EU-Wide Approach to Systems and Services – Supported by ICT

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For Starters: Aho's Report ("Creating an Innovative Europe")

Pact for Research and Innovation - Area-1:

At the core of our recommendations is the need for Europe to provide an innovation-friendly market for its businesses, the lack of which is the main barrier to investment in research and innovation. This needs actions on regulation, standards, public procurement, intellectual property and fostering a culture which celebrates innovation.

A combination of supply and these measures to create demand should be focused in large scale strategic actions. We identify several examples: *e*-Health, Pharmaceuticals, Energy, Environment, Transport and Logistics, Security, and Digital Content.

An independent High Level Coordinator should be appointed to orchestrate European action in each area.

For Starters: Aho's Report ("Creating an Innovative Europe") - 2

Pact for Research and Innovation - Area-3:

Far greater mobility is needed at three levels:

- **Human resources need a step change in mobility across boundaries;**
- **Financial mobility requires an effective venture capital sector and new financial instruments for the knowledge-based economy;**
- **Mobility in organisation and knowledge means cutting across established structures to allow new linkages to be made through the instruments of European technology platforms and clusters.**

More resources for R&D and innovation are a necessity but they are an insufficient means to achieve the goal of an Innovative Europe. A paradigm change is needed in which European values are preserved but in a new social structure.

Starting Focus

ISTAG (IST Advisory Group) Working group on "Europe Wide Initiatives (EWI) – Building critical mass in cross-border innovation"

June 2004

Contents - Opening Debate

- How can Europe wide realisation and deployment of EWIs contribute to economic growth and new jobs?
- How can ICT be used for building and enhancing ERA (ERIA) as a prerequisite for successful EWIs?
- How can AMI@Work family of communities (with special emphasis on Collaborative Working environments – CWEs) be harnessed for realisation of EWIs?

EWI - Rationales

ISTAG report on AmI: from vision to reality, Oct-2003:

- ***European-wide AmI initiatives that promote and advance European research and technology and capitalize on financial mechanisms such as public procurement.***
- ***Such initiatives need to be conducted at European level to ensure critical mass, risk sharing and cross-border implementations.***
- ***They should be large scale and visionary, and harness the concentrated expertise, knowledge and capabilities of European personnel in the pursuit of identifiable objectives that will benefit European society and industry.***

- ***Such initiatives should come in addition to, and in combination with a strong support to long and medium term (and/or high risk) research that is done within research programs.***
- ***They would ensure a closer articulation between research and implementation actions and support the transfer of very advanced technology progress into applications.***
- ***Member States should sign up to such initiatives in order to bring all areas up to the same standard and ensure interoperability and coherence.***

EWI - ISTAG Members in the Working Group

- Paul ‘t Hoen (Chair, Chairman ICT-Forum, The Netherlands);
- Diana Hodgins (Rapporteur, Managing Director, European Technologies for Business, Ltd, UK);
- Mart Laar (Member of Parliament, Estonia);
- Jerzy Langer (Advisor of the President, Polish Academy of Science, Poland);
- Paul Mehring (Chairman ITEA);
- Peter Tancig (General Secretary, The Researchers’ Association of Slovenia, Slovenia);
- Mikko Uusitalo (Manager, Research Cooperation, Nokia, Finland)

EWI - External Experts in the Working Group

- D Augello,
- J-C Burgelman,
- A Bradier,
- D Broster,
- K Ducatel,
- M Gonzales Sancho,
- J-C Healy,
- N Hoose,
- I Iakovides,
- J Jaskalaainen,
- T Norgall,
- Y Pandaveine,
- V Reilly,
- B Ulmer

EWI - Proposed (and met) criteria

- **European dimension – creating critical mass in Europe**
- **Urgency (from society perspective) and political support**
- **Enhancing competitiveness, and providing a long term impact (> 5 years) on Europe's IST / industry position**
- **AmI based or building on other existing focus areas of expertise**
- **Adding value to existing market/ programmes/ initiatives**

EWI - Means, Ways, Targets

- Generating supranational mass for R&D and innovation initiatives in IST
- Harnessing the combined power of the member states
- Focusing on areas of strength and value
- Avoiding heavy co-ordination mechanisms

EWI – Proposed & Considered Areas

- Defence
- Security in general
- Health
- Education (Distance & LLL)
- Science and R&D (3 areas)
- Media
- Mobility, road transport)
- Public service, e-government
- Financial services
- Cultural heritage
- Enablers for applications and services
- Digitale divide: access for all
- Infrastructure
- Dependabililty on IT
- Business processes
- Agribusiness
- Energy
- Environment and sustainability

Application led initiatives where ICT plays a significant role.

EWI - Chosen and Elaborated Areas

- **Health**
- **Road transport (safety!)**
- **Government**

+

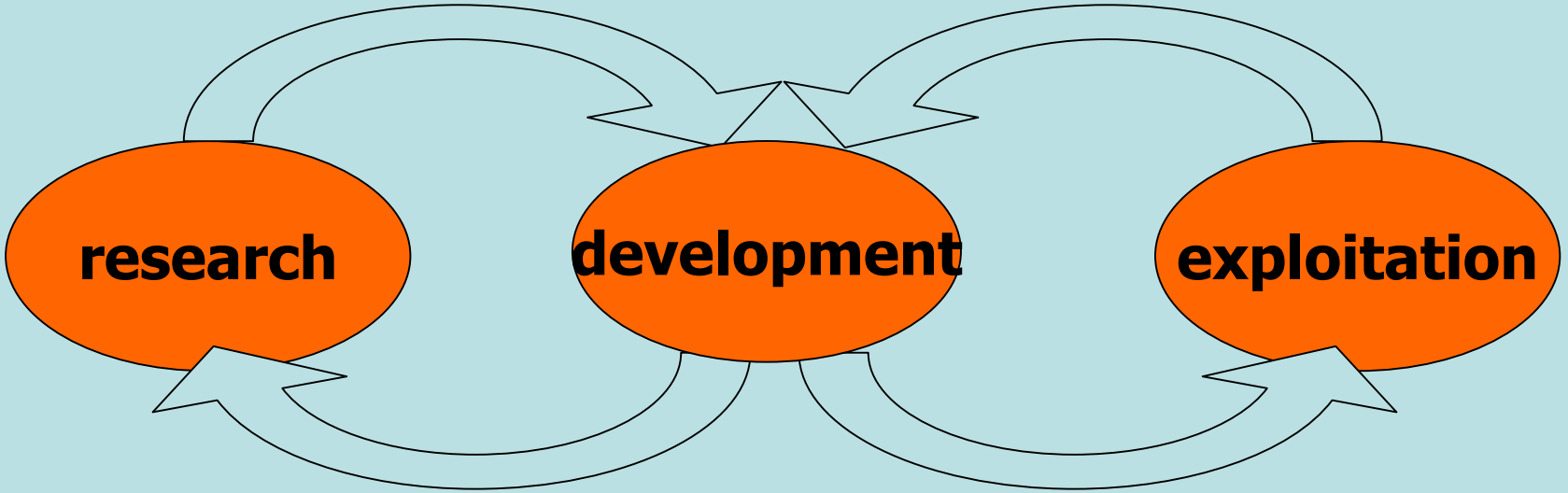
- **Science Information and Collaboration Infrastructure (using ICT to build and enhance ERA (ERIA?))**

Reasons for choice: availability of experts, deployment accross different EU countries, public sector areas (not exclusive criterium)

Common issues in all ICT related EWIs

- **Interoperability (in / accross several domains and along several levels)**
- **Organizational aspects**
- **Heterogeneity and distribution of data (Grid) and semantic aspects**
- **Personal identification systems**
- **Legal, regulatory and ethical issues**

EWI - Overall model - The innovation cycle



Jointly (bundling resources and actors) developing and implementing roadmaps for:

- projecting future needs
- understanding trends
- assessing options for future based regulation
- involving technology adoption cycles

EWI - Key Aspects

- All organisations in the cycle, from research to deployment and exploitation are involved
- End user requirements and experiences are part of the process
- More than “strategic RTD” (FP-IST programme) and “development” (Eureka etc.) and “national programs / schemes”
- Using procurement as a powerful mechanism for funding and deployment

EWI – Recommendations for New Organization

- With an "umbrella" organization (A), integrating different schemes and activities
- Avoiding long delays and discussions that go with setting up a new support and funding system scheme (B), integrating complete set of activities
- A pilot for a "Health" area (e.g. AmI for personal health care and prevention) could guide the way

EWI – Relation with ETPs

- A European Technology Platform (ETP) could very well be used as a mechanism to implement (jump start) and reinforce EWI

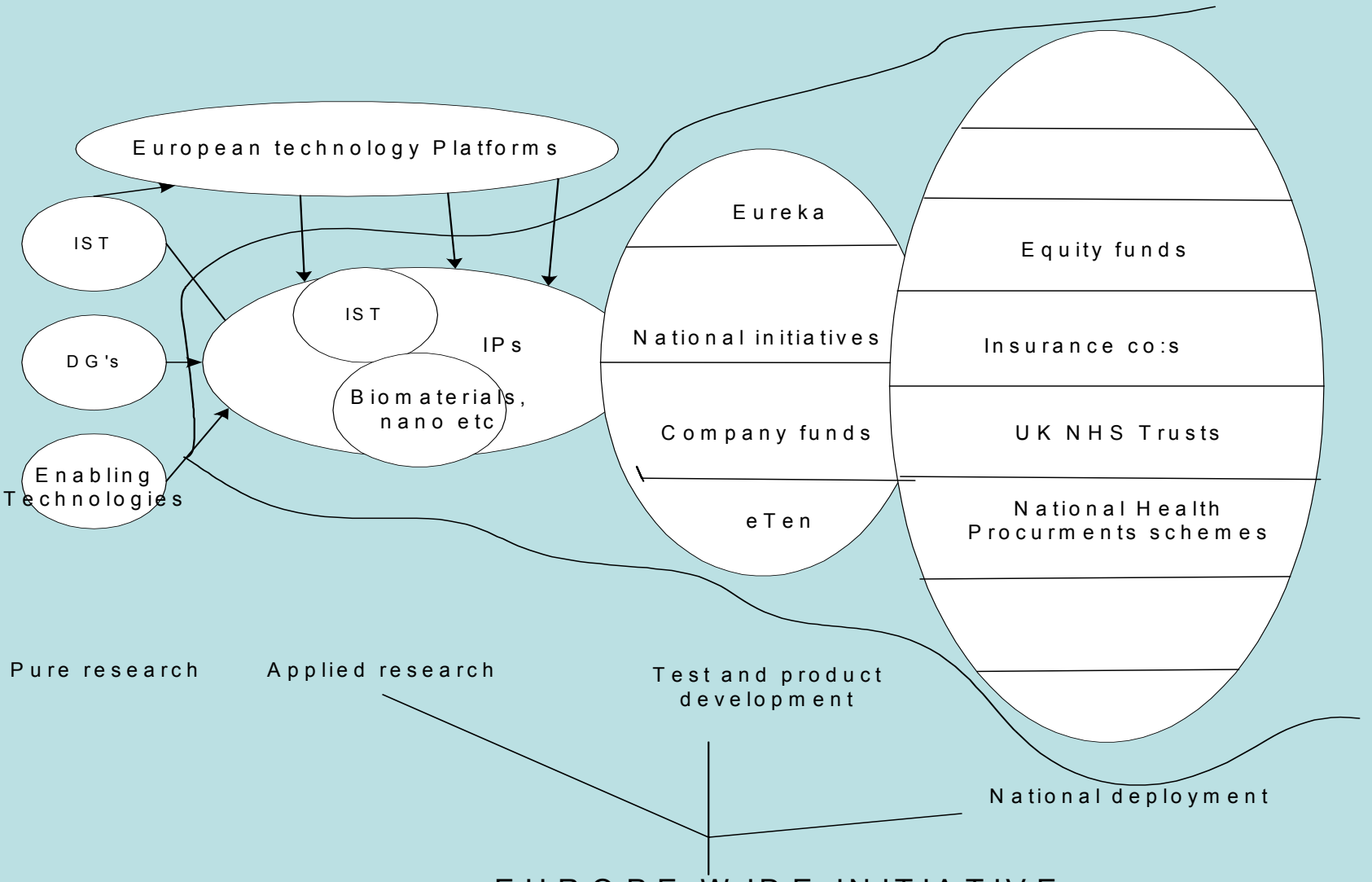
<u>provided</u>

- The focus on well defined area and objectives
- The inclusion of (representatives of) users
- The deployment commitment through a procurement mechanism

EWI – Setting up Recommendations

- Shape the initiative in the form of a procurement program
- Be specific in setting the objectives, as well in scope as in time
- Build strong links with existing related programs and projects

EWI – Number of EU & National Schemes, e.g.:



EWI – Number of EU & National Schemes - 2

Typical EWI will be complimentary to both pure research and ETPs, where their results will feed into applied research, and will comprise following 3 acitivites:

- Applied research through IPs (EU IST Programme)
- Test and product development and supporting services (EU and/or national schemes, companies)
- National deployment (national procurement programmes)

EWI – Main Issues / Problems

- Not the technology development

but

- Europe wide deployment by 25 member states (EU-25 vs. US-1 ?!)
- Commitment from stakeholders
- Resolving "European Paradox" (good science, bad economic utilization of results)

"European Paradox" – Some Instances

Good science, bad economic utilisation of results:

- **Elements of protoERA << ERA << ERIA**
- **Self-sufficiency and fragmentation of research communities – both on national and EU levels**
- **Not enough links between academic and business worlds**
- **Absent integration of major components / facets of innovation based economy**

RESULTING (among others) in:

- **Faltering realisation of Lisbon objectives (knowledge-based most competitive economy / society)**

EWI – ICT for Science Information and Collaboration Infrastructure (Report)

A Europe Wide Initiative in this area would fulfill all the EWI criteria. A programme to be developed could include:

- **Advanced catalogues and information systems on R&D capacities, experiences, practices etc., going beyond the current focus on basic academic research and aimed at bridging worlds**
- **Tools to facilitate distributed knowledge and virtual expert communities**
- **Virtual collaboration environments (AmI@Work)**
- **Generic and low barrier access to services like testing, certification, verification, evaluation, IPR services, large project management etc.**
- **An essential integrating and unifying factor would be the (re)presentation of knowledge. Equally essential are intermediary and bridging structure, services, functions and experts.**

Elements of protoERA: Flora (leaves, branches, trees, forests, lichens, mosses, lianas) and Fauna (from microbes to mastodonts) of modern RTD

- **Participants / users:**
- Academic research
- Business R&D
- SMEs
- Local / regional development actors
- ....
- Variety of experiences, perspectives, expectations, foci, requirements

Unsatisfactory Plethora of Existing Building Blocks – How to Integrate and Harmonize?

- **Valuable conceptual, technical and technological solutions**
- **Host of prototypes and pilots**
- **Missing supportive / intermediary structures / functions**
- **Horizontally and vertically unintegrated and not harmonised**

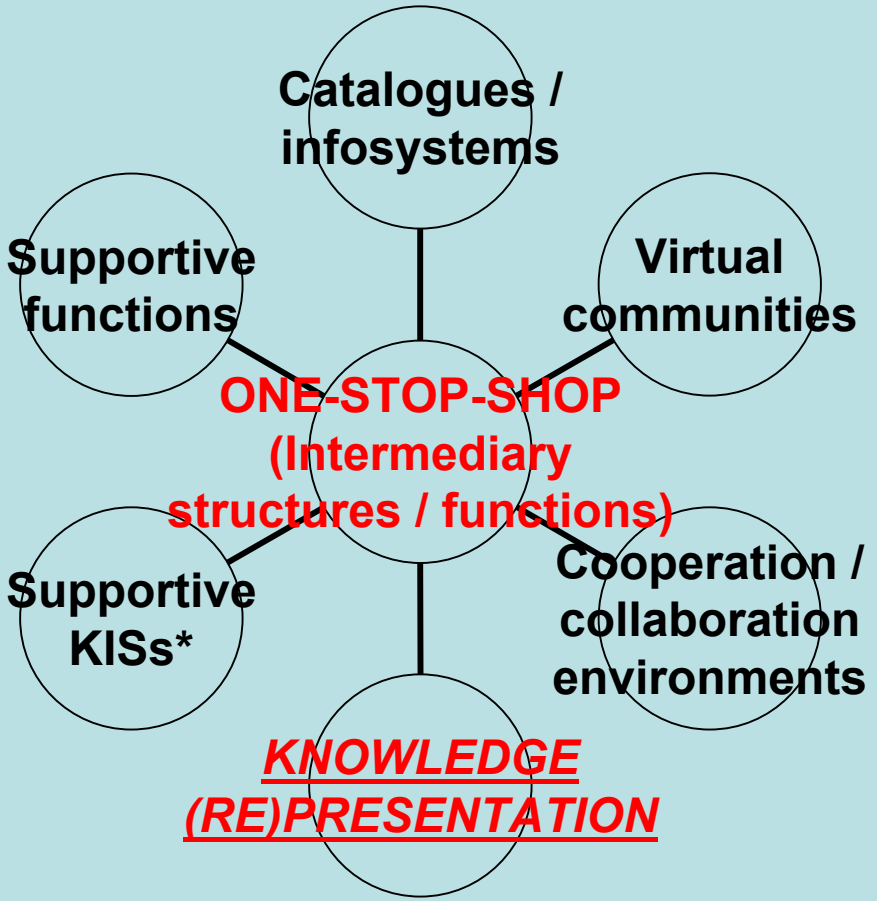
- ***Political resolve and organisational efforts needed for achieving integration and harmonisation of building blocks***
- ***Urgent need for maintaining and updating "live" R&D info***
- ***Urgent need for appropriate personel for guiding and providing consulting services for less trained and knowledgeable potential users, e.g. SMEs***

Partial (but Powerful) Answers – ICT (!)

- **Basic components:**
- **Information / Knowledge**
- **Participation / Membership**
- **Collaboration / Self-organisation**
- **Necessary:**
- **Enabling technologies**
- **Supportive services / functions**
- **Intermediary structures / services**
- **Essential:**
- **Integration / harmonisation of existing isolated islands**

Partial (but Powerful) Answers – Graphics

- Science Information and Collaboration Infrastructure -



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* KIS: Knowledge Intensive Service

Partial (but Powerful) Answers – Text-1

- Science Information and Collaboration Infrastructure -

- **Integrated - ICT based - set of tools and environments for knowing each other better and working closer:**
  - **Catalogues / Infosystems on RTD capacities, experiences, practices, openess, readiness for co-operation / collaboration (e.g. Knowledge portals)**
  - **Virtual knowledge / expert communities (from virtual laboratories to virtual institutes and thematic / tehnological networks)**
  - **Co-operation / collaboration facilitating environments**
  - ***Access to supportive Knowledge Intensive Services (e.g. evaluation, standards, testing, certification, special expertise)***
  - ***Other supportive / facilitating functions (e.g. IPR, legal / contractual issues, financial resources)***

Partial (but Powerful) Answers – Text-2

- Science Information and Collaboration Infrastructure -

- **Essential integrating / unifying factor / feature: knowledge (re)presentation**

- **Equally essential: intermediary / bridging structures / functions / services / experts**

BrainBridges

The ERA-pilot within the ”Collaborative Working Environment (CWE)” area.

A Coordination Action (CA) within the Information Society Technologies (IST) programme

6th Framework Programme

Project overview (What?)

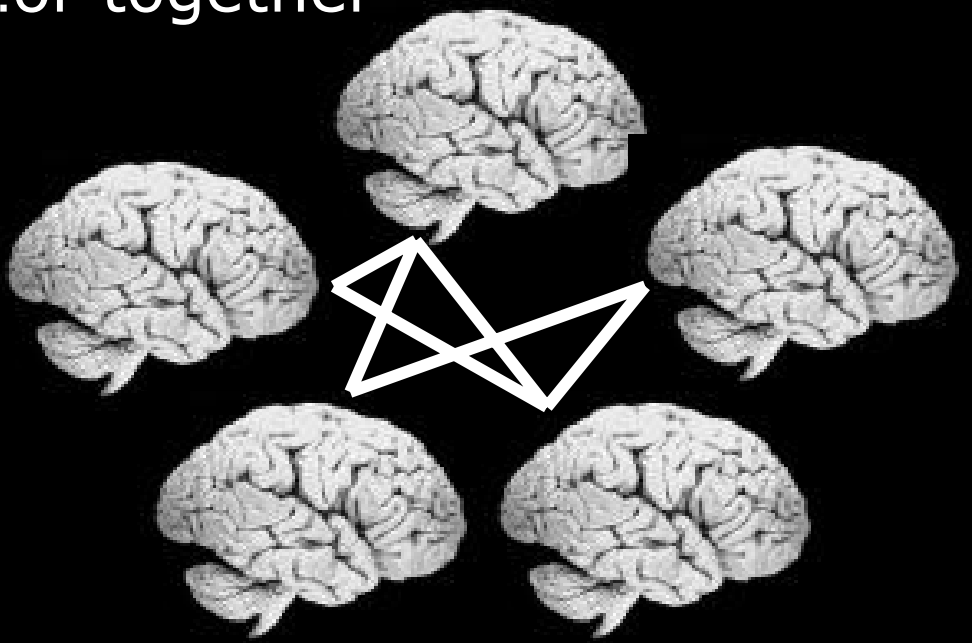
Main project objectives:

- **A coordinated European research programme on collaborative working environments!**
- **A sustainable community of organisations that exchanges plans and information on the topic supported by a public IST research portal.**
- **Leverage available scientific excellence and industry relevance.**
- **A common basis for policymaking and forming coordinated programmes.**

Setting the scene: It's about bridging brains which create Innovation!

Do it yourself

…or together



…and innovation is done by people – not by systems!

BrainBridges Definition of CWE

"*Collaborative Working Environments (CWE)* are defined as integrated and connected resources providing shared access to contents and allowing distributed actors to seamlessly work together towards common goals."

CWE are integrated (networked, connected, loosely-coupled) collections of hardware, software, network communications and procedures, which

enable collaborative work (working together towards a common goal or objective)

- Across the four stages of collaboration
- For all forms of collaboration
- Integrating all collaboration assets

~ ***support distributed actors***

- Individuals,
- Teams,
- Organisations and
- Machines (computers, sensor webs, robots, intelligent products, etc.)

High-Level Objectives

>> Challenges and discussion within the community has produced *three initial High-Level Objectives* for a coordinated CWE programme:

1. ***Stimulate European cooperation in CWE research & development*** **by initiating knowledge transfer & good practice exchange between national programmes.**

2. ***Increase European competitiveness through CWE support of creativity and productivity*****, leveraging European multi-cultural, multi-disciplinary and multi-thematic assets.**

3. ***Define a programme that promotes and supports research evolving from heterogeneous dimensions and disciplines*****, integrating different vertical themes into a unified horizontal programme.**

Background to BrainBridges
Past *vs.* Future

”Collaboration Solutions will be the next billion-dollar category” Business Week (2003)

We hope to read…

”Collaborative Solutions <u>are</u> the next billion-<u>Euro</u> category” Cordis News (2007)