



**ESF Member Organisation Forum on
Scientific Foresight for Joint Strategy Development**

Day 1: Foresight a Pre-condition for Joint Programming

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EUROHORCs Statement on Joint Programming

The EUROHORCs published on 14 November 2008 a statement about Joint Programming

Joint Programming conforms to the wider goals of

['The EUROHORCs and ESF Vision on a Globally Competitive ERA'](#) that highlights the need to develop scientific foresight and use its results as a basis for jointly developed research agenda and programmes.



ESF EUROHORCs Simulation Case

Responding to an invitation by Commissioner Potočnik, the ESF together with the EUROHORCs developed a simulation for Joint Programming on management of cardiovascular disease, the purpose of which is to suggest a general model for this type of research coordination in the medical domain. The simulation was kept as broad as possible to serve as a working template for further work in different areas of research.

Simulation Exercise for Joint Programming

**Effective Health Services
for European Citizens**

"Improved Management of Cardiovascular
Diseases and their Socio-Economic Costs
based on Medical Research"

November 2008 – updated July 2009

Joint Programming Concept & Framework Conditions

Background

- Research Commissioner's Green Paper on ERA – May 2008
- EUROHORCs Statement on Joint Programming - November 2008
- ESF – EUROHORCs Simulation Exercise for Joint Programming “Effective Health Services for European Citizens” - November 2008
- Competitiveness Council - December 2008 established
 - Pilot project on Joint Programming
 - HLG for Joint Programming (GPC) to address Framework Conditions
- EUROHORCs and ESF Vision and Road Map of Actions - July 2009

EUROHORCs and ESF involvement in the development of the GPC Framework Conditions for Joint Programming

Background

ESF President Ian Halliday and EUROHORCs President Dieter Imboden met on 26 January 2010 with EC DG Research Deputy Director-General Anneli Pauli on the Framework Conditions for Joint Programming.

This was followed by a meeting on 11 February between representatives of the EC, ESF, EUROHORCs, the Spanish EU Presidency and the GPC, inviting

- ESF to contribute to the GPC's initiative on voluntary guidelines of the Framework Conditions for Joint Programming, **Scientific Foresight** and **Peer Review**
- EUROHORCs to contribute to those for **Funding of Cross-Border Research** and **Evaluation of Joint Programmes**
- in parallel with the work of a GPC subgroup

Framework Conditions on Joint Programming HLG on Foresight Activities, ESF

Development of voluntary guidelines for forward looking activities: Phase 1

Name	Organisation
Rémi Barré	Conservatoire National des Arts et et Métiers (CNAM)
Richard E. Bissell	The National Academies – National Research Council, US
Roger Bouillon	Katholieke Universiteit Leuven (<i>excused</i>)
José Luis Garcia López	Groupe de Programmation Conjointe (GPC) (<i>High Level Group for Joint Programming</i>)
Luke Georghiou	Manchester Institute of Innovation Research (<i>formerly PREST</i>)
Marja Makarow, Chair	European Science Foundation
Carole Moquin-Patthey	European Science Foundation
Pär Omling	EUROHORCs – Swedish Research Council
Anneli Pauli	European Commission – DG Research
André Syrota	EUROHORCs – Inserm
Anne Bisagni	EUROHORCs – Inserm

Framework Conditions on Joint Programming HLG on Peer Review, ESF

Development of voluntary guidelines for Peer Review

Name	Organisation
William Cannell	European Commission, DG Research
José Luis Garcia López	Groupe de Programmation Conjointe (GPC) <i>(High Level Group for Joint Programming)</i>
Marc Heppener, Chair	European Science Foundation
Victoria Ley	National Assessment and Agency Planning (ANEP)
Laura Marin	European Science Foundation
Kathie L. Olsen	National Science Foundation (NSF), US
Ernst Rietschel	EUROHORCs – Leibniz Association
Giovanni Romeo	University of Bologna Medical School
Arnaud Torres	EUROHORCs - ANR
Reinder van Duinen	Former ESF and EUROHORCs

ESF High Level Working Groups' activities

HLWG – Foresight

- Meetings
 - *19 March*
 - *29 April*
 - *17 May*
- Actions
 - Develop scientific foresight as Precondition to Joint Programming
 - Prepare draft voluntary guidelines on scientific foresight for Joint Programming
 - Provide inputs to terms of reference for ESF Member Organisation Forum

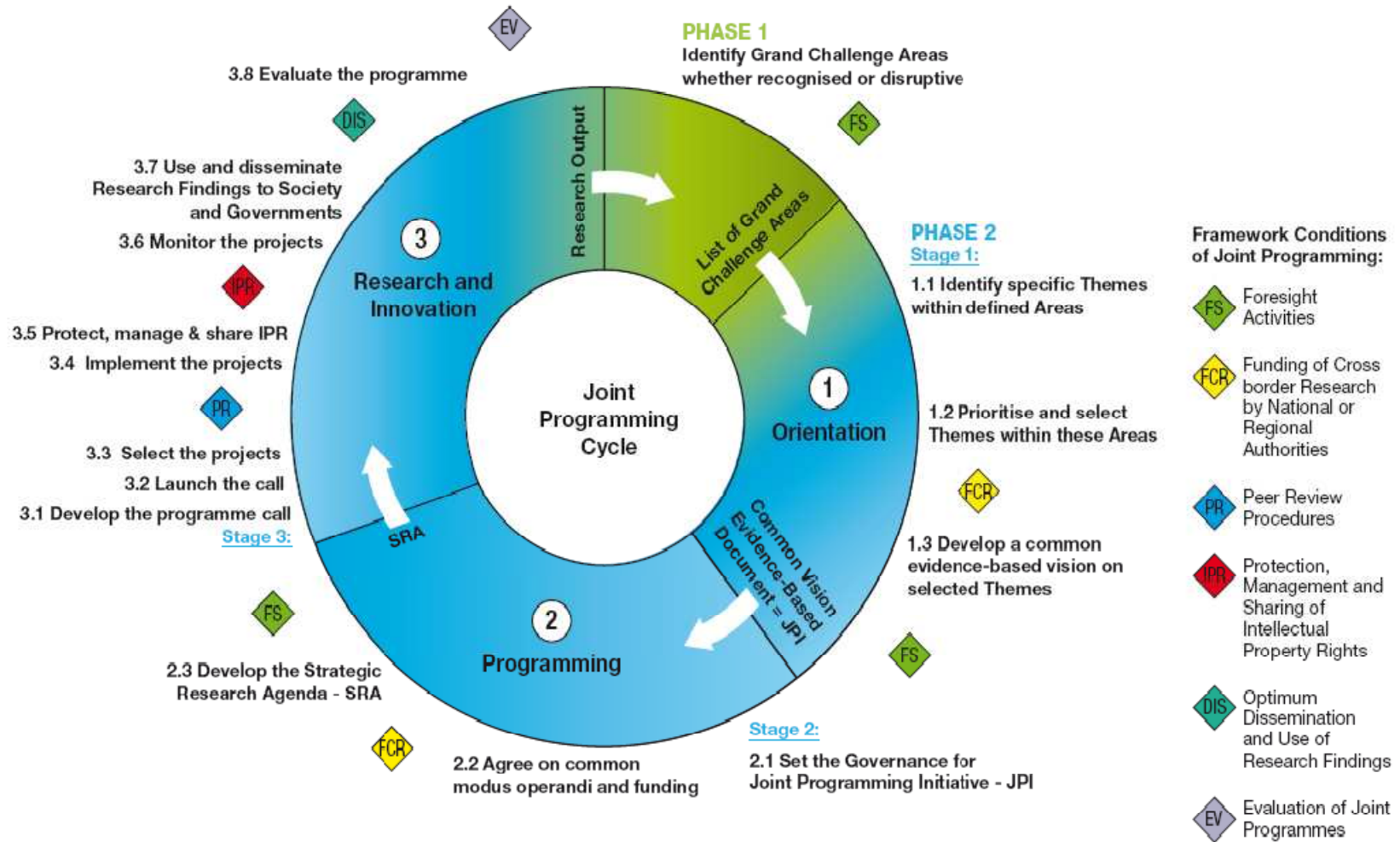
HLWG – Peer Review

- Meetings
 - *24 March*
 - *3 May*
 - *17 May*
- Actions
 - Analyse peer review modalities in the context of Joint Programming
 - Prepare draft voluntary guidelines on peer review for Joint Programming

The Guidelines for Peer Review hierarchy:

- **Core Principles**, the general principles that each Peer Review process should adhere to.
- **Tool-box**, consisting of a high-level delineation of the different modules of a Peer Review process suitable for modular arrangements that can be selected based on needs and context.
- **Process Description**, detailed description of each of the modular elements in the Tool-box. While beyond the scope of these Guidelines, these details will be provided in the European Peer Review Guide that is currently being defined by the ESF Member Organisation Forum on Peer Review.
- **Operational Procedures**, specific per Call/Application. If constructed using the elements in the Tool-box and the Peer Review Guide, the procedures will adhere to the Core Principles.

Draft Joint Programming Cycle: Steps proposed by ESF



Joint Programming Cycle

Phase 1

Identification of Grand Challenge Areas whether recognised or disruptive

Phase 2

Stage 1: Orientation:

- 1 Themes / Joint Programming Initiatives (JPI)*
- 2 Development of a common vision*

Stage 2: Programming

- 1 Set the governance for JPI*
- 2 Agree on common modus operandi and funding*
- 3 Develop the Strategic Research Agenda*

Stage 3: Research and Innovation

- 1 Adoption of a Strategic Research Agenda*
- 2 Implementation of collaborative research*

Identification of Recognised Grand Challenge Areas

Definition

Recognised Grand Challenges are grand in the sense that they are instantly recognisable as representing a major aspect of human or social well-being and prosperity.

They can be both a threat and an opportunity but in either case can only be met by a large-scale and coordinated response over a number of years.

Identification of Recognised Grand Challenges

Governance

To be discussed

Process

1. Intelligence Mapping in all or a specific socio-economic sector(s)
2. State of the art analysis of the National Policies and Research Capacity
3. Production of Foresight Report: Committee Meetings, Information gathering, Deliberations
4. Review of the Foresight Report
5. Public Consultation to define the most pressing societal problem(s)
6. Identification of Recognised Grand Challenge Areas

Examples

All socio-economic sectors: ESF Science Policy Position Paper, Vital Questions, November 2009.

In a specific socio-economic sector:

- Energy: SeT-Plan (Europe) and Prospective Evaluation of Applied Energy research and Development at DoE (Phase I): A first Look Forward (USA)
- Health: EC & EMRC White papers
- Agriculture: ESF Forward Look – European Food Systems in a Changing World (2009)

Identification of Recognised Grand Challenges

In order to propose a process for identifying and taking forward Recognised Grand Challenges there is a need to define their core criteria and level of granularity for measurable actions, to articulate the challenge into key components, and the main stakeholders' roles.

The foresight and corresponding methodological options play an important role in this context. The choice of a specific Area by a dedicated **Science Policy Platform of stakeholders** will not be made by selection from a list but through a continuous and dynamic process aimed at aligning Phase I namely politics/public needs to Phase II namely the public research & innovation loop in an interactive mode driven by the degree of maturity and evidence of the specific case under scrutiny.

In this process Foresight approaches (whether disruptive, creative or connective) may be used to build a common vision among key actors/stakeholders and to help the process of translation from broadly desirable socio-economic goals to concrete proposals for action, including recommendation on realignment of the research system.

Identification of Recognised Grand Challenges

Key Elements for Identifying Recognised Grand Challenge Areas	Description
Aim	To assess issues of high societal importance against criteria of relevance and feasibility, to identify the right level of granularity for actions and to build stakeholder engagement in a common vision for action
Deliverables	Foresight actions that build the vision and translate broadly desirable socioeconomic goals into concrete proposals for action; Operational “Policy Platform” that aligns stakeholders within and beyond research and innovation system and provides “coordination envelope” for action
Key Stakeholders	European Council, Parliament and Commission, National and regional governments, Research policy and funding bodies, Business, Financial sector, Voluntary sector, Research performers
Profile of Experts Needed	Foresight needs to engage key stakeholders along with domain experts relevant to the challenge, foresight experts, experts from outside Europe to ensure global perspective
Methodological Approach	Policy platform as noted above and then application of tailored selection of foresight techniques to provide the right mix of expertise, evidence, creativity and interaction to build the success vision and ensure that it is robust to possible outcomes. Likely to involve interaction between Phases 1 and 2
Level of Funding	Large scale but likely to involve alignment of existing resources as well as new investment
Timeframe	Ongoing with forward perspective dependent upon area in question

Identification of Disruptive Grand Challenge Areas

Definition

Disruptive Grand Challenges are defined as low-probability (emerging), high-impact developments that challenge societal and economic health.

Such Grand Challenges can be exogenous trends/events from both a geographic and systemic perspective.

They can also be endogenous, arising from the process of scientific discovery occurring independently or fostered as a matter of national/regional policy to come up with significant improvements in knowledge.

Identification of Disruptive Grand Challenge Areas

Key Elements for Identifying Disruptive Grand Challenge Areas	Description
Aim	To identify and respond successfully to low-probability, high-impact developments that challenge societal and economic health
Deliverables	<ul style="list-style-type: none"> (1) Early warning systems relying on leading (“weak signal”) indicators (2) through analysis of the science and technology of potential changes, utilizing a multi-disciplinary perspective in joint project structures that capture the collateral effects of such changes (3) periodic examination of their potential impact on social, environmental, and economic systems
Key Stakeholders	Research community (academic, industry, government), research user community, policymakers at national and European levels
Profile of Experts Needed	Basic researchers, cross-disciplinary researchers or researchers working in teams integrating usual fields, experts in monitoring and surveillance systems, non-European collaborators, visionaries, foresight consultants, corporate strategists, cultural critics, forecasters, roadmappers, operations researchers, risk analysts
Methodological Approach	<ul style="list-style-type: none"> (1) Internal: consultations among scientists working on discovery research paths, especially in basic science (2) Cross-disciplinary: thematic meetings of basic researchers that are organized by broadly applicable “breakthrough” approaches to science (3) External: monitoring of identifiable leading indicators, through both expert and open systems
Level of Funding	
Timeframe	Short-to very long-term. Some disruptive events and discoveries have a rapid impact (e.g., disasters) and others unfold very slowly from discovery (e.g., basic science research) to actual impact on societies and people’s lives

Identification of Disruptive Grand Challenge Areas

Governance

The methodological approaches could consist in setting up a policy platform to address the right level of granularity:

Internal to a research community with regular time frame equivalent to frontier programmes;
Cross-disciplinary revolution on key themes intellectually stimulating although discouraging for young principal investigators;

External intensive monitoring leading to follow trends in indicators.

A preliminary level of analysis of the Recognised Grand Challenges needs to be implemented first to be followed by a fluid process of identifying new emerging Disruptive Grand Challenges.

Process

1. Intelligence Mapping: Divided by field, sector, problem, vulnerability, or application
2. Political Decision on a Theme
3. Financing the Process
4. Scoping and Design: Defining the study and Committee(s) selection
5. Production of Foresight Report: Committee Meetings, Information gathering, Deliberations and Assessments of probability, impact, and risks
6. Review of Foresight Report: By persons with a wide vision to assess the strength of the foresight committee work,
7. and to assign relative importance and priority rankings with regards to the range of findings in the body of foresight reports
8. Identification of Disruptive Grand Challenge Areas: To lead to further investigation through joint research programs

Examples

Cure for cancer ; New zoonotic diseases ; Collapse of the Gulf Stream ; Space elevator
Extra-terrestrial life ; Geo-engineering ; Wireless electric power transmission

Foresight for Strategic Research Agenda

Key Elements for Developing a SRA for a JPI	Description
Aim	This stage is sometimes referred to as the “programming stage”, in which broad objectives and visions (1) are transformed in scientific and technological priorities and (2) those priorities are provided with resources according to relevant schemes.
Deliverables	Identification of S&T components and the related S&T roadmap Broad allocation of resources among these components along with the relevant funding schemes
Key Stakeholders	There must be clear role of S&T experts but with a carefully built balance with the other stakeholders, including civil society
Profile of Experts Needed	S&T experts must be high level and forward looking individuals
Methodological Approach	Two key-ideas: - at the start (identification of challenges to research), they can be distinct working groups, gathering scientists on one side, the other stakeholders on the other; at the later phase, have working groups per main topic, mixing all kinds of stakeholders, - the criteria for hierachisation of themes are to be based on the SWOT rationale, which means the corresponding analysis have to be made.
Level of Funding	Process lasting about a year Central team of no less than 5 persons full time
Timeframe	About a year

Governance

Typically the Governance of a Strategic Research Agenda – SRA requires a Management Board and a Scientific Board.

Common Basic Principles for a Governance Structure of JPIs – Presidency discussion paper for the GPC meeting on 19 March 2010

Process

1. Financing the Process
2. Scoping and Design: Defining the study and Committee(s) selection
3. Production of Science Foresight Report: Committee Meetings, Information gathering, Deliberations
4. Review of the Science Foresight Report
5. Dissemination
6. Implementation

Examples

European Technology Platforms

Key-technology exercises in various countries

CAP project at INRA (*Concertation Amont des Programmes*)

Agora 2020 project – Ministry of sustainable development (France)

Pilot Joint Programming on Neurodegenerative Diseases (JPND)

Overall Process

