workshop on IT infrastructure workshop took place as satellite meeting to the ESF-funded and Emergence co-sponsored European Conference on Synthetic Biology (ECSB): Design, Programming and Optimization of Biological Systems conference on Synthetic Biology, which took place on 24-29 November 2007 in S. Feliu de Guixols, Spain (www.esf.org/conferences/07241). This workshop was preceded by a hands-on workshop on the integration of parts and repositories in Madrid (5-7 September 2007) and a MIT workshop for registry developers workshop held on 5-6 November 2007 (see WP3). The report of this workshop constitutes Deliverable D1.2.

The workshop on computational design tools for Synthetic Biology was co-organized with the BioPahways consortium in Vienna, 19-29 July 2007 and as part of satellite meeting to the Intelligent Systems for Molecular Biology (ISMB), the largest world Bioinformatics

conference (www.biopathways.org/events/ISMB07-PROGRAM.html). The success of this workshop has led to the decision to set a series of workshops in this field, the second of which to take place in Toronto, 18-19 July, 2008 as a satellite meeting to the ISMB 2008 (www.biopathways.org/events/ISMB08/ISBM2008-BPC-Program.html). In addition, stemming from the workshop, a book on the subject has been commissioned (Chapman & Hall/CRC Mathematical and Computational Biology Series) to Alfonso Jaramillo, PI of Partner 10. The report of this work corresponds to Deliverable D1.3.

Task 3: Study groups on specific subjects relevant to synthetic biology have been established. Meetings and conclusions have been distributed via the EMERGENCE web-page. A report on recommendations of an intra-consortium expert group on suitable promoter standardization formats (Deliverable D1.4) stems from the activities of such a study group. Other study groups have been created on minimal systems, design tools and computational standards.

Task 4: Accordingly, a platform for organizing thematic workshops/courses/meetings, resulting from maturation of study groups into specific workshops, courses, or small scientific meetings, or from initiatives from members of the advisory board or the steering committee has been created based on the structure described in Task 1.

Task 5: Even before its official start, EMERGENCE has been promoting intensively a variety of contacts and activities between European and overseas participants, in particular with the Middle East and Asia. Highlights of these activities are the organization of the first international workshop on SB in Japan (http://www.icsb-2006.org/workshops/workshops.htm) as a satellite meeting of the International Conference on Synthetic Biology in Yokohama, 9-11 October 2006 (held before the official start of the project because this started latter than planned due to the administrative delays), the preparation of similar workshops in China and India (foreseen for 2009 and 210), as well as the preparatory establishment of intercontinental study groups o chose subjects.

## Deviation from the project workprogramme, and corrective actions taken/suggested: identify the nature and the reason for the problem

There were no major deviations to the envisaged other than slight delays in production of some of the documents as a results of longer deliberations and contacts.

## List of deliverables, including the due date/foreseen submission date

| # | Deliverable | Due (month) | Delivered | Comment |
|---|---|---|---|---|
| D1.1 | Material and rules for standardized meeting structure in place for the first time | 3 | Yes, month 6 | A long, iterative process of discussion among the various stakeholders was necessary to identify and refine the proposed materials and rules. |

| | | | | |
|---|---|---|---|---|
| D1.2 | Report on the first workshop on development of the European IT infrastructure for synthetic biology | 3 | Yes, month 8 | Delay due to the need of holding several preparatory meetings and hands-on work. |
| D1.3 | Report on the first workshop for design tools for synthetic biology | 4 | Yes, month 12 | Delay due to the need of holding several preparatory meetings and discussions. |
| D1.4 | Report on recommendations of the intra-consortium expert group on suitable promoter standardization formats | 12 | Yes | |
| D1.5 | Updated material for the appropriate section in the quarterly Synthetic Biology Newsletter regarding tasks 2, 3, and 4 | Quarter-ly, starting month 3 | Yes | |

## List of milestones, including due and actual/foreseen achievement date

| # | Milestones | Due (month) | Delivered | Comment |
|---|---|---|---|---|
| M1.1 | Recommendations for the European IT infrastructure for synthetic biology are discussed and recommendations issued | 3 | Yes | |
| M1.2 | Recommendations for design tools on the IT infrastructure are discussed and recommendations issued | 4 | Yes | |
| M.1.3 | First experiences with study group format are reviewed by steering committee after 6 and by advisory board and steering committee after 12 month and the format is adapted, if necessary | 6, 12 | Yes | |
| M1.4 | Recommendations on standardization of biological parts are discussed | 11 | Yes | |

**Work package 2:** 'Attracting talent to synthetic biology in Europe'

**Contractors involved:** ETHZ, EP, UCAM

## Work package objectives for this period

The central objectives for WP2 in the first period were:

- Development of a concept for the European workshops in synthetic biology
- Discussion of and, if applicable, development of a European Master-level curriculum for synthetic biology
- The development of a first generation of novel communication tools to spread understanding and appreciation of synthetic biology among the interested public.

## Progress towards objectives – tasks worked on and achievements made with reference to planned objectives

EUROPEAN MASTER IN SYSTEMS AND SYNTHETIC BIOLOGY

The European Master 2 mSSB is composed of three optional Upgrade and ten compulsory block-courses (see Table). All these courses are planned during the first quarter of the Master 2 year. The two remaining quarters are devoted to rotations in laboratories.

The three optional block-courses are grouped into an "Optional Upgrade" Module. They provide introductions to Biology (one week), Computer science (half week) and Mathematics (half week). They are designed to enable acceptance of excellent students who would be slightly below threshold with respect to a small number of prerequisites, given the strong multidisciplinarity of the Master.

This is followed by a day of general introduction (not visible on the Table), with Professors from University of Evry and from MIT, Cambridge.

The ten compulsory block-courses then start. They are generally distributed over several weeks, except when regrouping is necessary for organizational reasons (practical sessions) or pending the availability of non-local Professors.

The ten compulsory block-courses are distributed into four Modules. The first one, "Bio-inspiration" contains a single block-course. The three other Modules each comprise three block-courses: "Systems Biology", "Systems & Synthetic Biology", and "Synthetic Biology".

## Deviation from the project workprogramme, and corrective actions taken/suggested: identify the nature and the reason for the problem

The major deviation from the original program is the decision on the timing of the various workshops in synthetic biology. Given the fact that in June 2007 the coordinator of the activity was the host of the major conference in the field, "Synthetic Biology 3.0", in Zurich, a decision was taken to delay the course to 2009.

The workshop is now scheduled to take place in January 2009 at the Department of Biological Systems Science and Engineering of the ETH Zurich, The Department is currently established as a premium research facility on the border of systems and synthetic biology and will thus be an excellent place for the first workshop. The new delay is due to the fact that the WP leader will only move to D-BSSE at the end of 2008, so any earlier date was inconvenient.

In view of predicable deviations from the schedule, it should be noted here that the second workshop is planned for summer in Valencia. This is due to the fact that the first school will be in winter 08/09, and a second course 6 month later would most probably be hardly useful. In addition, EMERGENCE overlaps with the coordination action in environmental synthetic biology, TARPOL (coordinator: Andres Moya, Valencia), which has also the organization of summer schools as an objective. As the people involved are to some extent identical, it appears most prudent to join forces and to organize two high-impact workshops jointly.

## List of deliverables, including the due date/foreseen submission date

| # | Deliverable | Due (month) | Delivered | Comment |
|---|---|---|---|---|
| D2.1 | Reports documenting the synthetic biology summer course, including syllabus | 8?, 20, 32 | Delayed | Now due in month 29 |
| D2.2 | Report on the possibilities and feasibility of implementing a European Master in Synthetic Biology | 9 | yes | |
| D2.5 | Educational resource at IET available and continuously updated. | 12 | yes | Provided in month 18 |

## List of milestones, including due and actual/foreseen achievement date

| # | Milestones | Due (month) | Delivered | Comment |
|---|---|---|---|---|
| M2.1 | Decision about course in 2007 at the first steering committee | 1 | 1 | Decision was to have first summer school in second project half |
| M2.2 | Decision location of first summer school | 1, 12, 24 | 12 | ETHZ,Department of Biosystems Science and Engineering, Basel |

| | | | | |
|---|---|---|---|---|
| M.2.5 | Decision on feasibility and desirability of European Master in Synthetic Biology | 9 | 9 | See comments regarding mSSP Master |
| M2.6 | Decision on participating schools | 15 | 15 | EP, ETHZ. U Cambridge |

**Work package 3:** 'European IT infrastructure for Synthetic Biology'

**Contractors involved:** CNIO, HZI, CRG, ETHZ

## Work package objectives for this period

Provide key elements for a European IT infrastructure for synthetic biology that is based on a mirror of the MIT 'Registry of Standardized Biological Parts' and extends this with methods and tools aiming at integrated workflows (including data integration, function prediction for components, and rational systems design & analysis).

## Progress towards objectives – tasks worked on and achievements made with reference to planned objectives

The work on information integration has proceeded in collaboration between the CNIO and MIT groups, particularly Randy Rettberg (main developer of the MIT registry) and the CNIO group, including the three days hands-on workshop in Madrid (5 and 6/9/2007) and the participation of Ildefonso Cases (CNIO) in the MIT workshop for MIT registry developers workshop 5-6/11/2007.

1.- The Preparatory phase of the project was dedicated to understand the organization and structure of the MIT 'Registry of Standardized Biological Parts' (http://partsregistry.org/), and to analyze the methods and protocols necessary to make possible the navigation in the genomic and biochemical information from the MIT repository and symmetrically the methods needed to represent the experimental information available in the repository in the main genomics representation systems.

2.- Prototyping the connectivity of the MIT repository with the Biological databases, including comparative analysis of the available technologies. Several common methodologies used on the genomics database area were considered: Flat-File Distribution, SQL direct queries, DAS (Distributed Annotation System) information distribution, Webservices/SOAP/BioMoby connection, and organization of standard API connectivity. During the technical workshop in 2007 we selected DAS for the prototype mainly due to the easier nature of its implementation and the possibility of collaborating with the BioSapiens NoE largely based on this technology and currently the most active collaborative project in bioinformatics in Europe.

Three experimental DAS servers, with minimal features, were implemented on the MIT site: a) A DAS reference server that basically provide the sequence and IDs of the MIT Repository, b) A DAS annotation server providing annotation about the parts, including subparts, and many other features like, coding sequences, promoters, TF binding sites, terminators, ribosomal binding sites, mutations, etc. and c) A DAS annotation server that uses Uniprot as Reference Server which when queried with a Uniprot ID returns if the protein is included in any available part in the repository. For the demonstration purposes the DAS servers was registed in the "DAS registration service" (http://www.dasregistry.org/,), what makes this prototype openly available to the community. For example the Dasty, a DAS Client (Prlic et al. BMC Bioinformatics, 2007) can show the availability of a Biological Part containing the queried Protein.

3.- Initial implementation of tools and methods to visualize / access the information repository from genomics tools. CARGO (http://cargo2.bioinfo.cnio.es, Cases et al., NAR

2007) was developed for the representation of biological information extracted from different databases and methods, in the context of this project CARGO has been extended to incorporate and represent information obtained from the repository using the DAS servers described above. This prototype shows the feasibility of this implementation and set the basis for the integration with biological/ genomic information of the MIT or any other repository of parts accessible via DAS servers. The pilot experience for the visualization of Parts in the CARGO environment is the " IGEM parts viewer", which takes advantage of the experimental DAS server described above to display a sketch of the part along with the sequence and provide links to Uniprot when an ID is included in the part annotation.

The work on simulation methods and tools for circuit design was primarily conducted by ETHZ, in close coordination with the other WP partners. Complementary to expanding the Registry functions by integrating the Registry with a DAS server the focus here was on establishing a dedicated, easy-to-use and scalable software for model-based circuit design. The "MIT Registry of Standard Biological Parts" represents an impressive archive of basic and more complex genetic components, providing information mainly about their sequences and properties. However, the Registry content is not sufficient for quantitative design and simulation of synthetic circuit. It does not provide, for instance, numerical values for many of the parameters characterizing biological reactions. No model-based design tool to realize genetic networks is available either.

For the latter aspect, during the reporting period we realized a first version of a "drag and drop" tool to assemble basic parts and devices into a circuit. We made use of the software "ProMoT" (Process Modeling Tool) developed at the Max-Planck-Institute Magdeburg / Germany, which is already used for biological systems modeling and analysis. It requires files written in MDL (Model Description Language), an object-oriented language derived from Lisp, but a Java Graphic User Interface (GUI) is also provided. This represents the canvas where to place the selected Registry parts and to connect them by means of wires, as it is commonly done in electrical engineering. Every part has been separately modeled following the ordinary differential equation (ODE) formalism and it is able to exchange the necessary fluxes of common signal carriers (e.g. RNA polymerases, ribosomes) with the connected parts. In order to simplify the circuit design, basic parts can be aggregated inside devices (like protein generators and reporters) which on their turn can be put together inside more abstracted components. New parts (the pools) have also been added to the existing ones in order to better illustrate the connections among different parts and to improve our insight on the dynamics of synthetic networks, in particular, with respect to scalability of circuit design.

Integration of the DAS server will allow to collect information about the desired parts from other existing databases (e.g. Swissprot, GenBank), enriching the ones already present in the Registry. Estimates of kinetic parameter values, cell compound concentrations and references to published works are examples of what can be found on the net thanks to this instrument. Once integrated inside the Registry, these tools will provide the Synthetic Biology community with a new infrastructure for the design of synthetic circuits on-line. Looking at the Registry content, first, users will discover the parts they need. Then, by means of the DAS server, they will be able to retrieve from the web large parts of the information to complete the parts' description; this information will be summarized into

files containing the structure and the parameter values of the parts themselves. These files will represent the input for a set of perl scripts (executable from the Registry) written for automatic MDL code generation of each part. The part codes, however, will be hidden to the users who will only have to handle the associated icons, displaying and connecting them on the ProMoT canvas in order to design a new circuit. Once designed, the circuit will be saved in Matlab or SBML format and then simulated – by means both of deterministic and stochastic algorithms - with the preferred program. An SBML file might also be used as a circuit template, to be reloaded to make just some modifications to the circuit, without repeating the entire design process.

## Deviation from the project workprogramme, and corrective actions taken/suggested: identify the nature and the reason for the problem

The development of the first prototypes have made clear the consolidated version of the DAS servers and/or and API site is absolutely essential for the construction of any other bioinformatics tool on top of the MIT repository structure, and in the long run for the use of the information contained in the repository in any biological context. These implementations can only be done by the owners of the repository what creates a certain risk factor for the project.

In this context it is important to keep in mind that the repositories are in a very early phase of development and potentially subject to substantial reorganization. Form example the emergence of other repositories and the current discussion of the standards for the federation of independent repositories associated to specific laboratories, and the concomitant discussion on how to organize standard parts that can be transmitted between different repositories (see BioBrick Standards Mailing List http://biobricks.org/pipermail/standards_biobricks.org/, and the contribution of group of Luis Serrano, EMERGENCE partner). It is essential to monitor these developments since they will necessarily influence the type of technical solution adopted for the connection with the biological/genomic world.

Some of most needed developments for the consolidation of the repositories of biological parts include: a) Quality Checks of the consistency of the information introduced in the repository, b) Linking the information with the biological sources and biological database pointers, c) Use of Ontologies and Control Vocabularies to describe the information, d) Link to genomic information and associated biological literature relevant for the use of the parts in Synthetic Biology experiments, e) Link to quantitative data for parts and device characterization to be employed in circuit simulation, f) Link to databases of models for biological parts.

The MIT Repository is addressing some of these limitations and it is currently increasing the number of available tools and accessible information (see: http://partsregistry.org/BioBrick_Part_Program), and preparing systems for the documentation of the information (http://partsregistry.org/Part_Promotion_Process).

The introduction of those systems will be also influence the type of systems that can be developed in the context of this project.

## List of deliverables, including the due date/foreseen submission date

| # | Deliverable | Due (month) | Delivered | Comment |
|---|---|---|---|---|
| D.3.1 | Document describing the concepts for integrated workflow infrastructure based on the registry | 6 | 12 | D.3.1 was delayed to complete the information about the MIT repository new developments and it was finally presented together with D.3.2 |
| D.3.2 | Report describing the implementation of software and the integration of tools and methods for sequence design and analysis | 12 | 12 | |

## List of milestones, including due and actual/foreseen achievement date

| # | Milestones | Due (month) | Delivered | Comment |
|---|---|---|---|---|
| M3.1 | Decision on concept and implementation issues for integrated workflow | 6 | 12 | The possibility of developing tools for the registry (in the registry) and/or tools to extract information from the registry and submit it to genome/modeling systems, was discuss and the decision was to build prototypes of both of them, making the operations as symmetric as possible. |
| M3.2 | Decision on and prototypes for integration of existing software in the domains of component and system analysis | 12 | 12 | The technology to implement in the prototypes was discussed, adopted and implemented in working prototypes. |

**Work package 4:** 'Towards a consensus language for Synthetic Biology: Conceptual and hermeneutical tools for formatting and categorizing of transcriptional working states'

**Contractors involved:** CSIC and UCL

## Work package objectives for this period

- Development of a robust conceptual basis for formatting prokaryotic promoter components and categorization of their performance in quantitative and connectable ways.
- Acquisition of consensus languages for describing transcriptional units
- Theorization of orthogonal promoter-repressor pairs with predetermined levels of activity

## Progress towards objectives – tasks worked on and achievements made with reference to planned objectives

Every descriptive language, including those used to describe technical or scientific systems, is ultimately metaphorical; it carries a meaning and has an agenda. Although molecular biologists often believe that their abstractions and representations -many of them taken from Physics—are the ultimate means to represent biological phenomena, their language may not be sufficient to fulfill Synthetic Biology's strong engineering agenda. A robust language to describe engineering biological entities is seriously needed, but must be based also on sound Biology. Simply renaming longstanding concepts such as transcription or translation rates by equivalent terms to echo signal-transmission in electronic circuits may give a misleading perception of the issues at stake. For instance, a number of US Synthetic Biology groups (http://syntheticbiology.org) have adopted the term PoPS (polymerase per second) to quantify the input/output signals in genetic circuits. PoPS describes the flow of RNA polymerase molecules along DNA (i.e., the current for gene expression), so that PoPS level is set by the number of molecules of the enzyme that go through a specific position on DNA each second. Similarly, RIPS (ribosome per second) refer to the flow of the translation machinery through mRNA. There is little Biology in these definitions, only a straight and overtly simplistic projection of electric engineering concepts into (supposedly) biological counterparts. Is this ultimately the way to go? This specific issue deserves some thought, as the challenge of describing and standardizing autonomous biological parts is not just academic. To achieve the engineering goals of Synthetic Biology, we need to adopt a consensus on robust engineer-able elements -like the ISO metric standards that are now universally accepted. In this context, we need to start with a quantitative standardization of the signal transduction between these parts, e.g. the transcriptional activity of distinct promoters in vivo and their quantification in universal units. But each scientist seems to have a favourite way of measuring such a value with all kinds of reporter genes or DNA chips, let alone a plethora of miscellaneous hosts, gene doses, media and temperatures, which must be replaced by unequivocal promoter strength units that engineers can use to calculate their circuits. This discussion underway under the aegis of EMERGENCE must involve not only PoPS enthusiasts and synthetic biologists, but also experts in the fundamental aspects of transcription with all its intricacies.

The definition of transcription units and many other types of biological functions may eventually be subject to some governance in order to establish benchmarks. There are already discussions in the consortium to promote a European Institute of Biological Standards as a counterpart of the MIT-run initiatives mentioned above. Yet, even if we have a set of standardized parts and functionalities, we may still lack the knowledge of how to rewire these -akin to writing a book with well defined words but lacking the grammar. One possible solution (the only one available so far) is to use biological chasses, extant or synthetic genomes, as sort of 'grey box' modules in which to implant characterized and predictable circuits.

Specific results from this WP are presented separately in Deliverables 1.4 and 4.1

## Deviation from the project workprogramme, and corrective actions taken/suggested: identify the nature and the reason for the problem

The one problem found for the development of this WP has been the very small echo that our propositions to create a transatlantic study group for pondering the issue of standardization of consensus transcription units has found in the US counterparts. The solution of this caveat is currently in progress and expected to be addressed in a dedicated workshop in 2009.

## Future work

The future work will deal with the following standing issues:

• Orthogonal expression systems based on natural mobile regulatory circuits -those present in integrons, phages, transposons and broad host-range plasmids- which are evolutionarily selected for not depending on the biological context of the recipient. This context-free behaviour is called orthogonality in Synthetic Biology jargon, to echo equivalent properties in computing science. A typically natural orthogonal part is the T7 phage polymerase, which is able to transcribe genes under the T7 promoter sequence in basically any host.

• Link between gene expression and growth. The only way to inhibit cell growth is by subjecting cells to nutrient limitation or antibiotic or other stress. The problem is how to maintain active cells, but without any associated growth. There are attempts to create artificial vesicles that contain all the metabolic components of a cell but lack DNA, but this may not be the ultimate solution because proteins age extremely fast sometimes within minutes, as their aspartate or asparagine residues isomerize Some repair and turnover mechanisms are therefore needed for lasting performance. Perhaps we can learn some lessons from bacteria that manage naturally to be metabolically vigorous but without much growth.

• Noise in gene circuits. Experiments have shown that one could construct cells with logical behaviours, but the stability of the circuit is always. Noise and accumulating mutations are still formidable problems for even the simplest of engineered biological systems. Every synthetic circuit engineered to behave in a particular way seems to decay rapidly after a relatively short period. In contrast, the naturally existing gene expression

programmes enable signals to propagate faithfully through regulatory networks. What such filters are made of and how they work still needs much clarification.

## List of deliverables, including the due date/foreseen submission date

| # | Deliverable | Due (month) | Delivered | Comment |
|---|---|---|---|---|
| D.4.1 | Database on quantitative prokaryotic promoter performance | 2 | 16 | This deliverable has been delayed due to the divergences with our American counterparts mentioned above. Yet, we have been able to make a considerable progress on the conceptualization of prokaryoric promoters as logic gates and on the use of combinations of T7 polymrease-Tet promoter pairs to come up with orthogonal expression systems with predefioned expression levels. |

## List of Milestones

No milestones had to be met during the first 18 months for this workpackage.

**Work package 5:** 'Building the Academia-Industry Interface'

**Contractors involved:** Geneart, ETHZ, DSM

**Work package objectives for this period:**

- Definition of priorities of the European industry in the field of synthetic biology
- Challenging of EU synthetic biology projects from an industrial perspective
- Education and training of European industry re. concepts and tools of synthetic biology
- Facilitating seamless adoption of synthetic biology achievements by European industry
- Develop a strategy for IP usage in synthetic biology for European industry

## Progress towards objectives – tasks worked on and achievements made with reference to planned objectives

The importance of the objective pursued in workpackage 5, i.e. addressing the industrial needs and expectations in order to develop ways of integrating industrial development into the European SB landscape, has become obvious by reflecting the different activities during the last period. Companies including these organized within EMERGENCE and associated with SB have started to organize into integrated consortia like the IASB (Industry Association of Synthetic Biology) which has a strong focus on bioethical and biosecurity questions raised by SB, as well as on the scientific and economic prospects of SB. Assisted by members of the EMERGENCE consortium, programs were established to determine the impact of SB on different aspects of scientific, social and economic relevance like the TESSY roadmap or on promoting innovation within the field, like the ITI Life Science.

In order to raise the awareness and to guide a broad discussion of SB-relevant themes an e-conference - the synbiosafe - has been organized covering the topics ethical, biosafty, biosecurity, IP, regulation & governance and public perception issues. The growing interest and also the increasing involvement of different companies is also visible from the emerging numbers of patent applications (e.g. PCT/US2006/027446, US2007269862A, US2007264688A or WO07047148 A1).

Our activities towards integration of the European Industry within this progressive environment focus on two issues with high relevance that have not been addressed in depth by the mentioned activities but are considered essential for the complete integration process. The first objective is to invite leading experts from European Industries covering Chemistry, Pharmacy, Environment, Energy and Biotechnology in order to define the industrial expectations, priorities and concerns. A number of potential participants from these different industrial fields have been collected and were contacted by the Emergence partners. In preparation of a workshop (WS) the WS venue and date were determined and an invitation and registration process has been established. Three renowned scientists could be committed to give key note lecutres to introduce the different aspects of the WS. The WS will be held at the Munich airport on the 25th of June 2008. The registration is currently ongoing.

The second objective is to prepare a basis for a discussion on the administration of intellectual property and to provide a proposal how this sensitive issue can be

approached to result in an acceptable and conducive process, especially important for the interaction with industrial partners. For a first assessment of this important issue a group of experts from the patent field (Dr. Henkel & Dr. Rutz) together with Emergence partners (ETH, DSM and Geneart), including IP responsible persons, will meet at the 16th of June in Munich. The result of this round table discussion is expected to give some guidance and hopefully helps to develop a proposal for the management of IP-related questions within a scientific and technological network. The results of this meeting will be presented and developed further within the Industry WS.

## Deviation from the project workprogramme, and corrective actions taken/suggested: identify the nature and the reason for the problem

By the end of 2007 a decision regarding the leadership of workpackage 5 was pending, since the present leader Marcus Wyss from DSM was no longer able to pursue this role. Geneart was assigned leader of work package 5 in November 2007, and hence a delay in the deliverables of this work package (Del 5.1, 5.2 and 5.4) could not be averted. However, concrete steps towards achieving the major goals of this WP5 were taken as outlined above.

## List of deliverables, including the due date/foreseen submission date

| # | Deliverable | Due (months) | Delivered | Comment |
|---|---|---|---|---|
| D5.1 | Reports on two industry workshops to define the priorities of the European industry in the field of synthetic biology, and to evaluate the fit of the European synthetic biology projects with the industry needs | 7<br>19 | | WS is scheduled on June 25, 2008 at the Airport in Munich (invitation to workshop see on the Emergence webpage under D5.1). |
| D5.2 | Reports on two workshops (associated to industry-relevant scientific conferences) to teach the industry in synthetic biology concepts and tools | 12<br>24 | | Delay, no appropriate conference identified for 2008 yet |

| | | | | |
|---|---|---|---|---|
| D5.4 | Intermediate and final report on status of discussion regarding IP strategy in the field of synthetic biology, originating from company internal assessments and summarizing the ideas on IP-management (same workshops as in D5.1) | 12<br>36 | | First meeting and WS are scheduled on June 15 (report of workshop on Emergence webpage under D5.4) |

## List of milestones, including due and actual/foreseen achievement date

| # | Milestones | Due (months) | Delivered | Comment |
|---|---|---|---|---|
| M5.1 | Discussion of, commenting on, and deriving actions from the position paper on priorities of the European industry in the field of synthetic biology, by advisory board and steering committee | 12 | | Delay, in preparation |
| M5.2 | Discussion and recommendations for suggestions regarding IP strategy. Preliminary recommendations are proposed by advisory board and steering committee | 12 | | Delay, in preparation |

## Work package 6: 'Project management and dissemination'

Contractors involved: ETHZ

### Work package objectives for this period:

Project management has the objective to coordinate the overall technological progress, administration and finances of the project, to communicate with the EU commission and to coordinate and supervise the multidisciplinary team of the ten European Partners to realise deliverables and milestones according to the Work Plan.

Also, project management needs to ensure effective dissemination of results to generate wide visibility for the project and establish the conditions and network for a larger European SYNTHETIC BIOLOGY initiative.

### Progress towards objectives – tasks worked on and achievements made with reference to planned objectives

In order to coordinate the overall activities of EMERGENCE, the project management has involved a set of activities which are recorded in detail in the deliverables list below. In addition, the EMERGENCE members were involved in several synthetic biology activities such as:

### Conferences:

- SB3.0

The third international conference on Synthetic Biology 'SB3.0' was, among others, organized by Sven Panke and Jörg Stelling (local scientific board and organization committee, ETH) and sponsored by the NEST-SSA 'SYNBIOCOMM' and the NEST-STREP Eurobiosyn. Several EMERGENCE members were involved in the organization of the successful conference, e.g., L. Serrano, V. de Lorenzo and V. Martins dos Santos (international scientific advisory board), and N. Szita (introductory tutorial in the field of 'Microfluidics). The conference attracted over 300 participants world-wide, more information see

http://www.syntheticbiology3.ethz.ch/

- ECSB

The first 'European Conference on Synthetic Biology: Design, programming and optimization of biological systems', chaired by Alfonso Valencia, Sven Panke and Victor de Lorenzo, was held on November 24-29, 2007 in Sant Feliu de Guixols, Spain. The conference brought together some of the most well known international researchers in the areas of biological disciplines such as genomics, proteomics and metabolomics, and computational and engineering disciplines. More information, see http://www.esf.org

### Networking and communication:

- Newsletter

We introduced an EMERGENCE newsletter, see deliverables, to establish a communication tool between the EMERGENCE partners and additionally between the EMERGENCE team and the other European SB project partners.

- SB projects in Europe

Members of the EMERGENCE project are involved in a number of other projects in the area of Synthetic Biology such as TARPOL (FP7), EUROBIOSYN and BIOMODULAR H2. This contributes to spreading the ideas of Synthetic Biology and building a SB community in Europe.

## Deviation from the project workprogramme, and corrective actions taken/suggested: identify the nature and the reason for the problem

A meeting with our advisory board was scheduled for month 12. However, as the "Synthetic Biology 4.0" conference, the most important event of the community, will take place in 2008 (October, Hong Kong), the steering group decided to connect the two activities in order to minimize travel costs.

## List of deliverables, including the due date/foreseen submission date

The following deliverables are available from the EMERGENCE webpage http://www.emergence.ethz.ch in the 'internal' section:

Minutes of project meetings:

- March 12/13, 2007, Kick-off meeting plus first advisory board meeting
- November 29, 2007, scientific board meeting CRG Barcelona
- May 28, 2008, scientific board meeting at ETH Zurich
- Synthetic Biology Newsletters #1, 2, 3

This section can be accessed with

Username: Emergence

Password: ecnegremE

| # | Deliverable | Due (months) | Delivered | Comment |
|---|---|---|---|---|
| D6.1 | Minutes of steering group plus advisory board meeting | 1, 12, 24, 36 | 4 | Month 4: Kick-off meeting plus advisory board meeting (minutes on webpage)<br>Next advisory board meeting at the SB4.0 (month 19) |

| | | | | |
|---|---|---|---|---|
| D6.2 | Consortium Agreement, version 1 | 2 | - | No consortium agreement necessary; consensus Emergence participants and Christian Krassnig (EU) |
| D6.3 | Web-based resource centre available | 2 | 5 | Design and implementation of webpage after the Kick-off meeting in month 4. |
| D6.4 | Minutes of steering group meeting | 6, 18, 30 | 4, 11, 18 | See webpage, internal section http://www.emergence.ethz.ch/Intranet/intranet.htm |
| D6.5 | Quarterly Synthetic Biology Newsletter | 3, 6, 9, 12 etc. | 7, 12, 17 | See webpage: http://www.emergence.ethz.ch/Newsletter/newsletter.htm |
| D6.6 | Revised consortium agreement | 18 | - | See D6.2 |
| D6.7 | Midterm report | 20 | 20 | |

**List of Milestones**

No milestones have been agreed upon the first 18 months for this workpackage.

## Section 3 – Consortium management

### Summarize status of project, its management and follow-up activities

On the whole, EMERGENCE is progressing as planned without any significant managerial problems. The consortium has not changed and the consortium management has carried out the planned activities such as meetings and communications. The meetings, newsletters and the deliverables are properly documented on the webpage. The flow of communication is smooth and is facilitated that many partners meet, next to the project meetings, frequently at conferences, workshops, and EU-related activities. Furthermore, the partners are involved at various levels in a number of other synthetic biology related activities such as the 'Synthetic Biology 3.0', 'ECSB conference' and the Coordination Action 'TARPOL' (kickoff July 2008).

### Contractors: comments regarding contributions, changes in responsibilities and changes to consortium itself

The consortium itself has not changed. However, a change in workpackage 5 leadership from partner 5 (DSM: Markus Wyss) to partner 7 (Geneart AG: Ralf Wagner) has taken place as M. Wyss was no longer able to pursue this role.

Also, partner 6 (Nicolas Szita) moved from the Danish Technical University (DTU) to the University College London (UCL). The request for amendment was agreed by the European Commission on July 24, 2007.

### Short comments and information on co-ordination activities such as communication, meetings, possible co-operation with other programmes

The following meetings have been organized by the consortium management:

- Scientific Board meetings: Kickoff meeting on March 12/13, 2007 at the ETH Zurich, November 29, 2007 at the CRG Barcelona and May 28, 2007 at the ETH Zurich.
- Advisory Board meeting: March 13, 2007 at the ETH Zurich, next meeting is planned as a side event during the SB4.0 in Hong Kong.

The EMERGENCE partners are also involved in a number of synthetic biology related activities such as the SB3.0 and the ECSB and in the FP7 project TARPOL, Kickoff meeting July 3/4, 2008.

Additionally, a number of EMERGENCE members participated in the ESF EUROCORES theme proposal entitled 'Synthetic Biology: Engineering Complex Biological Systems', see attachment.

### Project timetable and status

| Work-packages | Month 1 to 12 | Month 13 to 24 | Month 25 to 36 |
|---|---|---|---|
| WP 1: General networking activities (V. Martins dos Santos) | | | |
| 1.1. Developing & maintaining meeting structure |  | | |

| | |
|---|---|
| 1.2. Workshops on IT/standardization implementation | |
| 1.3. Establishing study groups | |
| 1.4. Workshop/meeting platform | |
| 1.5. Promoting of Euro-Asian exchange | |
| **WP 2: Attracting talents to Synthetic Biology in Europe (S. Panke)** | |
| 2.1. Preparing, carrying out, and evaluating the first European summer school in synthetic biology | |
| 2.2. Preparing, carrying out, and evaluating the second European summer school in synthetic biology | |
| 2.3. Preparing, carrying out, and evaluating the third European summer school in synthetic biology | |
| 2.4. Exploring and possibly implementing a European Master in Synthetic Biology | |
| 2.5. Implementing the web-resource at the IET | |
| **WP 3: European IT infrastructure for Synthetic Biology (A. Valencia)** | |
| 3.1 Developing the concepts for integrated workflow infrastructure based on the registry | |
| 3.2. Implementation of basic software infrastructure and the integration of tools and methods for sequence design and analysis. | |
| 3.3 Development and integration of software for model-based sequence analysis and design describing the software | |
| 3.4. Proof of concept study with integrated system | |
| **WP 4: Standardization of promoter components through formatting and categorization of working states (V. de Lorenzo)** | |
| 4.1 Data mining for quantitative promoter description | |
| 4.2. Theoretical foundations for parameter determinations | |
| 4.3. Design case study using standardized promoters | |
| **WP 5: Building the academic/industry interface (incl. IP rights) (R. Wagner)** | |
| 5.1 Two industry workshops to define the priorities of the European industry in the field of synthetic biology, and to evaluate the fit of the European synthetic biology projects with the industry needs | |
| 5.2 Two workshops (associated to industry-relevant scientific conferences) to teach the industry in synthetic biology concepts and tools<br>Developing an IP strategy in the field of synthetic biology | |
| 5.3. Development of an IP strategy | |

## Section 4 – Other issues

**Not applicable**

## Appendix 1 – Plan for using and disseminating the knowledge

Section 1 - Exploitable knowledge and its Use

Overview table:

| Exploitable Knowledge (description) | Exploitable product(s) or measure(s) | Sector(s) of application | Timetable for commercial use | Patents or other IPR protection | Owner & Other Partner(s) involved |
|---|---|---|---|---|---|
| Installation of three DAS servers in the MIT repository of parts | Accessibility of genetic information | Scientific Community (Biology) | 2008/09 for scientific community (no commercial use) | Not applicable | CNIO, MIT |
| Initial implementation of the CARGO system | Representation of biological information extracted from different databases and methods | Scientific Community (Biology) | 2008/09 for scientific community (no commercial use) | Not applicable | CNIO, MIT |
| 'Drag and drop' tool for the simulation of genetic circuits | Extension of the software ProMoT (Process Modeling Tool) | Scientific community | Same as above | Not applicable | ETHZ |
| European Master of Synthetic Biology | Approx 20 master students per year | Students (engineering, sciences) | First courses available in 2009 | Not applicable | EP, ETHZ, UCAM |
| Educational resources in the field of Synthetic Biology | IET Technical and Profession Network website (www.theiet.org/synbio), | Interdisciplinary training and students | 2008/2009 for scientific community (no commercial use) | Copyright protected | UCAM |

| Exploitable Knowledge (description) | Exploitable product(s) or measure(s) | Sector(s) of application | Timetable for commercial use | Patents or other IPR protection | Owner & Other Partner(s) involved |
|---|---|---|---|---|---|
| | and Synthetic Biology Resources website at the University of Cambridge (www.synbio.org.uk) | | | | |

## Section 2 – Dissemination of knowledge

The dissemination activities section should include past and future activities and will normally be in the form of a table maintained by the coordinator or any other person charged with controlling the dissemination activities.

| Planned/ actual dates | Type | Type of audience | Countries addressed | Size of audience | Partner responsible /involved |
|---|---|---|---|---|---|
| 05/2007 | Project web-site www.emergence.ethz.ch | International | World-wide | Not available | ETHZ |
| 12.–17. 04.08 | ESF-UB Conference in Biomedicine SYSTEMS BIOLOGY | International | World-wide | >100 | CRG |
| 9.-10. 04.08 | BioFine 2008 | International | World-wide | >100 | Responsible: H. Bernauer (TESSY); invited speakers: ETHZ, EP, HZI, Geneart |
| 20.-22. 04.08 | Conférence IET BioSysBio 2008 | International | World-wide | ?? | |
| 24.-29. 11.07 | ESF Conference in Biomedicine SYNTHETIC BIOLOGY | International | World-wide | Ca. 150 | Responsible: CNIO, CSIC, ETHZ<br>Talks by: ETHZ, EP, CSIC |

| | | | | | |
|---|---|---|---|---|---|
| 04/2008 | Presentation, 2nd Intl. Forum on Biosecurity, Budapest. | International | World-wide | ~150 | *ETHZ |
| 06/2008 | Presentation, Workshop Strategies for Design in Synthetic Biology, Evry / F | International | World-wide | Not available | *ETHZ |
| 08/2008 | Special Session Synthetic Biology, Intl. Conf. Systems Biology, Gothenburg / SE | International | World-wide | Not available | *ETHZ |
| 02/07 | 8th Bologna Winter school "Bioinformatics for Systems and Synthetic Biology", Bologna, Italy | Europe | Europe | 50 | ETHZ |
| 06/07 | Synthetic Biology 3.0 conference | International | Worldwide | 350 | Introduction to EMERGENCE (ETHZ) |
| 02/08 | ERA NET Systems Biology Coordinator Meeting, London, UK | Europe | Europe | 20 | Introduction of Synthetic Biology (ETHZ) |
| 02/07 | Computational and Systems Biology Course, University of Trento, Italy | Europe | Europe | 50 | ETHZ |
| 04/2009 | Specialized Workshop on formatting transcriptional states | US- European | US-Europe | 20 max | CSIC |
| October 2006 (due to delay in | Workshop on Synthetic Biology, "Synthetic | Systems & Synthetic Biology | Asia, focus Japan | 120-150 | HZI |

| | | | | | |
|---|---|---|---|---|---|
| the starting of EMERGENCE) | approaches to cellular functions" http://www.sb.dis.titech.ac.jp/syntheticbiology_ws.html | | | | |
| July 18-19, 2007 | Workshop Computational Design tools and IT for SB (www.biopathways.org/events/ISMB07-PROGRAM.html) | Bioinformatics community, largest conference on the subject | Worldwide | 120-150 | HZI |
| April 10 2008 | Synthetic Biology - Emerging Technologies for Future Biopharmaceutical Developments | Pharmaceutical researchers | Europe | 30 | EP/ETH/HZI |
| June 10, 2008 | Stakeholder meeting: Towards a European Strategy for Synthetic Biology http://www.tessy-europe.eu/news.html | Funding agencies & Stakeholders | Europe | 40 | HZI (involved) |
| May 12-13, 2008 | Workshop on Synthetic Biology and Marine Genomics www.marine-genomics-europe.org | Marine Genomics | European | 40 | HZI |
| June 26-27 | NEWSYNBIO Conference Design Strategies for Synthetic Biology | Systems & Synthetic Biology | Europe, focus France | 50 | EP |
| June 27, 2008 | International Risk Governance Council Workshop on Synthetic | Risk Governance Council | International, restricted | 20 | HZI/ID (involved) |

| | | | | | |
|---|---|---|---|---|---|
| | Biology | | | | |
| July 19-20 | Workshop Computational Design tools for SB www.biopathways.org/events/ISMB08/ISBM2008-BPC-Program.html | Bioinformatics community, largest conference on the subject | Worldwide | 110-120 | HZI |
| October 10, 2008<br>October 10, 2008 | Modelling in SB, session at the International Conference on Synthetic Biology SB4.0<br>http://sb4.biobricks.org/ | Synthetic Biology | Worldwide | 100 | HZI/EP |
| Spring 2009 | ESF-EMERGENCE European Conference on Synthetic Biology (ECSB) | Systems & Synthetic Biology | Worldwide | 250 | EP/CNIO/CNB/ ETHZ |
| Fall 2009 | Workshop on Synthetic Biology, Hangzhou, China | Broad | China | 100 | HZI |
| Fall 2009 | Workshop on Synthetic Biology, Hangzhou, China | Broad | India | 250 | HZI |
| 10/2007 | Systems and Synthetic Biology Network<br>http://www.theiet.org/synbio | International | World-wide | Not available | UCAM |
| 06/2008 | Synthetic Biology Resource website:<br>http://www.synbio.org.uk | International | World-wide | Not available | UCAM |
| 11/2007 | Participation in BioBricks Foundation workshop on standards for Synthetic Biology | International | World-wide | 100 | UCAM |

| | | | | | |
|---|---|---|---|---|---|
| | (Boston). | | | | |
| 12/2007 | Cambridge Philosophical Society discussion meeting on Synthetic Biology. | National | UK | 200 | UCAM |
| 04/2008 | Participation in Standards in Synthetic Biology workshop (Seattle) | International | World-wide | 50 | UCAM |

Additional comments for major items:

- ESF-UB Conference in Biomedicine SYSTEMS BIOLOGY:

The ESF-UB Conference on Systems Biology gave a comprehensive overview of the recent developments in the different aspects that are included in systems biology. Thus we covered network analysis, network modeling, -omics approaches in Systems Biology, relationship between Systems Biology and disease and briefly touched the future avenue of Synthetic Biology.

- ESF-UB Conference in Biomedicine SYNTHETIC BIOLOGY:

The first European conference on Synthetic Biology was organized by the European Science Foundation (ESF) and featured 4 tutorials, 7 plenary sessions, 2 panel discussions and 1 poster session. The conference took place in Sant Feliu de Guixols, Spain from November 24 – 29, 2007 and was chaired by Alfonso Valencia (CNIO, Spain), Sven Panke (ETHZ, Switzerland), Natalio Krasnogor (University of Nottingham, Great Britain) and Victor de Lorenzo (CSIC, Spain).

- *ETHZ

Major activities in the reporting period concerned the presentation of results generated by WP 3 (European IT infrastructure) at international conferences and workshops. The target audiences ranged from scientists to policy makers (e.g. 2nd Intl. Forum on Biosecurity), through which these activities also contributed to the general networking activities (WP 1). Co-organization of the special session on 'Synthetic Biology' at the major international conference on Systems Biology by partner ETHZ will, furthermore, contribute to cross-linking the two scientific communities.

## Section 3 - Publishable results

### Papers

1. M.A. Marchisio & J. Stelling, Computational design of synthetic gene circuits with composable parts, Bioinformatics, accepted (2008).

Motivation: In principle, novel genetic circuits can be engineered using standard parts with well-understood functionalities. However, no model based on the simple composition of these parts has become a standard, mainly because it is difficult to define signal

exchanges between biological units as unambiguously as in electrical engineering. Corresponding concepts and computational tools for easy circuit design in biology are missing.

Results: Taking inspiration from (and slightly modifying) ideas in the 'MIT Registry of Standard Biological Parts', we developed a method for the design of genetic circuits with composable parts. Gene expression requires four kinds of signal carriers: RNA polymerases, ribosomes, transcription factors and environmental 'messages' (inducers or corepressors). The flux of each of these types of molecules is a quantifiable biological signal exchanged between parts. Here, each part is modeled independently by the ordinary differential equations (ODE) formalism and integrated into the software ProMoT (Process Modeling Tool). In this way, we realized a "drag and drop" tool, where genetic circuits are built just by placing biological parts on a canvas and by connecting them through "wires" that enable flow of signal carriers, as it happens in electrical engineering. Our simulations of well-known synthetic circuits agree well with published computational and experimental results.

Availability: The code is available on request from the authors.


2. de Lorenzo, V. and Danchin, A. (2008) Synthetic Biology: discovering new worlds and new words. EMBO Rep (In Press).
3. de las Heras, A., Carreño, CA, de Lorenzo, V. (2008) Stable implantation of orthogonal sensor circuits in Gram-negative bacteria for environmental release. Env Microbiol (In Press).
4. Silva-Rocha, R. and de Lorenzo (2008) Mining logic gates in prokaryotic transcriptional regulation networks. FEBS Lett 582: 1237-44.


**Construction of websites:**

1. http://www.theiet.org/synbio - Technical and Professional Network for Systems and Synthetic Biology.
2. http://www.theiet.tv - Searchable video resources for Synthetic Biology
3. http://www.synbio.org.uk - A compiled resource of international news and information for Synthetic Biology at the University of Cambridge



Project no.: 043338

Project acronym: EMERGENCE

Project title: A foundation for Synthetic Biology in Europe

Instrument: NEST Pathfinder

Thematic Priority: Synthetic Biology

# Periodic Management Report

Period covered: from 1.12.2006 to 30.5.2008 Date of preparation: 10.9.2008

Start date of project: 1.12.2006 Duration: 36 months

Project coordinator name: Prof. Dr. Sven Panke

Project coordinator organisation name: ETH Zurich

# Section 1 - Justification of major cost items and resources

## 1.1 Brief description of the work performed by each contractor during the period

### Participant 1, ETHZ (S. Panke, J. Stelling)

| Item | Description | WP |
|---|---|---|
| 1 | Project coordination: Kick-off meeting, web-page, newsletters, minutes to meetings | 6 |
| 2 | Preparation of the first Synthetic Biology winter school in February 2009. | 2 |
| 3 | Preparation of the first Academia/Industry workshop with several partners from the pharmaceutical-, chemical- and biotechnological industry on June 25, 2008 in Munich (together with Geneart and DSM). | 5 |
| 4 | Preparation of the IP workshop on June 16, 2008 in Munich. Workshop addresses IP issues in Synthetic Biology and includes representatives from the European patent office, B. Rutz, the Technical University of Munich, J. Henkel, and representatives from EMERGENCE (organization with Geneart and DSM). | 5 |
| 5 | Document describing the concepts for integrated workflow infrastructure based on the registry | 3 |
| 6 | First version of software for model-based systems design and analysis, and its integration (see publication Marchisio & Stelling, 2008). | 3 |

### Participant 2: CSIC (V. de Lorenzo)

| Item | Description | WP |
|---|---|---|
| 1 | Conceptualization of prokaryotic promoters as logic gates and identification of a research agenda on consensus languages to describe transcriptional working states | 4 |

### Participant 3: CNIO (A. Valencia)

| Item | Description | WP |
|---|---|---|
| 1 | Hosting of the workshop with the MIT partner in Madrid | 3 |
| 2 | Attending the MIT repository of parts developers workshop (MIT) | 3 |
| 3 | Presenting the technical concepts behind the EU SB infrastructure at the Biopathways SIG workshop (part of the ISMB conference, Vienna) | 3 |
| 4 | Contribution to the organization of the ESF conference on Synthetic Biology (AValencia as main organizer) | 3 |

| | | |
|---|---|---|
| 5 | Project meeting in Barcelona | 6 |
| 6 | Preparation of EU projects related with SB with EMERGENCE partners | 6 |

Participant 4: HZI (V. Martins dos Santos)

| Item | Description | WP |
|---|---|---|
| 1 | Preparation, implementation and maintenance of the materials and rules for a meeting structure and communication pipeline. | 1 |
| 2 | Coordination and assistance on the organisation and implementation of study groups on specific subjects of acute needs in SB | 1 |
| 3 | Coordination and implementation of the platform for the organisation of thematic workshops/meetings/courses | 1 |
| 4 | Organisation of the Japan-focused Workshop on Synthetic Biology, "Synthetic approaches to cellular functions", Tokyo, 12 October 2006 | |
| 5 | Preparation and Organisation of the international Workshop Computational design tools for Synthetic Biology, Vienna, 19-29 July 2007 and as part of satellite meeting to the Intelligent Systems for Molecular Biology (ISMB) | |
| 6 | Preparation of the first Academia/Industry workshop with several partners from the pharmaceutical-, chemical- and biotechnological industry on July 10, 2008 in Munich (together with ETHZ, Geneart and DSM). | |
| 7 | Preparation of a special session on Modelling in SB at the upcoming SB4.0 in Hong-Kong, October 2008 | 1 |
| 8 | Preparation of the International Workshops in Synthetic Biology in China and India planned for 2009 | 1 |
| 9 | Intensive general networking activities towards the promotion and discussion on the possibilities, needs, limitations, and implications of SB involving: invited oral presentations in a series of dissemination and stakeholder meetings throughout Europe; promotion of SB activities and student exchange at various research Asian (namely India and China) and Mid-East (Israel) settings | 1 |

Participant 5: Royal DSM (L. Passamontes)

| Item | Description | WP |
|---|---|---|
| 1 | Preparation of the IP workshop on June 16, 2008 in Munich. Workshop addresses IP issues in Synthetic Biology and includes representatives from the European patent office, B. Rutz, from the Technical University Munich, J. Henkel, and representatives from EMERGENCE (organization with Geneart and ETHZ). | 5 |
| 2 | Preparation of the first Academia/Industry workshop with several partners | 5 |

| | | |
|---|---|---|
| | from the pharmaceutical-, chemical- and biotechnological industry on June 25, 2008 in Munich (together with Geneart and ETHZ). | |

### Participant 6: UCL (N. Szita)

| Item | Description | WP |
|---|---|---|
| 1 | At UCL, a post-doctoral candidate was hired (see request for extension of time for deliverable), who will be starting on the project on 27 May 2008. Starting point will be the reviewing of tools for Synthetic Biology with a particular focus on microfluidics to derive recommendations measurement standardisations. | 4 |
| 2 | We are planning to host a workshop towards the end of the year and will coordinate our activities with the recently launched UK initiative on Synthetic Biology funded by the BBSRC. | 1 |

### Participant 7: Geneart AG (R. Wagner)

| Item | Description | WP |
|---|---|---|
| 1 | Preparation of the first Academia/Industry workshop with several partners from the pharmaceutical-, chemical- and biotechnological industry on June, 25, 2008 in Munich (together with ETHZ and DSM). | 5 |
| 2 | Preparation of the IP workshop on June 16, 2008 in Munich. Workshop addresses IP issues in Synthetic Biology and includes representatives from the European patent office, B. Rutz, from the Technical University Munich, J. Henkel, and representatives from EMERGENCE (organization with ETHZ and DSM). | 5 |
| 3 | Provision of standardized tools to the IGEM competition 2007/08; sponsorship, also of European teams. | 2 |
| 4 | Strategies and tools for gene synthesis and assembly: set up and initial results in the areas of bioinformatics, gene optimization and process control. | 3 |

### Participant 8: CRG (L. Serrano)

| Item | Description | WP |
|---|---|---|
| 1 | Orthologous system design: Computer aided identification and characterization of candidate proteins | 4 |

### Participant 9: UCAM (J. Haseloff)

| Item | Description | WP |
|---|---|---|
| 1 | Coordination and organisation of IET Technical and Professional Network to support the activities of the IET Synthetic Biology Journal. Appointment of IET manager, Matthew Poole. (www.theiet.org/synbio) | 2 |
| 2 | IET provides full financial and infrastructure support for BioSysBio 2008 (London) and BioSysBio 2009 Cambridge conferences on Systems and | 2 |

| | | |
|---|---|---|
| | Synthetic Biology | |
| 3 | Establishment of website at the University of Cambridge, with community-wide resources and news for Synthetic Biology (www.synbio.org.uk) | 2 |
| 4 | Production of media based resources for interdisciplinary training and education in Synthetic Biology for web distribution | 2 |

Participant 10: EP (A. Jaramillo)

| Item | Description | WP |
|---|---|---|
| 1 | Explore the possibilities for a European Master in synthetic biology | 2 |

## 1.2 Explanatory note on any major cost items such as important equipment purchases, major travel costs, large consumable items etc., justifying their necessity to the project

Not applicable

## 1.3 Budgeted costs and actual costs, by contractor and by major cost item including personnel

Please note that the budgeted 61 personal month of ETHZ are 25 month (100%) and 36 months (80%), which contributes to 54 total months, which are used in this table.

| Cost Budget Follow-up Table | | | | | | | *) total budget figures - not EC funding | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Contract N°: | 43338 | Acronym: EMERGENCE | | | | | Date: | | | | | |
| PARTI-CIPANTS | TYPE of EXPENDITURE (as defined by participants) | BUDGET | ACTUAL COSTS (EUR) | | | | | Pct. spent | | | | Remaining Budget (EUR) |
| | | | 18 months | 18-36 months | 0 | 0 | Total | 18 months | 18-36 months | 0 | Total | |
| | | e | a1 | b1 | c1 | d1 | e1 | a1/e | a1+b1/e | a1+b1+c1/e | a1+b1+c1+d1/e | e-e1 |
| Part. 1 ETHZ | Total Person-month | 54 | 22 | | | | 22 | 41% | 0% | 0% | 41% | 32 |
| | Personnel costs | 306000 | 126'620.05 | | | | 126620.05 | 41% | 0% | 0% | 41% | 179379.95 |
| | Travel | 37000 | 7'137.49 | | | | 7137.49 | 19% | 0% | 0% | 19% | 29862.51 |
| | Workshops | 82000 | - | | | | 0 | 0% | 0% | 0% | 0% | 82000 |
| | Indirect costs, audits | 94600 | 28'111.05 | | | | 28111.05 | 30% | 0% | 0% | 30% | 66488.95 |
| | Total Costs | 519600 | 161'868.59 | 0 | 0 | 0 | 161868.59 | 31% | 0% | 0% | 31% | 357731.41 |
| Part. 2 CSIC | Total Person-month | 21 | 16 | | | | 16 | 76% | 0% | 0% | 76% | 5 |
| | Personnel costs | 85000 | 63401.87 | | | | 63401.87 | 75% | 0% | 0% | 75% | 21598.13 |
| | Travel | 50000 | 1964.72 | | | | 1964.72 | 4% | 0% | 0% | 4% | 48035.28 |
| | Workshops | 0 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 0 |
| | Indirect costs, audits, other | 31800 | 74343.88 | | | | 74343.88 | 234% | 0% | 0% | 234% | -42543.88 |
| | Total Costs | 166800 | 139710.47 | 0 | 0 | 0 | 139710.47 | 84% | 0% | 0% | 84% | 27089.53 |
| Part. 3 CNIO | Total Person-month | 21 | 12 | | | | 12 | 57% | 0% | 0% | 57% | 9 |
| | Personnel costs | 83700 | 45754.5 | | | | 45754.5 | 55% | 0% | 0% | 55% | 37945.5 |
| | Travel | 51000 | 20350.22 | | | | 20350.22 | 40% | 0% | 0% | 40% | 30649.78 |
| | Workshops | 0 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 0 |
| | Indirect costs, audits, other | 30900 | 18687.53 | | | | 18687.53 | 60% | 0% | 0% | 60% | 12212.47 |
| | Total Costs | 165600 | 84792.25 | 0 | 0 | 0 | 84792.25 | 51% | 0% | 0% | 51% | 80807.75 |
| Part. 4 HZI | Total Person-month | 14 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 14 |
| | Personnel costs | 76000 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 76000 |
| | Travel | 105000 | 15711.07 | | | | 15711.07 | 15% | 0% | 0% | 15% | 89288.93 |
| | Workshops | 0 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 0 |
| | Indirect costs, audits | 41000 | 3142.21 | | | | 3142.21 | 8% | 0% | 0% | 8% | 37857.79 |
| | Total Costs | 222000 | 18853.28 | 0 | 0 | 0 | 18853.28 | 8% | 0% | 0% | 8% | 203146.72 |
| Part. 5 DSM | Total Person-month | 1 | 0.5 | | | | 0.5 | 50% | 0% | 0% | 50% | 0.5 |
| | Personnel costs | 13500 | 7867 | | | | 7867 | 58% | 0% | 0% | 58% | 5633 |
| | Travel | 10000 | 2800 | | | | 2800 | 28% | 0% | 0% | 28% | 7200 |
| | Workshops | 19000 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 19000 |
| | Indirect costs, audits | 11500 | 2133 | | | | 2133 | 19% | 0% | 0% | 19% | 9367 |
| | Total Costs | 54000 | 12800 | 0 | 0 | 0 | 12800 | 24% | 0% | 0% | 24% | 41200 |
| Part. 6 UCL | Total Person-month | 14 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 14 |
| | Personnel costs | 78000 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 78000 |
| | Travel | 15000 | 678.21 | | | | 678.21 | 5% | 0% | 0% | 5% | 14321.79 |
| | Workshops | 0 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 0 |
| | Indirect costs, audits | 21000 | 135.64 | | | | 135.64 | 1% | 0% | 0% | 1% | 20864.36 |
| | Total Costs | 114000 | 813.85 | 0 | 0 | 0 | 813.85 | 1% | 0% | 0% | 1% | 113186.15 |
| Part. 7 Geneart | Total Person-month | 1 | 0.5 | | | | 0.5 | 50% | 0% | 0% | 50% | 0.5 |
| | Personnel costs | 19500 | 17309.26 | | | | 17309.26 | 89% | 0% | 0% | 89% | 2190.74 |
| | Travel | 13000 | 5092.98 | | | | 5092.98 | 39% | 0% | 0% | 39% | 7907.02 |
| | Workshops | 10000 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 10000 |
| | Indirect costs, audits | 11500 | 4480.45 | | | | 4480.45 | 39% | 0% | 0% | 39% | 7019.55 |
| | Total Costs | 54000 | 26882.69 | 0 | 0 | 0 | 26882.69 | 50% | 0% | 0% | 50% | 27117.31 |
| Part. 8 CRG | Total Person-month | 21 | 1 | | | | 1 | 5% | 0% | 0% | 5% | 20 |
| | Personnel costs | 87000 | 2483.2 | | | | 2483.2 | 3% | 0% | 0% | 3% | 84516.8 |
| | Travel | 15000 | 1755.85 | | | | 1755.85 | 12% | 0% | 0% | 12% | 13244.15 |
| | Workshops | 0 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 0 |
| | Indirect costs, audits | 25200 | 847.81 | | | | 847.81 | 3% | 0% | 0% | 3% | 24352.19 |
| | Total Costs | 127200 | 5086.86 | 0 | 0 | 0 | 5086.86 | 4% | 0% | 0% | 4% | 122113.14 |
| Part. 9 UCAM | Total Person-month | 0 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 0 |
| | Web-resource activities | 15000 | 3340.64 | | | | 3340.64 | 22% | 0% | 0% | 22% | 11659.36 |
| | Travel | 15000 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 15000 |
| | Workshops | 0 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 0 |
| | Indirect costs, audits | 8400 | 668.11 | | | | 668.11 | 8% | 0% | 0% | 8% | 7731.89 |
| | Total Costs | 38400 | 4008.75 | 0 | 0 | 0 | 4008.75 | 10% | 0% | 0% | 10% | 34391.25 |
| Part. 10 EP | Total Person-month | 0 | 0 | | | | 0 | 0% | 0% | 0% | 0% | 0 |
| | Master-related activities | 15000 | 153.70 | | | | 153.7 | 1% | 0% | 0% | 1% | 14846.3 |
| | Travel | 15000 | 2'195.29 | | | | 2195.29 | 15% | 0% | 0% | 15% | 12804.71 |
| | Workshops | 0 | 0.00 | | | | 0 | 0% | 0% | 0% | 0% | 0 |
| | Indirect costs, audits | 8400 | 469.80 | | | | 469.798 | 6% | 0% | 0% | 6% | 7930.202 |
| | Total Costs | 38400 | 2'818.79 | 0 | 0 | 0 | 2818.788 | 7% | 0% | 0% | 7% | 35581.212 |
| TOTAL | Total Person-month | 147 | 52 | | | | 52 | 35% | 0% | 0% | 35% | 95 |
| | Personnel costs | 778700 | 263'435.88 | | | | 263435.88 | 34% | 0% | 0% | 34% | 515264.12 |
| | Travel | 326000 | 57'685.83 | | | | 57685.83 | 18% | 0% | 0% | 18% | 268314.17 |
| | Workshops | 111000 | - | | | | 0 | 0% | 0% | 0% | 0% | 111000 |
| | Indirect costs, audits, other | 284300 | 136'513.82 | | | | 136513.818 | 48% | 0% | 0% | 48% | 147786.182 |
| | Total Costs | 1500000 | 457'635.528 | 0 | 0 | 0 | 457635.528 | 31% | 0% | 0% | 31% | 1042364.472 |

## 1.4 For AC contractors, a tabular overview of all resources employed on the project and a global estimate of all costs

| Participant 1: ETHZ | | | |
|---|---|---|---|
| **Item** | **Description** | **Amount [€]** | **Total [€]** |
| 1 | Working time PI | 4 * 10'000 | 40'000 |
| 2 | Working time group leader | | |
| 3 | Working time postdoc 1 | 15 * 5'670 | 85050 |
| 4 | Working time postdoc 2 | 14 * 5'670 | 79380 |
| 5 | Working time PhD student 2 | | |
| | Other costs (consumables, travel, indirect costs, audit etc) | | 35'248.54 |
| | **Sum** | | **239'678.54** |

| Participant 1: HZI | | | |
|---|---|---|---|
| **Item** | **Description** | **Amount [€]** | **Total [€]** |
| 1 | Working time PI | 6 * 8'500 | 51'000 |
| 2 | Working time group leader | | |
| 3 | Working time postdoc | | |
| 4 | Working time PhD student 1 | 5 *5'430 | 27'150 |
| 5 | Working time PhD student 2 | | |
| | Other costs (consumables, travel, indirect costs, audit etc) | | 18'853.28 |
| | **Sum** | | **97'003.28** |

| Participant 1: UCL | | | |
|---|---|---|---|
| **Item** | **Description** | **Amount [€]** | **Total [€]** |
| 1 | Working time PI | 1 * 9'000 | 9'000 |
| 2 | Working time group leader | | |
| 3 | Working time postdoc | | |
| 4 | Working time PhD student 1 | | |
| 5 | Working time PhD student 2 | | |
| | Other costs (consumables, travel, indirect costs, audit etc) | | 813.85 |
| | **Sum** | | **9'813.85** |

| Participant 1: CRG | | | |
|---|---|---|---|
| **Item** | **Description** | **Amount [€]** | **Total [€]** |

| | | | |
|---|---|---|---|
| 1 | Working time PI | 1 * 9'300 | 9'300 |
| 2 | Working time group leader | | |
| 3 | Working time postdoc 1 | 4 * 4'140 | 16'560 |
| 4 | Working time postdoc 26 | 6 * 4'140 | 24'840 |
| 5 | Working time PhD student 2 | | |
| | Other costs (consumables, travel, indirect costs, audit etc) | | 2603.66 |
| | **Sum** | | **53303.66** |

| Participant 1: UCAM | | | |
|---|---|---|---|
| **Item** | **Description** | **Amount [€]** | **Total [€]** |
| 1 | Working time PI | 2 * 9'000 | 18'000 |
| 2 | Working time group leader | | |
| 3 | Working time postdoc | | |
| 4 | Working time PhD student 1 | | |
| 5 | Working time PhD student 2 | | |
| | Other costs (consumables, travel, indirect costs, audit etc) | | 3966.37 |
| | **Sum** | | **21'966.37** |

## 1.5 For AC contractors, in addition estimate the number of person-months of permanent staff working on the project

# Person-Month Status Table

Update with end of period WP totals

| CONTRACT N°: | 43338 | Partner - Person-month per Workpackage | | | | | | | | | | | | AC - own staff | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ACRONYM: | EMERGENCE | | | | | | | | | | | | | | | | | | |
| PERIOD: | 1.12.2007 - 31.05.2008 | TOTALS | Coord. | ETHZ | CSIC | CNIO | HZI | DSM | UCL | Geneart | CRG | UCAM | EP | | | AC TOTA | ETHZ | HZI | UCL | UCAM | CRG |
| **Workpackage 1:** | **Actual WP total:** | **6** | | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | **7** | 2 | 4 | 1 | 0 | 0 |
| Networking | **Planned WP total:** | **19** | | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | **17.5** | 4 | 10 | 1 | 0.5 | 2 |
| **Workpackage 2:** | **Actual WP total:** | **0** | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | **4** | 2 | 0 | 0 | 2 | 0 |
| Attracting talent | **Planned WP total:** | **0** | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | **11** | 7 | 0 | 0 | 4 | 0 |
| **Workpackage 3:** | **Actual WP total:** | **25** | | 12 | 0 | 12 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | | | **17** | 2 | 5 | 0 | 0 | 10 |
| IT infrastructure | **Planned WP total:** | **81** | | 25 | 0 | 21 | 14 | 0 | 0 | 0 | 21 | 0 | 0 | | | **49** | 4 | 26 | 0 | 0 | 19 |
| **Workpackage 4:** | **Actual WP total:** | **16** | | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | **0** | 0 | 0 | 0 | 0 | 0 |
| Standardization | **Planned WP total:** | **35** | | 0 | 21 | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | | | **2.5** | 1 | 0 | 1.5 | 0 | 0 |
| **Workpackage 5:** | **Actual WP total:** | **1** | | 0 | 0 | 0 | 0 | 0.5 | 0 | 0.5 | 0 | 0 | 0 | | | **3** | 2 | 1 | 0 | 0 | 0 |
| Industry/Academia | **Planned WP total:** | **2** | | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | | | **3** | 2 | 1 | 0 | 0 | 0 |
| **Workpackage 6:** | **Actual WP total:** | **4** | | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | **4** | 3 | 1 | 0 | 0 | 0 |
| Project management | **Planned WP total:** | **10** | | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | **12** | 7 | 2 | 0.5 | 0.5 | 2 |
| **Workpackage 7:** | **Title** **WP total:** | **0** | | | | | | | | | | | | | | **0** | | | | | |
| | **Planned WP total:** | **0** | | | | | | | | | | | | | | **0** | | | | | |
| **Workpackage 8:** | **Title** **WP total:** | **0** | | | | | | | | | | | | | | **0** | | | | | |
| | **Planned WP total:** | **0** | | | | | | | | | | | | | | **0** | | | | | |
| **Workpackage 9:** | **Title** **WP total:** | **0** | | | | | | | | | | | | | | **0** | | | | | |
| | **Planned WP total:** | **0** | | | | | | | | | | | | | | **0** | | | | | |
| | **Actual total:** | **52** | **0** | **22** | **16** | **12** | **0** | **0.5** | **0** | **0.5** | **1** | **0** | **0** | **0** | **0** | **35** | **11** | **11** | **1** | **2** | **10** |
| **Total Project Person-month** | **Planned total:** | **147** | **0** | **54** | **21** | **21** | **14** | **1** | **14** | **1** | **21** | **0** | **0** | **0** | **0** | **95** | **25** | **39** | **3** | **5.0** | **23** |

Section 1.6: A summary explanation of the impact of major deviations from cost budget and from person-month budget, with reference to Section 2 “Workpackage progress” of the accompanying Periodic activity report where the reasons for deviation from plan have been explained.

So far, the deviations in the work package progress had only minor impact on the planned budget.

## Section 2

### Form C Financial statement per activity for the contractual reporting period, to be completed by each contractor

See attachment

### Audit certificate

Audit certificates are to be submitted with the Form C, as required in Article 7 of the contract, if the EC contribution is more than € 150’000 for the period.

In this case, an audit certificate was prepared only by the ETHZ, see attached material.

## Section 3 – Summary financial report

Summary of the direct and indirect costs as claimed by each contractor and activity type for the period

Please refer to next page.

| **Period: 01/12/2006 – 31/05/2008** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Contractor** | | | 1) ETHZ | 2) CSIC | 3) CNIO | 4) HZI | 5) DSM | 6) UCL | 7) Geneart | 8) CRG | 9) UCAM | 10) EP |
| **Contact person** | | | S. Panke J. Stelling | V. de Lorenzo | A. Valencia | V. Martins dos Santos | L. Passa-montes | N. Szita | R. Wagner | L. Serra-no | J. Hase-loff | A. Jara-millo |
| **Cost model** | | | AC | FC | FC | AC | FCF | AC | FCF | AC | AC | FCF |
| **Indirect costs** | | | Flat rate, 20% | Real costs | FR, 20% | FR, 20% | FR, 20% | FR, 20% | FR, 20% | FR, 20% | FR, 20% | FR, 20% |
| **Coordination Activities** | Contractor | Direct | 108288.07 | 65366.59 | 66104.72 | 15711.07 | 10667 | 678.21 | 22402.24 | 2483.20 | 14.79 | 2348.99 |
| | | Indirect | 21657.61 | 74343.88 | 18687.53 | 3142.21 | 2133 | 135.64 | 4480.45 | 496.64 | 2.95 | 469.80 |
| | Third party | Direct | | | | | | | | | | |
| | | Indirect | | | | | | | | | | |
| **Management Activities** | Contractor | Direct | 26829.01 | 0 | | 0 | 0 | 0 | 0 | 0 | 20.54 | 0 |
| | | Of which subcontr. | 1359.54 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | Indirect | 5093.89 | 0 | | 0 | 0 | 0 | 0 | 0 | 4.10 | 0 |
| | Third party | Direct | | | | | | | | | | |
| | | Indirect | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Training Activities** | Contractor | Direct | 0 | 0 | | 0 | 0 | 0 | 0 | 1755.85 | 3305.31 | 0 |
| | | Indirect | 0 | 0 | | 0 | 0 | 0 | 0 | 351.17 | 661.06 | 0 |
| | Third party | Direct | | | | | | | | | | |
| | | Indirect | | | | | | | | | | |
| **Total** | Contractor | Direct | 135117.08 | 65366.59 | 66104.72 | 15711.07 | 10667 | 678.21 | 22402.24 | 4239.05 | 3340.64 | 2348.99 |
| | | Of which subcontr. | 1359.54 | | | | | | | | | |
| | | Indirect | 26751.50 | 74343.88 | 18687.53 | 3142.21 | 2133 | 135.64 | 4480.45 | 847.81 | 668.11 | 469.80 |
| | Third party | Direct | | | | | | | | | | |
| | | Indirect | | | | | | | | | | |
| **Total costs** | | | 161868.59 | 139710.47 | 84792.25 | 18853.28 | 12800 | 813.85 | 26882.69 | 5086.86 | 4008.75 | 2818.79 |
| **Request of FP6 financial contribution** | | | 161868.59 | 139710.47 | 84792.25 | 18853.28 | 12800 | 813.85 | 26882.69 | 5086.86 | 4008.75 | 2818.79 |
| **Overall costs** | **€ 457'635.53** | | | | | | | | | | | |
| **Overall request of FP6 financial contribution** | **€ 457'635.53** | | | | | | | | | | | |

### The periodic report on the distribution of the Community's contribution

It records the distribution of funding to each contractor during that period (Article II.7.2.c of the contract).

Please refer to next page.

# Report on the Distribution of the Community's contribution

| Type of Instrument | CA | Project Title (or Acronym) | EMERGENCE | Contract N° | 43338 |
|---|---|---|---|---|---|

## Part I — Community's prefinancing (or payment) sent to the coordinator (1)

| | Reporting Period 1 (2) | | Reporting Period 2 (2) | | Reporting Period 3 (2) | | Reporting Period 4 (2) | | Reporting Period 5 (2) | | Reporting Period 6 (2) | | Reporting Period 7 (2) | | Final payment | | Total Amount (I) (3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | From | To | From | To | From | To | From | To | From | To | From | To | From | To | | | |
| | 1.12.2006 | 31.05.2008 | | | | | | | | | | | | | | | |
| | Date | Amount (A) | Date | Amount (B) | Date | Amount (C) | Date | Amount (D) | Date | Amount (E) | Date | Amount (F) | Date | Amount (G) | Date | Amount (H) | |
| Total (X) | 8.01.2007 | 923'463.80 | | | | | | | | | | | | | | | 923'463.80 |

## Part II — Distribution of the Community's prefinancing (or payment) between contractors according to the consortium decision(s) (4)

| Contractor n° | Organisation Short Name | Country Code | Reporting Period 1 | | Reporting Period 2 | | Reporting Period 3 | | Reporting Period 4 | | Reporting Period 5 | | Reporting Period 6 | | Reporting Period 7 | | Final payment | | Total Amount (I') (6) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Date(s) (5) | Amount(s) (A') (5) | Date(s) (5) | Amount(s) (B') (5) | Date(s) (5) | Amount(s) (C') (5) | Date(s) (5) | Amount(s) (D') (5) | Date(s) (5) | Amount(s) (E') (5) | Date(s) (5) | Amount(s) (F') (5) | Date(s) (5) | Amount(s) (G') (5) | Date(s) (5) | Amount(s) (H') (5) | |
| 1 | ETH | CH | 8.02.2007 | 252'463.80 | | | | | | | | | | | | | | | 252'463.80 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 252'463.80 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 252'463.80 |
| 2 | EP | FR | 02.02.02007 | 19'800.00 | | | | | | | | | | | | | | | 19'800.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 19'800.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 19'800.00 |
| 3 | UCAM | GB | 2.02.2007 | 19'800.00 | | | | | | | | | | | | | | | 19'800.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 19'800.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 19'800.00 |
| 4 | HZI | DE | 2.02.2008 | 156'600.00 | | | | | | | | | | | | | | | 156'600.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 156'600.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 156'600.00 |
| 5 | CNIO | ES | 2.02.2008 | 115'100.00 | | | | | | | | | | | | | | | 115'100.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 115'100.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 115'100.00 |
| 6 | CSIC | ES | 2.02.2008 | 115'800.00 | | | | | | | | | | | | | | | 115'800.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 115'800.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 115'800.00 |
| 7 | London | GB | 9.05.2007 | 102'600.00 | | | | | | | | | | | | | | | 102'600.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 102'600.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 102'600.00 |
| 8 | CRG | ES | 2.02.2007 | 84'500.00 | | | | | | | | | | | | | | | 84'500.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 84'500.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 84'500.00 |
| 9 | GENEART | DE | 2.02.2007 | 28'400.00 | | | | | | | | | | | | | | | 28'400.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 28'400.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 28'400.00 |
| 10 | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 0.00 |

# Report on the Distribution of the Community's contribution

| Type of Instrument | CA | Project Title (or Acronym) | EMERGENCE | Contract N° | 43338 |
|---|---|---|---|---|---|

## Part I — Community's prefinancing (or payment) sent to the coordinator (1)

| | Reporting Period 1 (2) | | Reporting Period 2 (2) | | Reporting Period 3 (2) | | Reporting Period 4 (2) | | Reporting Period 5 (2) | | Reporting Period 6 (2) | | Reporting Period 7 (2) | | Final payment | | Total Amount (I) (3) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | From | To | From | To | From | To | From | To | From | To | From | To | From | To | | | |
| | 1.12.2006 | 31.05.2008 | | | | | | | | | | | | | | | |
| | Date | Amount (A) | Date | Amount (B) | Date | Amount (C) | Date | Amount (D) | Date | Amount (E) | Date | Amount (F) | Date | Amount (G) | Date | Amount (H) | |
| Total (X) | 8.01.2007 | 923'463.80 | | | | | | | | | | | | | | | 923'463.80 |

## Part II — Distribution of the Community's prefinancing (or payment) between contractors according to the consortium decision(s) (4)

| Contractor n° | Organisation Short Name | Country Code | Reporting Period 1 | | Reporting Period 2 | | Reporting Period 3 | | Reporting Period 4 | | Reporting Period 5 | | Reporting Period 6 | | Reporting Period 7 | | Final payment | | Total Amount (I') (6) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Date(s) (5) | Amount(s) (A') (5) | Date(s) (5) | Amount(s) (B') (5) | Date(s) (5) | Amount(s) (C') (5) | Date(s) (5) | Amount(s) (D') (5) | Date(s) (5) | Amount(s) (E') (5) | Date(s) (5) | Amount(s) (F') (5) | Date(s) (5) | Amount(s) (G') (5) | Date(s) (5) | Amount(s) (H') (5) | |
| 1 | ETH | CH | 8.02.2007 | 252'463.80 | | | | | | | | | | | | | | | 252'463.80 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 252'463.80 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 252'463.80 |
| 2 | EP | FR | 02.02.02007 | 19'800.00 | | | | | | | | | | | | | | | 19'800.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 19'800.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 19'800.00 |
| 3 | UCAM | GB | 2.02.2007 | 19'800.00 | | | | | | | | | | | | | | | 19'800.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 19'800.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 19'800.00 |
| 4 | HZI | DE | 2.02.2008 | 156'600.00 | | | | | | | | | | | | | | | 156'600.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 156'600.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 156'600.00 |
| 5 | CNIO | ES | 2.02.2008 | 115'100.00 | | | | | | | | | | | | | | | 115'100.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 115'100.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 115'100.00 |
| 6 | CSIC | ES | 2.02.2008 | 115'800.00 | | | | | | | | | | | | | | | 115'800.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 115'800.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 115'800.00 |
| 7 | London | GB | 9.05.2007 | 102'600.00 | | | | | | | | | | | | | | | 102'600.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 102'600.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 102'600.00 |
| 8 | CRG | ES | 2.02.2007 | 84'500.00 | | | | | | | | | | | | | | | 84'500.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 84'500.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 84'500.00 |
| 9 | GENEART | DE | 2.02.2007 | 28'400.00 | | | | | | | | | | | | | | | 28'400.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 28'400.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 28'400.00 |
| 10 | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | | | | | | | | | | | | | | | | | 0.00 |
| | | | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | Total | 0.00 | 0.00 |

## *Appendix 13 – Science and society reporting questionnaire*

*EMERGENCE*

Science and Society Reporting Questionnaire

Introduction

**FP6 was designed to focus, integrate, structure and strengthen the European Research Area (ERA). The influence of science and technology on society was acknowledged when the ERA was established and the importance of having a healthy dialogue between science and society was recognised. This area now forms part of the policy to structure the ERA under the heading Science and Society. It incorporates ethical, gender and communications issues together with issues affecting education and youth and governance.**

**This questionnaire has been compiled for FP6 Project Coordinators. It has been designed to help coordinators respond to contractual reporting requirements (Article II.10.3 of the contract states that consortia must engage with actors beyond the research community) and to facilitate the monitoring of the science and society dimension in FP6.**

**The information gathered through this exercise will be confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.**

**Please complete the questionnaire by ticking boxes or filling out information where requested. It would be appreciated if as many questions as possible could be completed.**

***Please note that Part A will be completed automatically when the contract number is entered.***

# A General Information on Contractor

| | | |
|---|---|---|
| **1** | **Contract Number:** | #043338 |
| **2** | **Instrument:** | NEST Pathfinder |
| **3** | **Thematic Priority:** | Synthetic Biology |
| **4** | **Title of Project:** | EMERGENCE |
| **5** | **Name and Title of Coordinator:** | Prof. Dr. Sven Panke |
| **6** | **Period Covered, Start Date:** | 01/12/06 **End Date:** 31/05/08 |
| **7** | **EC Contribution to project:** | € 1’500’000 |

# B Ethics

**8 Which (if any) of the following does your research project involve?**

- ❑ Human beings
- ❑ Human biological samples
- ❑ Personal data
- ❑ Genetic information
- ❑ Animals
- ❑ Human embryos or human embryonic stem cells
- ❑ Non human primates and other animals
- ■ None of the above

**9 To what extent do you believe ethical issues are relevant to your research project?**

- ■ Not relevant
- ○ Minor relevance
- ○ Significant relevance
- ○ Critical

**10 Do you have Ethicists or others with considerable ethics experience involved in the project?**

- ○ Yes
- ■ No

**11 Did your project have a separate EC ethical review?**

- ○ Yes
- ■ No

**12 How much (including the value of time spent, as well as paid-out costs) do you estimate your project (when it is completed) will have spent on considering and dealing with ethical issues?**

€ 0

# C Gender (to be completed for all projects except IPs and NoEs)

**13a Did you undertake Gender Equality Actions in your research project?**

- ■ Yes
- ○ No

**13b If no, why not?**

- ○ Not relevant
- ○ Team not gender aware
- ○ No budget
- ○ Not supported (no will)
- ○ Other:

**13c If yes, which of the following actions did you carry out and how effective were they?**

| | Not at all effective | | | | Very effective |
|---|---|---|---|---|---|
| ❑ Design and implement an equal opportunity policy | ○ | ○ | ○ | ○ | ○ |
| ❑ Implement mentoring schemes for women | ○ | ○ | ○ | ○ | ○ |
| ■ Family friendly working conditions | ○ | ○ | ○ | ■ | ○ |

**14 Was there a gender dimension associated with the research content?**

- ○ Yes. If yes, please specify
- ■ No

**15 How much (including the value of time spent, as well as paid-out costs) do you estimate your project (when it is completed) will have spent on considering and dealing with gender issues?**

€ 0

# D Science Education, Training and Career Development

**16a Does this project anticipate having a direct impact on the local economy?**

- ○ Yes
- ■ No

**16b If Yes, is the project:**

- ❑ Stimulating employment
- ❑ Retaining highly trained personnel
- ❑ Creating possible spin-out/start-up companies

**17 Does your partnership employ and train researchers?**

- [x] Yes
- [ ] No

**18 Does your project involve working with young people at schools?**

- [ ] Yes
- [x] No

**19 Is there any education material being produced directly or indirectly by your project?**

- [x] Yes
- [ ] No

**20 How much (including the value of time spent, as well as paid-out costs) do you estimate your project (when it is completed) will have spent on considering and dealing with Science Education, Training and Career Development issues?**

**€ 134’000**

## E Engaging With Actors Beyond the Research Community

**20a Is the project likely to generate outputs (expertise or scientific advice) which could be used by policy makers?**

- [x] Yes
- [ ] No

**20b If Yes, is this a primary or secondary objective of the project?**

- [ ] Primary
- [x] Secondary

**21a Did your project engage in significant communication with the public before research commenced?**

- [ ] Yes
- [x] No

**21b Was the focus or methodology of your project modified in response to any communication with the public?**

- [ ] Yes
- [x] No

**22 Does your project involve someone whose role is solely to communicate with the public?**

- [ ] Yes
- [x] No

# F Use and dissemination

**23 How many articles were published ?**

In refereed journals: 4 Other journals: 0

**24 How many patents have been applied for ?**

0

**25 How many other Intellectual Property Rights were applied for?**

0

**26 How many spin-offs were created? 0**

**27 Have you issued press releases related to your project (and if so, how many)?**

○ Yes, number:

■ No

**28 Have you held media briefings? If so, how many, and on average roughly how many journalists attended?**

○ Yes, number of briefings: average number of journalists:

■ No

**29a Roughly how many items covering your project in the printed press, on radio or television can you identify?**

Press: 0 Radio: 0 Television: 0

**29b Roughly how many items were:**

Specialist Press: 0 Non-specialist Press: 0

National Press: 0 International Press: 0

**30a Was there on-line information about the project?**

- [x] Yes
- [x] Specific web site
- [ ] No

**30b Roughly how frequently has it been updated?**

Every 3 months

---

**31 Do you have an e-mail mailing list to send news about the project? If so, how many subscribers to the list are there?**

- [x] Yes, number of subscribers: 20
- [ ] No

---

**32a Have you created or participated in an event (e.g. workshop, conference, information day) in order to communicate with the public (not just other researchers or the press)?**

- [ ] Yes
- [x] No

**32b Roughly how many people attended these events and learned about your project?**

---

**33a Have you produced a video or DVD film about your project?**

- [ ] Yes
- [x] No

**33b If so, how effective do you believe it has been in communicating with the public?**

- [ ] Unable to assess
- [ ] Completely ineffective
- [ ] Mostly ineffective
- [ ] Partially effective
- [ ] Significantly effective
- [ ] Extremely effective

---

**34a Have you produced posters, flyers or brochures about your project?**

- [x] Yes (Newsletters)
- [ ] No

**34b If so, how effective do you believe they have been in communicating with the public?**

- [ ] Unable to assess
- [ ] Completely ineffective
- [ ] Mostly ineffective
- [x] Partially effective
- [ ] Significantly effective
- [ ] Extremely effective

---

**35 In how many different languages were these products (video/DVD, posters, flyers, brochures) produced?**

Only English

**36 How have you distributed these products (video/DVD, posters, flyers, brochures)? Please tick all methods you have used.**

- ■ Sent on request
- ❑ Sent to schools/academic institutions
- ❑ Distributed through government agencies/public buildings/libraries etc.
- ❑ Sent to potentially interested non-governmental bodies (NGOs, citizen's associations etc)
- ■ Other: To the members of other European Synthetic Biology projects

## G Total Communication Spend

**37 How much (including the value of time spent, as well as paid-out costs) do you estimate your project (when it is completed) will have spent on communication activities (engaging with the public, use and dissemination) as described in the current questionnaire?**

€ 20'000

## H Comments

**38 If you have any comments about your experience of meeting the Science and Society objectives within your project, or any suggestions of improvements to the programme please add them here:**

**Thank you for your help!**

**[Submission instructions will need to be elaborated by those that set up the questionnaire on the Internet].**

## *Appendix 15 – Interim and final reporting questionnaires on workforce statistics*

*All projects except IPs and NoEs*

# WORK FORCE STATISTICS
# INTERIM REPORT

***This report is part of the periodic reporting to be completed by the contractors of all projects except IPs and NoEs at the end of the first reporting period.***

## 1. GENERAL INFORMATION

1.1. Contract No.: 043338

1.2. Thematic priority: Synthetic Biology

1.3. Instrument: NEST Pathfinder

1.4. Project Acronym:[1] EMERGENCE

1.5. Period covered (Start Date – End Date)[1]: 1.12.2006 to 31.05.2008

1.6. Name and title of co-ordinator[1]: Prof. Dr. Sven Panke

1.7. Name and title of contractor: Sven Panke

## 2. SCIENTIFIC LEADERSHIP AND MANAGEMENT, AND WORKFORCE STATISTICS FOR THE PROJECT TO BE COMPLETED BY CONTRACTORS

***Please complete the table below on a headcount basis***

| Type of Position | Number of Women | Number of Men | Total | % Women | % Men |
|---|---|---|---|---|---|
| | | | | | |
| Scientific manager | | 2 | 2 | 0 | 100 |
| Scientific team leader / work package manager | | 1 | 1 | 0 | 100 |
| Experienced researcher (> 4 years) | | 1 | 1 | 0 | 100 |
| Early researcher (<= 4 years) | 1 | 1 | 2 | 50 | 50 |
| PhD students | | | | | |
| Technical staff | | | | | |
| Other | | | | | |

[1] Pre filled when applicable

# WORK FORCE STATISTICS
# INTERIM REPORT

***This report is part of the periodic reporting to be completed by the contractors of all projects except IPs and NoEs at the end of the first reporting period.***

## 1. GENERAL INFORMATION

1.1. Contract No.: 043338

1.2. Thematic priority: Synthetic Biology

1.3. Instrument: NEST Pathfinder

1.4. Project Acronym:[2] EMERGENCE

1.5. Period covered (Start Date – End Date)[1]: 1.12.2006 to 31.05.2008

1.6. Name and title of co-ordinator[1]: Prof. Dr. Sven Panke

1.7. Name and title of contractor: Vitor Martins dos Santos (HZI)

## 2. SCIENTIFIC LEADERSHIP AND MANAGEMENT, AND WORKFORCE STATISTICS FOR THE PROJECT TO BE COMPLETED BY CONTRACTORS

***Please complete the table below on a headcount basis***

| Type of Position | Number of Women | Number of Men | Total | % Women | % Men |
|---|---|---|---|---|---|
| | | | | | |
| Scientific manager | | 1 | 1 | 0 | 100 |
| Scientific team leader / work package manager | | 2 | 2 | 0 | 100 |
| Experienced researcher (> 4 years) | | | | | |
| Early researcher (<= 4 years) | | 1 | 1 | 0 | 100 |
| PhD students | | 2 | 2 | 0 | 100 |
| Technical staff | | | | | |
| Other | | | | | |

[2] Pre filled when applicable

# WORK FORCE STATISTICS
# INTERIM REPORT

***This report is part of the periodic reporting to be completed by the contractors of all projects except IPs and NoEs at the end of the first reporting period.***

## 1. GENERAL INFORMATION

1.1. Contract No.: 043338

1.2. Thematic priority: Synthetic Biology

1.3. Instrument: NEST Pathfinder

1.4. Project Acronym:[3] EMERGENCE

1.5. Period covered (Start Date – End Date)[1]: 1.12.2006 to 31.05.2008

1.6. Name and title of co-ordinator[1]: Prof. Dr. Sven Panke

1.7. Name and title of contractor: Alfonso Valencia (CNIO)

## 2. SCIENTIFIC LEADERSHIP AND MANAGEMENT, AND WORKFORCE STATISTICS FOR THE PROJECT TO BE COMPLETED BY CONTRACTORS

***Please complete the table below on a headcount basis***

| Type of Position | Number of Women | Number of Men | Total | % Women | % Men |
|---|---|---|---|---|---|
| | | | | | |
| Scientific manager | | 1 | 1 | 0 | 100 |
| Scientific team leader / work package manager | | 1 | 1 | 0 | 100 |
| Experienced researcher (> 4 years) | | | | | |
| Early researcher (<= 4 years) | | 1 | 1 | 0 | 100 |
| PhD students | | | | | |
| Technical staff | | | | | |
| Other | | 3 | 3 | 0 | 100 |

[3] Pre filled when applicable

# WORK FORCE STATISTICS
# INTERIM REPORT

***This report is part of the periodic reporting to be completed by the contractors of all projects except IPs and NoEs at the end of the first reporting period.***

## 1. GENERAL INFORMATION

1.1. Contract No.: 043338

1.2. Thematic priority: Synthetic Biology

1.3. Instrument: NEST Pathfinder

1.4. Project Acronym:[4] EMERGENCE

1.5. Period covered (Start Date – End Date)[1]: 1.12.2006 to 31.05.2008

1.6. Name and title of co-ordinator[1]: Prof. Dr. Sven Panke

1.7. Name and title of contractor: Victor de Lorenzo (CSIC)

## 2. SCIENTIFIC LEADERSHIP AND MANAGEMENT, AND WORKFORCE STATISTICS FOR THE PROJECT TO BE COMPLETED BY CONTRACTORS

***Please complete the table below on a headcount basis***

| Type of Position | Number of Women | Number of Men | Total | % Women | % Men |
|---|---|---|---|---|---|
| | | | | | |
| Scientific manager | | 1 | 1 | 0 | 100 |
| Scientific team leader / work package manager | | 1 | 1 | 0 | 100 |
| Experienced researcher (> 4 years) | | | | | |
| Early researcher (<= 4 years) | 2 | 1 | 3 | 66 | 33 |
| PhD students | | | | | |
| Technical staff | | | | | |
| Other | | 1 | 1 | 0 | 100 |

[4] Pre filled when applicable

# WORK FORCE STATISTICS
# INTERIM REPORT

***This report is part of the periodic reporting to be completed by the contractors of all projects except IPs and NoEs at the end of the first reporting period.***

## 1. GENERAL INFORMATION

1.1. Contract No.: 043338

1.2. Thematic priority: Synthetic Biology

1.3. Instrument: NEST Pathfinder

1.4. Project Acronym:[5] EMERGENCE

1.5. Period covered (Start Date – End Date)[1]: 1.12.2006 to 31.05.2008

1.6. Name and title of co-ordinator[1]: Prof. Dr. Sven Panke

1.7. Name and title of contractor: Luis Serrano (CRG)

## 2. SCIENTIFIC LEADERSHIP AND MANAGEMENT, AND WORKFORCE STATISTICS FOR THE PROJECT TO BE COMPLETED BY CONTRACTORS

***Please complete the table below on a headcount basis***

| Type of Position | Number of Women | Number of Men | Total | % Women | % Men |
|---|---|---|---|---|---|
| | | | | | |
| Scientific manager | | 1 | 1 | 0 | 100 |
| Scientific team leader / work package manager | | | | | |
| Experienced researcher (> 4 years) | | | | | |
| Early researcher (<= 4 years) | 1 | 1 | 2 | 50 | 50 |
| PhD students | | | | | |
| Technical staff | | | | | |
| Engineer | | 2 | 2 | 0 | 100 |

[5] Pre filled when applicable

# WORK FORCE STATISTICS
# INTERIM REPORT

***This report is part of the periodic reporting to be completed by the contractors of all projects except IPs and NoEs at the end of the first reporting period.***

## 1. GENERAL INFORMATION

1.1. Contract No.: 043338

1.2. Thematic priority: Synthetic Biology

1.3. Instrument: NEST Pathfinder

1.4. Project Acronym:[6] EMERGENCE

1.5. Period covered (Start Date – End Date)[1]: 1.12.2006 to 31.05.2008

1.6. Name and title of co-ordinator[1]: Prof. Dr. Sven Panke

1.7. Name and title of contractor: Ralf Wagner (Geneart AG)

## 2. SCIENTIFIC LEADERSHIP AND MANAGEMENT, AND WORKFORCE STATISTICS FOR THE PROJECT TO BE COMPLETED BY CONTRACTORS

***Please complete the table below on a headcount basis***

| Type of Position | Number of Women | Number of Men | Total | % Women | % Men |
|---|---|---|---|---|---|
| | | | | | |
| Scientific manager | | 1 | 1 | 0 | 100 |
| Scientific team leader / work package manager | | 1 | 1 | 0 | 100 |
| Experienced researcher (> 4 years) | | 1 | 1 | 0 | 100 |
| Early researcher (<= 4 years) | | | | | |
| PhD students | | | | | |
| Technical staff | | | | | |
| Other | | | | | |

[6] Pre filled when applicable

# WORK FORCE STATISTICS
# INTERIM REPORT

***This report is part of the periodic reporting to be completed by the contractors of all projects except IPs and NoEs at the end of the first reporting period.***

## 1. GENERAL INFORMATION

1.1. Contract No.: 043338

1.2. Thematic priority: Synthetic Biology

1.3. Instrument: NEST Pathfinder

1.4. Project Acronym:[7] EMERGENCE

1.5. Period covered (Start Date – End Date)[1]: 1.12.2006 to 31.05.2008

1.6. Name and title of co-ordinator[1]: Prof. Dr. Sven Panke

1.7. Name and title of contractor: Luis Pasamontes (DSM)

## 2. SCIENTIFIC LEADERSHIP AND MANAGEMENT, AND WORKFORCE STATISTICS FOR THE PROJECT TO BE COMPLETED BY CONTRACTORS

***Please complete the table below on a headcount basis***

| Type of Position | Number of Women | Number of Men | Total | % Women | % Men |
|---|---|---|---|---|---|
| | | | | | |
| Scientific manager | | | | | |
| Scientific team leader / work package manager | | 2 | 2 | 0 | 100 |
| Experienced researcher (> 4 years) | | | | | |
| Early researcher (<= 4 years) | | | | | |
| PhD students | | | | | |
| Technical staff | | | | | |
| Engineers | 1 | 1 | 2 | 50 | 50 |

[7] Pre filled when applicable

# WORK FORCE STATISTICS
# INTERIM REPORT

***This report is part of the periodic reporting to be completed by the contractors of all projects except IPs and NoEs at the end of the first reporting period.***

## 1. GENERAL INFORMATION

1.1. Contract No.: 043338

1.2. Thematic priority: Synthetic Biology

1.3. Instrument: NEST Pathfinder

1.4. Project Acronym:[8] EMERGENCE

1.5. Period covered (Start Date – End Date)[1]: 1.12.2006 to 31.05.2008

1.6. Name and title of co-ordinator[1]: Prof. Dr. Sven Panke

1.7. Name and title of contractor: Alfonso Jaramillo (EP)

## 2. SCIENTIFIC LEADERSHIP AND MANAGEMENT, AND WORKFORCE STATISTICS FOR THE PROJECT TO BE COMPLETED BY CONTRACTORS

***Please complete the table below on a headcount basis***

| Type of Position | Number of Women | Number of Men | Total | % Women | % Men |
|---|---|---|---|---|---|
| | | | | | |
| Scientific manager | | 1 | 1 | 0 | 100 |
| Scientific team leader / work package manager | | | | | |
| Experienced researcher (> 4 years) | | | | | |
| Early researcher (<= 4 years) | | | | | |
| PhD students | | | | | |
| Technical staff | | | | | |
| Other | | | | | |

[8] Pre filled when applicable

# WORK FORCE STATISTICS
# INTERIM REPORT

***This report is part of the periodic reporting to be completed by the contractors of all projects except IPs and NoEs at the end of the first reporting period.***

## 1. GENERAL INFORMATION

1.1. Contract No.: 043338

1.2. Thematic priority: Synthetic Biology

1.3. Instrument: NEST Pathfinder

1.4. Project Acronym:[9] EMERGENCE

1.5. Period covered (Start Date – End Date)[1]: 1.12.2006 to 31.05.2008

1.6. Name and title of co-ordinator[1]: Prof. Dr. Sven Panke

1.7. Name and title of contractor: Jim Haseloff (UCAM)

## 2. SCIENTIFIC LEADERSHIP AND MANAGEMENT, AND WORKFORCE STATISTICS FOR THE PROJECT TO BE COMPLETED BY CONTRACTORS

***Please complete the table below on a headcount basis***

| Type of Position | Number of Women | Number of Men | Total | % Women | % Men |
|---|---|---|---|---|---|
| | | | | | |
| Scientific manager | | 1 | 1 | 0 | 100 |
| Scientific team leader / work package manager | | | | | |
| Experienced researcher (> 4 years) | | | | | |
| Early researcher (<= 4 years) | | | | | |
| PhD students | | | | | |
| Technical staff | | | | | |
| Other | | | | | |

[9] Pre filled when applicable

# WORK FORCE STATISTICS
# INTERIM REPORT

***This report is part of the periodic reporting to be completed by the contractors of all projects except IPs and NoEs at the end of the first reporting period.***

## 1. GENERAL INFORMATION

1.1. Contract No.: 043338

1.2. Thematic priority: Synthetic Biology

1.3. Instrument: NEST Pathfinder

1.4. Project Acronym:[10] EMERGENCE

1.5. Period covered (Start Date – End Date)[1]: 1.12.2006 to 31.05.2008

1.6. Name and title of co-ordinator[1]: Prof. Dr. Sven Panke

1.7. Name and title of contractor: Nicolas Szita (UCL)

## 2. SCIENTIFIC LEADERSHIP AND MANAGEMENT, AND WORKFORCE STATISTICS FOR THE PROJECT TO BE COMPLETED BY CONTRACTORS

***Please complete the table below on a headcount basis***

| Type of Position | Number of Women | Number of Men | Total | % Women | % Men |
|---|---|---|---|---|---|
| | | | | | |
| Scientific manager | | 1 | 1 | 0 | 100 |
| Scientific team leader / work package manager | | | | | |
| Experienced researcher (> 4 years) | | | | | |
| Early researcher (<= 4 years) | | 1 | 1 | 0 | 100 |
| PhD students | | | | | |
| Technical staff | | | | | |
| Other | | | | | |

[10] Pre filled when applicable

# *Appendix 16 – Socio-economic reporting questionnaire*

*All projects*

# SOCIO-ECONOMIC REPORTING QUESTIONNAIRE

(To be completed by each contractor in the project)

**Sven Panke**

## INTRODUCTION

In the process of building the European Research Area, democratic governance must ensure that social and economic issues are taken into consideration in the research activities and that citizens are informed about and aware of the social aspects with regard to scientific and technological progress. In this context, it is also acknowledged that the benefits of research in support of socio-economic policy challenges would be enhanced by an appropriate integration of socio-economic research dimensions.

The importance of the integration of socio-economic aspects in research was recognised in FP6 and should be duly taken into consideration by contractors where relevant for the actions concerned in horizontal and thematic activities of FP6.

This questionnaire applies to all projects and must be filled in by each contractor in the project. It is designed to facilitate the monitoring of the integration of the socio-economic dimensions in FP6 and to finally support the assessment of the research that will guide the future policy formulations and decisions.

The submission of this questionnaire will be done on-line. The details of the procedure to be used will be communicated by the Commission to the project coordinator in due time.

The information gathered through this exercise will be kept confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.

## QUESTIONS

**1.1 Do your tasks in the project include socio-economic research activities[11] ?** *No*

**1.2 If "Yes", what is the estimated total budget allocation that addresses these activities ?** *(Cost in Euro or N/A)*

[11] - Ex-ante or ex-post assessments (or contribution to such analysis e.g. cost-benefit/cost-effectiveness studies, etc…) of the expected impact of the knowledge and/or technology generated from the research (project, programme or framework programme), as well as analysis of the factors that would influence their exploitation (e.g. statistical indicators, standardisation, ethical and regulatory aspects, impact on consumers and markets, public awareness/acceptance and understanding of science, political/societal and/or economic implications, etc…)

- Any type of models or tools to support the assessment of impact on society, economy and businesses resulting from the deployment of new services or technologies.

- Any research seeking both a better integration of Science in Society and Society in Science.

- Any type of research aiming at understanding the societal and economic phenomena (research in social sciences and humanities)

- Actions e.g. assessments, tools & methods, comparative research, etc to support the formulation and implementation of Community policies.

- Any type of activity involving scientist(s) with a specific background in social, political sciences or in economy (discipline approach).

| | |
|---|---|
| **2.1 Do your tasks in the project include foresight methods[12] ?** | *No* |
| **2.2 If "Yes", what is the estimated total budget allocation that addresses these activities?** | *(Cost in Euro or N/A)* |
| **3. How many person/months (estimated) are allocated to researchers with a background in social sciences[13], to perform your tasks for the project ?** | *0* |

[12] - Any type of foresight, i.e. participative vision-building approaches, future studies and forward looking activities, including scenarios of the evolution of Europe's potential in a related field, forecasting, prospective studies, forward looks, etc.

[13] Domains of academic disciplines covered by the social sciences are: Psychology, Economics, Education sciences, Anthropology (social and cultural) and ethnology, Demography, Geography (human, economic and social), Town and country planning, Management, Law, Linguistics, Political sciences, Sociology, Organisation and methods, Miscellaneous social sciences and interdisciplinary.

# SOCIO-ECONOMIC REPORTING QUESTIONNAIRE

(To be completed by each contractor in the project)

**Vitor Martins dos Santos**

## INTRODUCTION

In the process of building the European Research Area, democratic governance must ensure that social and economic issues are taken into consideration in the research activities and that citizens are informed about and aware of the social aspects with regard to scientific and technological progress. In this context, it is also acknowledged that the benefits of research in support of socio-economic policy challenges would be enhanced by an appropriate integration of socio-economic research dimensions.

The importance of the integration of socio-economic aspects in research was recognised in FP6 and should be duly taken into consideration by contractors where relevant for the actions concerned in horizontal and thematic activities of FP6.

This questionnaire applies to all projects and must be filled in by each contractor in the project. It is designed to facilitate the monitoring of the integration of the socio-economic dimensions in FP6 and to finally support the assessment of the research that will guide the future policy formulations and decisions.

The submission of this questionnaire will be done on-line. The details of the procedure to be used will be communicated by the Commission to the project coordinator in due time.

The information gathered through this exercise will be kept confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.

## QUESTIONS

**1.1 Do your tasks in the project include socio-economic research activities[14] ?** *No*

**1.2 If "Yes", what is the estimated total budget allocation that addresses these activities ?** *(Cost in Euro or N/A)*

[14] - Ex-ante or ex-post assessments (or contribution to such analysis e.g. cost-benefit/cost-effectiveness studies, etc…) of the expected impact of the knowledge and/or technology generated from the research (project, programme or framework programme), as well as analysis of the factors that would influence their exploitation (e.g. statistical indicators, standardisation, ethical and regulatory aspects, impact on consumers and markets, public awareness/acceptance and understanding of science, political/societal and/or economic implications, etc…)

- Any type of models or tools to support the assessment of impact on society, economy and businesses resulting from the deployment of new services or technologies.

- Any research seeking both a better integration of Science in Society and Society in Science.

- Any type of research aiming at understanding the societal and economic phenomena (research in social sciences and humanities)

- Actions e.g. assessments, tools & methods, comparative research, etc to support the formulation and implementation of Community policies.

- Any type of activity involving scientist(s) with a specific background in social, political sciences or in economy (discipline approach).

| | |
|---|---|
| **2.1 Do your tasks in the project include foresight methods[15] ?** | *No* |
| **2.2 If "Yes", what is the estimated total budget allocation that addresses these activities?** | *(Cost in Euro or N/A)* |
| **3. How many person/months (estimated) are allocated to researchers with a background in social sciences[16], to perform your tasks for the project ?** | *0* |

[15] - Any type of foresight, i.e. participative vision-building approaches, future studies and forward looking activities, including scenarios of the evolution of Europe's potential in a related field, forecasting, prospective studies, forward looks, etc.

[16] Domains of academic disciplines covered by the social sciences are: Psychology, Economics, Education sciences, Anthropology (social and cultural) and ethnology, Demography, Geography (human, economic and social), Town and country planning, Management, Law, Linguistics, Political sciences, Sociology, Organisation and methods, Miscellaneous social sciences and interdisciplinary.

# SOCIO-ECONOMIC REPORTING QUESTIONNAIRE

(To be completed by each contractor in the project)

**Alfonso Valencia**

## INTRODUCTION

In the process of building the European Research Area, democratic governance must ensure that social and economic issues are taken into consideration in the research activities and that citizens are informed about and aware of the social aspects with regard to scientific and technological progress. In this context, it is also acknowledged that the benefits of research in support of socio-economic policy challenges would be enhanced by an appropriate integration of socio-economic research dimensions.

The importance of the integration of socio-economic aspects in research was recognised in FP6 and should be duly taken into consideration by contractors where relevant for the actions concerned in horizontal and thematic activities of FP6.

This questionnaire applies to all projects and must be filled in by each contractor in the project. It is designed to facilitate the monitoring of the integration of the socio-economic dimensions in FP6 and to finally support the assessment of the research that will guide the future policy formulations and decisions.

The submission of this questionnaire will be done on-line. The details of the procedure to be used will be communicated by the Commission to the project coordinator in due time.

The information gathered through this exercise will be kept confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.

## QUESTIONS

| | |
|---|---|
| **1.1 Do your tasks in the project include socio-economic research activities[17] ?** | *No* |
| **1.2 If "Yes", what is the estimated total budget allocation that addresses these activities ?** | *(Cost in Euro or N/A)* |

[17] - Ex-ante or ex-post assessments (or contribution to such analysis e.g. cost-benefit/cost-effectiveness studies, etc…) of the expected impact of the knowledge and/or technology generated from the research (project, programme or framework programme), as well as analysis of the factors that would influence their exploitation (e.g. statistical indicators, standardisation, ethical and regulatory aspects, impact on consumers and markets, public awareness/acceptance and understanding of science, political/societal and/or economic implications, etc…)

- Any type of models or tools to support the assessment of impact on society, economy and businesses resulting from the deployment of new services or technologies.

- Any research seeking both a better integration of Science in Society and Society in Science.

- Any type of research aiming at understanding the societal and economic phenomena (research in social sciences and humanities)

- Actions e.g. assessments, tools & methods, comparative research, etc to support the formulation and implementation of Community policies.

- Any type of activity involving scientist(s) with a specific background in social, political sciences or in economy (discipline approach).

| | |
|---|---|
| **2.1 Do your tasks in the project include foresight methods[18] ?** | *No* |
| **2.2 If "Yes", what is the estimated total budget allocation that addresses these activities?** | *(Cost in Euro or N/A)* |
| **3. How many person/months (estimated) are allocated to researchers with a background in social sciences[19], to perform your tasks for the project ?** | *0* |

[18] - Any type of foresight, i.e. participative vision-building approaches, future studies and forward looking activities, including scenarios of the evolution of Europe's potential in a related field, forecasting, prospective studies, forward looks, etc.

[19] Domains of academic disciplines covered by the social sciences are: Psychology, Economics, Education sciences, Anthropology (social and cultural) and ethnology, Demography, Geography (human, economic and social), Town and country planning, Management, Law, Linguistics, Political sciences, Sociology, Organisation and methods, Miscellaneous social sciences and interdisciplinary.

# SOCIO-ECONOMIC REPORTING QUESTIONNAIRE

(To be completed by each contractor in the project)

**Victor de Lorenzo**

## INTRODUCTION

In the process of building the European Research Area, democratic governance must ensure that social and economic issues are taken into consideration in the research activities and that citizens are informed about and aware of the social aspects with regard to scientific and technological progress. In this context, it is also acknowledged that the benefits of research in support of socio-economic policy challenges would be enhanced by an appropriate integration of socio-economic research dimensions.

The importance of the integration of socio-economic aspects in research was recognised in FP6 and should be duly taken into consideration by contractors where relevant for the actions concerned in horizontal and thematic activities of FP6.

This questionnaire applies to all projects and must be filled in by each contractor in the project. It is designed to facilitate the monitoring of the integration of the socio-economic dimensions in FP6 and to finally support the assessment of the research that will guide the future policy formulations and decisions.

The submission of this questionnaire will be done on-line. The details of the procedure to be used will be communicated by the Commission to the project coordinator in due time.

The information gathered through this exercise will be kept confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.

## QUESTIONS

**1.1 Do your tasks in the project include socio-economic research activities[20] ?** | *No*

**1.2 If "Yes", what is the estimated total budget allocation that addresses these activities ?** | *(Cost in Euro or N/A)*

[20] - Ex-ante or ex-post assessments (or contribution to such analysis e.g. cost-benefit/cost-effectiveness studies, etc…) of the expected impact of the knowledge and/or technology generated from the research (project, programme or framework programme), as well as analysis of the factors that would influence their exploitation (e.g. statistical indicators, standardisation, ethical and regulatory aspects, impact on consumers and markets, public awareness/acceptance and understanding of science, political/societal and/or economic implications, etc…)

- Any type of models or tools to support the assessment of impact on society, economy and businesses resulting from the deployment of new services or technologies.

- Any research seeking both a better integration of Science in Society and Society in Science.

- Any type of research aiming at understanding the societal and economic phenomena (research in social sciences and humanities)

- Actions e.g. assessments, tools & methods, comparative research, etc to support the formulation and implementation of Community policies.

- Any type of activity involving scientist(s) with a specific background in social, political sciences or in economy (discipline approach).

| | |
|---|---|
| **2.1 Do your tasks in the project include foresight methods[21] ?** | *No* |
| **2.2 If "Yes", what is the estimated total budget allocation that addresses these activities?** | *(Cost in Euro or N/A)* |
| **3. How many person/months (estimated) are allocated to researchers with a background in social sciences[22], to perform your tasks for the project ?** | *0* |

[21] - Any type of foresight, i.e. participative vision-building approaches, future studies and forward looking activities, including scenarios of the evolution of Europe's potential in a related field, forecasting, prospective studies, forward looks, etc.

[22] Domains of academic disciplines covered by the social sciences are: Psychology, Economics, Education sciences, Anthropology (social and cultural) and ethnology, Demography, Geography (human, economic and social), Town and country planning, Management, Law, Linguistics, Political sciences, Sociology, Organisation and methods, Miscellaneous social sciences and interdisciplinary.

# SOCIO-ECONOMIC REPORTING QUESTIONNAIRE

(To be completed by each contractor in the project)

**Luis Serrano**

**INTRODUCTION:**

In the process of building the European Research Area, democratic governance must ensure that social and economic issues are taken into consideration in the research activities and that citizens are informed about and aware of the social aspects with regard to scientific and technological progress. In this context, it is also acknowledged that the benefits of research in support of socio-economic policy challenges would be enhanced by an appropriate integration of socio-economic research dimensions.

The importance of the integration of socio-economic aspects in research was recognised in FP6 and should be duly taken into consideration by contractors where relevant for the actions concerned in horizontal and thematic activities of FP6.

This questionnaire applies to all projects and must be filled in by each contractor in the project. It is designed to facilitate the monitoring of the integration of the socio-economic dimensions in FP6 and to finally support the assessment of the research that will guide the future policy formulations and decisions.

The submission of this questionnaire will be done on-line. The details of the procedure to be used will be communicated by the Commission to the project coordinator in due time.

The information gathered through this exercise will be kept confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.

**QUESTIONS**

| | |
|---|---|
| **1.1 Do your tasks in the project include socio-economic research activities[23] ?** | *No* |
| **1.2 If "Yes", what is the estimated total budget allocation that addresses these activities ?** | *(Cost in Euro or N/A)* |

[23] - Ex-ante or ex-post assessments (or contribution to such analysis e.g. cost-benefit/cost-effectiveness studies, etc…) of the expected impact of the knowledge and/or technology generated from the research (project, programme or framework programme), as well as analysis of the factors that would influence their exploitation (e.g. statistical indicators, standardisation, ethical and regulatory aspects, impact on consumers and markets, public awareness/acceptance and understanding of science, political/societal and/or economic implications, etc…)

- Any type of models or tools to support the assessment of impact on society, economy and businesses resulting from the deployment of new services or technologies.

- Any research seeking both a better integration of Science in Society and Society in Science.

- Any type of research aiming at understanding the societal and economic phenomena (research in social sciences and humanities)

- Actions e.g. assessments, tools & methods, comparative research, etc to support the formulation and implementation of Community policies.

- Any type of activity involving scientist(s) with a specific background in social, political sciences or in economy (discipline approach).

| | |
|---|---|
| **2.1 Do your tasks in the project include foresight methods[24] ?** | *No* |
| **2.2 If "Yes", what is the estimated total budget allocation that addresses these activities?** | *(Cost in Euro or N/A)* |
| **3. How many person/months (estimated) are allocated to researchers with a background in social sciences[25], to perform your tasks for the project ?** | *0* |

[24] - Any type of foresight, i.e. participative vision-building approaches, future studies and forward looking activities, including scenarios of the evolution of Europe's potential in a related field, forecasting, prospective studies, forward looks, etc.

[25] Domains of academic disciplines covered by the social sciences are: Psychology, Economics, Education sciences, Anthropology (social and cultural) and ethnology, Demography, Geography (human, economic and social), Town and country planning, Management, Law, Linguistics, Political sciences, Sociology, Organisation and methods, Miscellaneous social sciences and interdisciplinary.

# SOCIO-ECONOMIC REPORTING QUESTIONNAIRE

(To be completed by each contractor in the project)

**Ralf Wagner**

## INTRODUCTION

In the process of building the European Research Area, democratic governance must ensure that social and economic issues are taken into consideration in the research activities and that citizens are informed about and aware of the social aspects with regard to scientific and technological progress. In this context, it is also acknowledged that the benefits of research in support of socio-economic policy challenges would be enhanced by an appropriate integration of socio-economic research dimensions.

The importance of the integration of socio-economic aspects in research was recognised in FP6 and should be duly taken into consideration by contractors where relevant for the actions concerned in horizontal and thematic activities of FP6.

This questionnaire applies to all projects and must be filled in by each contractor in the project. It is designed to facilitate the monitoring of the integration of the socio-economic dimensions in FP6 and to finally support the assessment of the research that will guide the future policy formulations and decisions.

The submission of this questionnaire will be done on-line. The details of the procedure to be used will be communicated by the Commission to the project coordinator in due time.

The information gathered through this exercise will be kept confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.

## QUESTIONS

**1.1 Do your tasks in the project include socio-economic research activities[26] ?** *No*

**1.2 If "Yes", what is the estimated total budget allocation that addresses these activities ?** *(Cost in Euro or N/A)*

[26] - Ex-ante or ex-post assessments (or contribution to such analysis e.g. cost-benefit/cost-effectiveness studies, etc…) of the expected impact of the knowledge and/or technology generated from the research (project, programme or framework programme), as well as analysis of the factors that would influence their exploitation (e.g. statistical indicators, standardisation, ethical and regulatory aspects, impact on consumers and markets, public awareness/acceptance and understanding of science, political/societal and/or economic implications, etc…)

- Any type of models or tools to support the assessment of impact on society, economy and businesses resulting from the deployment of new services or technologies.

- Any research seeking both a better integration of Science in Society and Society in Science.

- Any type of research aiming at understanding the societal and economic phenomena (research in social sciences and humanities)

- Actions e.g. assessments, tools & methods, comparative research, etc to support the formulation and implementation of Community policies.

- Any type of activity involving scientist(s) with a specific background in social, political sciences or in economy (discipline approach).

| | |
|---|---|
| **2.1 Do your tasks in the project include foresight methods[27] ?** | *No* |
| **2.2 If "Yes", what is the estimated total budget allocation that addresses these activities?** | *(Cost in Euro or N/A)* |
| **3. How many person/months (estimated) are allocated to researchers with a background in social sciences[28], to perform your tasks for the project ?** | *0* |

[27] - Any type of foresight, i.e. participative vision-building approaches, future studies and forward looking activities, including scenarios of the evolution of Europe's potential in a related field, forecasting, prospective studies, forward looks, etc.

[28] Domains of academic disciplines covered by the social sciences are: Psychology, Economics, Education sciences, Anthropology (social and cultural) and ethnology, Demography, Geography (human, economic and social), Town and country planning, Management, Law, Linguistics, Political sciences, Sociology, Organisation and methods, Miscellaneous social sciences and interdisciplinary.

# SOCIO-ECONOMIC REPORTING QUESTIONNAIRE

(To be completed by each contractor in the project)

**Luis Pasamontes**

## INTRODUCTION

In the process of building the European Research Area, democratic governance must ensure that social and economic issues are taken into consideration in the research activities and that citizens are informed about and aware of the social aspects with regard to scientific and technological progress. In this context, it is also acknowledged that the benefits of research in support of socio-economic policy challenges would be enhanced by an appropriate integration of socio-economic research dimensions.

The importance of the integration of socio-economic aspects in research was recognised in FP6 and should be duly taken into consideration by contractors where relevant for the actions concerned in horizontal and thematic activities of FP6.

This questionnaire applies to all projects and must be filled in by each contractor in the project. It is designed to facilitate the monitoring of the integration of the socio-economic dimensions in FP6 and to finally support the assessment of the research that will guide the future policy formulations and decisions.

The submission of this questionnaire will be done on-line. The details of the procedure to be used will be communicated by the Commission to the project coordinator in due time.

The information gathered through this exercise will be kept confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.

## QUESTIONS

| | |
|---|---|
| **1.1 Do your tasks in the project include socio-economic research activities[29] ?** | *No* |
| **1.2 If "Yes", what is the estimated total budget allocation that addresses these activities ?** | *(Cost in Euro or N/A)* |

[29] - Ex-ante or ex-post assessments (or contribution to such analysis e.g. cost-benefit/cost-effectiveness studies, etc…) of the expected impact of the knowledge and/or technology generated from the research (project, programme or framework programme), as well as analysis of the factors that would influence their exploitation (e.g. statistical indicators, standardisation, ethical and regulatory aspects, impact on consumers and markets, public awareness/acceptance and understanding of science, political/societal and/or economic implications, etc…)

- Any type of models or tools to support the assessment of impact on society, economy and businesses resulting from the deployment of new services or technologies.

- Any research seeking both a better integration of Science in Society and Society in Science.

- Any type of research aiming at understanding the societal and economic phenomena (research in social sciences and humanities)

- Actions e.g. assessments, tools & methods, comparative research, etc to support the formulation and implementation of Community policies.

- Any type of activity involving scientist(s) with a specific background in social, political sciences or in economy (discipline approach).

| | |
|---|---|
| **2.1 Do your tasks in the project include foresight methods[30] ?** | *No* |
| **2.2 If "Yes", what is the estimated total budget allocation that addresses these activities?** | *(Cost in Euro or N/A)* |
| **3. How many person/months (estimated) are allocated to researchers with a background in social sciences[31], to perform your tasks for the project ?** | *0* |

[30] - Any type of foresight, i.e. participative vision-building approaches, future studies and forward looking activities, including scenarios of the evolution of Europe's potential in a related field, forecasting, prospective studies, forward looks, etc.

[31] Domains of academic disciplines covered by the social sciences are: Psychology, Economics, Education sciences, Anthropology (social and cultural) and ethnology, Demography, Geography (human, economic and social), Town and country planning, Management, Law, Linguistics, Political sciences, Sociology, Organisation and methods, Miscellaneous social sciences and interdisciplinary.

# SOCIO-ECONOMIC REPORTING QUESTIONNAIRE

(To be completed by each contractor in the project)

**Alfonso Jaramillo**

## INTRODUCTION

In the process of building the European Research Area, democratic governance must ensure that social and economic issues are taken into consideration in the research activities and that citizens are informed about and aware of the social aspects with regard to scientific and technological progress. In this context, it is also acknowledged that the benefits of research in support of socio-economic policy challenges would be enhanced by an appropriate integration of socio-economic research dimensions.

The importance of the integration of socio-economic aspects in research was recognised in FP6 and should be duly taken into consideration by contractors where relevant for the actions concerned in horizontal and thematic activities of FP6.

This questionnaire applies to all projects and must be filled in by each contractor in the project. It is designed to facilitate the monitoring of the integration of the socio-economic dimensions in FP6 and to finally support the assessment of the research that will guide the future policy formulations and decisions.

The submission of this questionnaire will be done on-line. The details of the procedure to be used will be communicated by the Commission to the project coordinator in due time.

The information gathered through this exercise will be kept confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.

## QUESTIONS

| | |
|---|---|
| **1.1 Do your tasks in the project include socio-economic research activities[32] ?** | *No* |
| **1.2 If "Yes", what is the estimated total budget allocation that addresses these activities ?** | *(Cost in Euro or N/A)* |

[32] - Ex-ante or ex-post assessments (or contribution to such analysis e.g. cost-benefit/cost-effectiveness studies, etc…) of the expected impact of the knowledge and/or technology generated from the research (project, programme or framework programme), as well as analysis of the factors that would influence their exploitation (e.g. statistical indicators, standardisation, ethical and regulatory aspects, impact on consumers and markets, public awareness/acceptance and understanding of science, political/societal and/or economic implications, etc…)

- Any type of models or tools to support the assessment of impact on society, economy and businesses resulting from the deployment of new services or technologies.

- Any research seeking both a better integration of Science in Society and Society in Science.

- Any type of research aiming at understanding the societal and economic phenomena (research in social sciences and humanities)

- Actions e.g. assessments, tools & methods, comparative research, etc to support the formulation and implementation of Community policies.

- Any type of activity involving scientist(s) with a specific background in social, political sciences or in economy (discipline approach).

| | |
|---|---|
| **2.1 Do your tasks in the project include foresight methods[33] ?** | *No* |
| **2.2 If "Yes", what is the estimated total budget allocation that addresses these activities?** | *(Cost in Euro or N/A)* |
| **3. How many person/months (estimated) are allocated to researchers with a background in social sciences[34], to perform your tasks for the project ?** | *0* |

[33] - Any type of foresight, i.e. participative vision-building approaches, future studies and forward looking activities, including scenarios of the evolution of Europe's potential in a related field, forecasting, prospective studies, forward looks, etc.

[34] Domains of academic disciplines covered by the social sciences are: Psychology, Economics, Education sciences, Anthropology (social and cultural) and ethnology, Demography, Geography (human, economic and social), Town and country planning, Management, Law, Linguistics, Political sciences, Sociology, Organisation and methods, Miscellaneous social sciences and interdisciplinary.

# SOCIO-ECONOMIC REPORTING QUESTIONNAIRE

(To be completed by each contractor in the project)

**Jim Haseloff**

## INTRODUCTION

In the process of building the European Research Area, democratic governance must ensure that social and economic issues are taken into consideration in the research activities and that citizens are informed about and aware of the social aspects with regard to scientific and technological progress. In this context, it is also acknowledged that the benefits of research in support of socio-economic policy challenges would be enhanced by an appropriate integration of socio-economic research dimensions.

The importance of the integration of socio-economic aspects in research was recognised in FP6 and should be duly taken into consideration by contractors where relevant for the actions concerned in horizontal and thematic activities of FP6.

This questionnaire applies to all projects and must be filled in by each contractor in the project. It is designed to facilitate the monitoring of the integration of the socio-economic dimensions in FP6 and to finally support the assessment of the research that will guide the future policy formulations and decisions.

The submission of this questionnaire will be done on-line. The details of the procedure to be used will be communicated by the Commission to the project coordinator in due time.

The information gathered through this exercise will be kept confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.

## QUESTIONS

| | |
|---|---|
| **1.1 Do your tasks in the project include socio-economic research activities[35] ?** | *No* |
| **1.2 If "Yes", what is the estimated total budget allocation that addresses these activities ?** | *(Cost in Euro or N/A)* |

[35] - Ex-ante or ex-post assessments (or contribution to such analysis e.g. cost-benefit/cost-effectiveness studies, etc…) of the expected impact of the knowledge and/or technology generated from the research (project, programme or framework programme), as well as analysis of the factors that would influence their exploitation (e.g. statistical indicators, standardisation, ethical and regulatory aspects, impact on consumers and markets, public awareness/acceptance and understanding of science, political/societal and/or economic implications, etc…)

- Any type of models or tools to support the assessment of impact on society, economy and businesses resulting from the deployment of new services or technologies.

- Any research seeking both a better integration of Science in Society and Society in Science.

- Any type of research aiming at understanding the societal and economic phenomena (research in social sciences and humanities)

- Actions e.g. assessments, tools & methods, comparative research, etc to support the formulation and implementation of Community policies.

- Any type of activity involving scientist(s) with a specific background in social, political sciences or in economy (discipline approach).

| | |
|---|---|
| **2.1 Do your tasks in the project include foresight methods[36] ?** | *No* |
| **2.2 If "Yes", what is the estimated total budget allocation that addresses these activities?** | *(Cost in Euro or N/A)* |
| **3. How many person/months (estimated) are allocated to researchers with a background in social sciences[37], to perform your tasks for the project ?** | *0* |

[36] - Any type of foresight, i.e. participative vision-building approaches, future studies and forward looking activities, including scenarios of the evolution of Europe's potential in a related field, forecasting, prospective studies, forward looks, etc.

[37] Domains of academic disciplines covered by the social sciences are: Psychology, Economics, Education sciences, Anthropology (social and cultural) and ethnology, Demography, Geography (human, economic and social), Town and country planning, Management, Law, Linguistics, Political sciences, Sociology, Organisation and methods, Miscellaneous social sciences and interdisciplinary.

# SOCIO-ECONOMIC REPORTING QUESTIONNAIRE

(To be completed by each contractor in the project)

**Nicolas Szita**

## INTRODUCTION

In the process of building the European Research Area, democratic governance must ensure that social and economic issues are taken into consideration in the research activities and that citizens are informed about and aware of the social aspects with regard to scientific and technological progress. In this context, it is also acknowledged that the benefits of research in support of socio-economic policy challenges would be enhanced by an appropriate integration of socio-economic research dimensions.

The importance of the integration of socio-economic aspects in research was recognised in FP6 and should be duly taken into consideration by contractors where relevant for the actions concerned in horizontal and thematic activities of FP6.

This questionnaire applies to all projects and must be filled in by each contractor in the project. It is designed to facilitate the monitoring of the integration of the socio-economic dimensions in FP6 and to finally support the assessment of the research that will guide the future policy formulations and decisions.

The submission of this questionnaire will be done on-line. The details of the procedure to be used will be communicated by the Commission to the project coordinator in due time.

The information gathered through this exercise will be kept confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.

## QUESTIONS

**1.1 Do your tasks in the project include socio-economic research activities[38] ?** | *, No*

**1.2 If "Yes", what is the estimated total budget allocation that addresses these activities ?** | *(Cost in Euro or N/A)*

[38] - Ex-ante or ex-post assessments (or contribution to such analysis e.g. cost-benefit/cost-effectiveness studies, etc…) of the expected impact of the knowledge and/or technology generated from the research (project, programme or framework programme), as well as analysis of the factors that would influence their exploitation (e.g. statistical indicators, standardisation, ethical and regulatory aspects, impact on consumers and markets, public awareness/acceptance and understanding of science, political/societal and/or economic implications, etc…)

- Any type of models or tools to support the assessment of impact on society, economy and businesses resulting from the deployment of new services or technologies.

- Any research seeking both a better integration of Science in Society and Society in Science.

- Any type of research aiming at understanding the societal and economic phenomena (research in social sciences and humanities)

- Actions e.g. assessments, tools & methods, comparative research, etc to support the formulation and implementation of Community policies.

- Any type of activity involving scientist(s) with a specific background in social, political sciences or in economy (discipline approach).

| | |
|---|---|
| **2.1 Do your tasks in the project include foresight methods[39] ?** | *, No* |
| **2.2 If "Yes", what is the estimated total budget allocation that addresses these activities?** | *(Cost in Euro or N/A)* |
| **3. How many person/months (estimated) are allocated to researchers with a background in social sciences[40], to perform your tasks for the project ?** | *0* |

[39] - Any type of foresight, i.e. participative vision-building approaches, future studies and forward looking activities, including scenarios of the evolution of Europe's potential in a related field, forecasting, prospective studies, forward looks, etc.

[40] Domains of academic disciplines covered by the social sciences are: Psychology, Economics, Education sciences, Anthropology (social and cultural) and ethnology, Demography, Geography (human, economic and social), Town and country planning, Management, Law, Linguistics, Political sciences, Sociology, Organisation and methods, Miscellaneous social sciences and interdisciplinary.