

Partnering: Effective Collaborative R&D and Knowledge Transfer

Brussels, 5-6 February 2004

Conference Work Book

The purpose of this Conference is to identify and provide wider understanding of the ways in which larger companies, academia and research institutes successfully work together on joint research programmes and other initiatives intended to foster knowledge and technology transfer. It is co-organised by the European University Association (EUA); the ProTon Europe network; the European Association of Research and Technology Organisations (EARTO) and the European Industrial Research Management Association (EIRMA).

We hope that this conference and the processes that follow will help achieve the widely accepted guidelines, good practices and common principles, which all stakeholders can endorse and adopt. By this means, the conference is a joint and practical contribution towards the European Research Area initiative, intended to streamline and facilitate knowledge transfer between the public and private sectors. It builds upon conclusions of several recent studies involving public and private sector institutions, including the universities, research and technology organisations, governments and the European Commission, and industry.

Participants will explore the practical issues of managing cooperative projects, the handling of intellectual property, institutional support, and the requirements for durable supporting frameworks. Key questions include "How can these activities be made to achieve their goals?", "What do the partners expect?" and "How can interests be aligned?".

All delegates have practical experience of and strategic responsibility for collaborative R&D, knowledge transfer or technology acquisition involving public and private sector institutes. This meeting provides a unique opportunity for these stakeholders to meet and discuss a critical aspect of our future effectiveness. We appreciate your time and we look forward to a super event and outcome.

We gratefully acknowledge the European Commission's support in the preparation of this conference and in making possible participation by delegates from a wide range of backgrounds.

Venue and Programme

All activities are in the Novotel. Accommodation is in the Novotel and adjacent Ibis Hotel. All delegates should settle their own room accounts. Lunches, dinner and refreshments are included in the meeting fee; lunches and dinner are served in the Novotel's ground floor restaurant; refreshments on the first floor.

Registration and administration facilities: First floor, outside the Tour Noire meeting room. Your primary contact is Mme Ruinaud. Commission staff (Mme Morrish) will be available for part of the meeting.

Plenary Sessions: Tour Noire meeting room.

Parallel Discussion Groups: Tour Eiffel (1), Tour de Babel (2), Tower of London (3), Tour Noire (4).

Evening Reception: First floor foyer.

Email, internet, copying: The hotel has central facilities available.

Delegates receiving support from the European Commission must sign the daily participation sheets.

Thursday, 5 February 2004

11:00	Registration open
12:30 - 13.30	Buffet Lunch
13:30	Welcome and Introduction Hans de Wit, Member of the Board of Management, TNO Explanation of Meeting Process: Andrew Dearing, EIRMA
13:50 - 15:30	Purposes of Collaboration Chair: Hans de Wit, TNO Maurizio Martelli, Vice-Rector, University of Genoa Gilles Capart, Chairman of Management Board, ProTon Europe, Sopartec, Louvain-la-Neuve Nick Peacock, Research and External Bodies, Rolls Royce Plenary review of main points
15:30	Refreshments
16:00 - 18:00	Parallel Discussion Groups
Group 1	Chair: Fernando Conesa, University Polytechnic Valencia Reporter: Bernard de Geus, Netherlands Genomics Initiative
Group 2	Chair: Jan van den Biesen, Vice President, Director, Public R&D Programmes, Philips Reporter: Peter van der Sijde, University of Twente
Group 3	Chair: Phil Gamlen, Director Group Technology, ICI Reporter: Martin Haywood, University of Sunderland

Group 4 Chair: Pat Frain, Director, Nova, UC Dublin
Reporter: Albert Zeestraten, Patents and Licensing Attorney, Shell
19:45 Reception
Dominique Guellec, Chief Economist, European Patent Office,
"Changing Views of Intellectual Property."
20:30 Dinner

Friday, 6 February 2004

09:00 **The Role of Government**
Frans van Vucht, Rector, University of Twente
General Discussion
09:30 **Feedback: Managing Joint Research (Groups 1 and 2)**
Chair: Ingela Bruner-Newton, Chairman, Wissenschafts- und
Forschungsrat, Salzburg
Reporters: Bernard de Geus and Peter van der Sijde
General Discussion: Identification of Issues; Recommendations
10:30 Refreshments
11:00 **Feedback: The Formalities of Knowledge and Technology Transfer
(Groups 3 and 4)**
Chair: Hendrik Schlesing, Secretary-General, EARTO
Reporters: Martin Haywood and Albert Zeestraten
General Discussion: Identification of Issues; Recommendations
12:00 **Good Practices, Key Issues and Recommendations**
Chair: Conor O'Carroll, Deputy Director, Conference of Heads of
Irish Universities
Facilitators: Inge Knudsen (EUA), Andrew Dearing (EIRMA), Gilles
Capart (ProTon)
How shall we implement the recommendations? What practical steps
shall companies, universities and the RTOs take? How much is
governments' responsibility?
13.00 Lunch
14.15 **Conclusions and the Way Forward**
Chairman: Hans de Wit, TNO
General Discussion: What processes shall be put in place to ensure
that the results of this conference and other studies bear fruit?
14:45 **Closing Words**
Isi Saragossi, Acting Director, Directorate "Investment in Research
and Links with Other Policies", European Commission
15.15 Close

Overview

There is a long-established and very positive tradition of collaborative work among European companies and public institutes. Traditionally, such initiatives were organised between individual researchers. Scales and approaches have changed as stakeholders seek to obtain greater benefit from the resources and results that are available.

This conference concentrates on three key aspects of the modern collaborative research and development process: the establishment and operation of joint research programmes, the general issues of knowledge transfer and the specifics of technology transfer. These are complementary aspects of a model of innovation that is no longer linear. The first stage generates knowledge that will be jointly useful; the last stage ensures the greater application of knowledge that has already been generated.

Our basic premise is that the points of agreement are far stronger and more numerous than the points of dispute. The bugbear is often misunderstanding of roles and language.

We aim for conclusions that are pragmatic and actionable, rather than general statements or undue focus on legislative changes outside immediate control. For the private sector, the emphasis is on the needs and interests of larger companies. Specific issues that relate to the SME community, including the successful creation of new start-up companies, are important but not the focus of this meeting.

Companies and public institutes see collaboration as one way to ensure the long-term support and visibility for their research needs and activities, the availability of key skills and resources, and the cost-effective transfer of developments to market. With these actors having different economic and societal roles, the overall success of collaborative work depends on having clear and reconcilable objectives and aligned expectations, good management skills, and supportive policy frameworks.

There is considerable experience of how to make this partnership process work well, contained for example in the recent report by the European Commission's Expert Group on the Management of Intellectual Property in Publicly-Funded Research Organisations and recommendations by national governments, such as the recent Lambert Report from the UK.

We aim for an open discussion of this experience among two constituencies: those who have strategic responsibility and those who have direct practical experience of the subject matter. The intention is to share good practices and explore how common hurdles and current areas of difficulty can be overcome. On this basis, it will be possible to recommend approaches that are likely to prove durable within the context of modern innovation systems.

Please be willing to discuss:

- a) Whether the presentations and interventions reflect the situation as you see it.
- b) Whether you agree with the statements of the issues and barriers, and the possible means of resolution that appear later in this workbook.
- c) Examples that prove or disprove the claims made.
- d) The most pressing issues and barriers to address.
- e) Who – particularly in industry, academia, RTOs – shall take the lead in making solutions possible.

- f) The best, most realistic setting for addressing these points, e.g. at local, regional, national, European, global, academic, institutional, industrial levels.
- g) Whether it is necessary to find solutions and approaches that are consistent and compatible or whether variety is in order.

Recognising the spectrum of traditions throughout Europe, we do not expect universal answers. On the other hand, we do expect that delegates will leave with a clearer understanding of what others want to achieve and how these different interests can be aligned.

We seek some clear, joint recommendations that include priority actions and a process for improving the quality of future collaborative R&D and knowledge transfer. These will concern codes of conduct, methods of governance, good working practices, etc; and will not be at the level of “standard model contracts.” Findings will be given wide circulation, including to national and international policy bodies.

References

European Commission Expert Group on the Management of Intellectual Property in Publicly-Funded Research Organisations, October 2003

The Lambert Review of Business-University Collaboration, UK Government, Final Report, December 2003

Recommendations for the adoption of a charter on intellectual property by the public establishments of higher education and research, French Ministry of Research, June 2001

The Berlin Contract, 2003

Principles for the Management of Intellectual Property from Public Research, Irish Government, 2003

Promoting Better Public-Private Partnerships, Industry-University Relations, Business and Industry Advisory Committee to the OECD, September 2003

Co-Organising Bodies

European University Association

EUA (<http://www.eua.be>) is the main organisation of European universities and their national rectors' conferences. Its mission is to promote a coherent system of European higher education and research based on shared values, through active support and guidance to its members, thus enhancing their contribution to society. The aims of EUA are to formulate a coherent message from the higher education institutions and to strengthen the role of the institutions in the creation of the European Higher Education and European Research Areas.

ProTon Europe

ProTon Europe (<http://www.protoneurope.org>) is a pan-European network of Technology Offices linked to Public Research Organisations and Universities. It is supported by the European Commission as part of the Gate2Growth Initiative (<http://www.gate2growth.com>). The ultimate objective of ProTon Europe is to boost the commercial uptake of publicly funded R&D throughout Europe by further developing the professional skills of those working in this field. This should further contribute to the creation of new products, processes and markets, improve the management of innovation, and thereby stimulate sustainable and high value economic growth, competitiveness and employment.

European Association of Research and Technology Organisations

EARTO (<http://www.earto.org>) is the trade association of Europe's specialised research and technology organisations. Its members make a major contribution to strengthening Europe's economic performance by supporting product and process innovation in all branches of industry and services, thereby raising the international competitiveness of European firms.

European Industrial Research Management Association

EIRMA (<http://www.eirma.asso.fr>) aims to enhance innovation through more effective market-oriented research and development. Its unique features are networking and personal contact. The association provides a platform for discussing ideas and exchanging practical experience across the professional communities of our membership. Activities support companies in benchmarking and improving their innovation processes through sufficient, well-managed R&D, and establish EIRMA as a natural first point of contact for policy makers and others seeking the business community's insight.

Issues and Barriers

The following tables give principles and accompanying issues and barriers. The final column suggests actionable ways forward. They are intended to focus the discussion and help us identify which are the most pressing points demanding attention.

The tables are organized according to Overarching Principles, Collaborative Research, and Knowledge Acquisition and Technology Transfer. We feel that the most productive areas for attention are in the second and third tables, but we also recognize that, without dealing with the first area, there is no context to deal with the rest. You may feel that you agree or disagree with these statements and suggestions.

	Overarching Principles	Explanation	Suggested Resolution
P1	<p>Aim for maximum beneficial use of knowledge.</p> <p>Build excellence and stability into public R&D.</p> <p>Establish organisational strategies and approaches that encourage commercialisation where this makes sense.</p> <p>Foster understanding, build professionalism and create trust.</p>	<p>We share common interest in ensuring that European institutions and industries are of world-class standing as a result of their capacity to generate and apply knowledge.</p> <p>At the same time, it is not our wish to dilute the distinct and different purposes that institutions and companies exist to serve.</p> <p>The solution depends on achieving excellence. Good people can only be retained and competitive know-how built up by securing the long term stability of researchers and their units.</p> <p>There will always be different motives behind a partnership. Collaborations work because each has something to gain. This can be used to advantage.</p> <p>The key issues are clarity of purpose and mutual trust. Trust alone is necessary but not the reason for working together. A successful outcome can only be achieved through understanding the</p>	<p>PDG: 1,3</p> <p>The issues boil down to strategic policy and practical implementation. We suggest that each organisation (university, RTO, company) takes steps to:</p> <ul style="list-style-type: none"> • define its desired strategic niche; • articulate an explicit policy in respect of collaboration with other organisations; • provide commitment from the top; • establish how this policy will be implemented (practical roadmaps and sufficient resources); • attend to the training and personal development that accompany this policy and plan; • ensure that the involved personnel understand their partners' motivations and objectives; • publicize clear policies on conflict of interest internally and to its partners. <p>The process should be driven by considerations of</p>

		<p>other's role. Barriers are found in all camps.</p> <p>There are many ways to establish trust, including:</p> <ul style="list-style-type: none"> o Through broad commitment to different forms of co-operation; o By making the reasons for collaboration explicit; o By developing appropriate professionalism; o By providing supportive institutional mechanisms; o Through the exchange of personnel; joint training of students; and joint collaboration on broader matters such as local/regional development; o By considering possibilities other than licensing and royalties as means of enhancing value. <p>Collaboration can be overdone and can be contrary to the established culture. In particular, it is generally harmful to have too many partners involved, a tendency unfortunately encouraged by parts of the Framework Programme.</p>	<p>achieving institutional strength on the international stage, not by national boundaries.</p> <p>The ambition should be to find approaches that encourage successful diversity, not single solutions and fixed contracts.</p> <p>Industry shall aim to establish long-term relationships with certain university partners in order to outsource more effectively part of their research. It is the long term interaction which brings the largest benefits. This depends on mutual trust and creates shared belief that there is the prospect of long-term cooperation.</p> <p>Universities shall establish governance processes that support excellence at all levels. The authority of the university president as the chief executive shall be strengthened and appropriate management systems obtained based on a flexible but top-down approach.</p>
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Collaborative Research	Explanation	Suggested Resolution
<p>C1</p> <p>Align Interests.</p>	<p>The most important actions happen at the beginning of the collaboration. Too often, negotiations with universities are treated as side activities and are handled by inexperienced or overzealous junior executives. An effective strategic communication makes it easier to manage the collaboration, including discussing and agreeing necessary changes of direction during the project.</p>	<p>PDG: 1, 2, 3, 4</p> <p>Partners shall establish mechanisms to ensure that research collaborations have</p> <ul style="list-style-type: none"> • clear objectives and goals based on mutual strategic value; • committed people at the right level of seniority with clear lines of communication; • effective project management. <p>Once the “business case” for a project is established, resources and direction can fall naturally into place; and matters such as intellectual property, cultural diversity and funding can be resolved.</p>
<p>C2</p> <p>Establish First Ownership to Results.</p>	<p>There is evidence that more than half of the potential intellectual property that a university creates is lost in the first stages.</p> <p>Many parties may have a claim on the ownership of the results and background material, including:</p> <ul style="list-style-type: none"> o the university as provider of infrastructure and employer of some of the research staff; o researchers who are not on the payroll (fellowships, students, visiting researchers, etc); o through the residual rights granted by statute to researchers (professor privileges, copyrights, etc.). <p>Universities may not be in a position to guarantee</p>	<p>PDG: 2, 3, 4</p> <p>The basic requirement is to establish professional systems, policies and procedures within universities that will ensure that generated IP is licensable.</p> <p>In order for this to happen, we must take steps to ensure sufficient basic knowledge of Intellectual Property and Knowledge Transfer processes among researchers.</p>

C3	<p>Ownership of Results and IPR.</p>	<p>first ownership and right to grant licences</p> <p>Industry expects to own or to have sufficiently strong rights of use at a reasonable price to the intellectual products or services for which it has paid. Patents serve to protect information during the period in which further investments are made to establish whether the idea has value, then develop products, bring these to market and recoup the investment on failures as well as successes.</p> <p>Institutes tend to see patents as a more direct source of income to support their primary purpose of generating new knowledge. Sometimes they overstate the value of new discoveries by giving insufficient regard to the work and commercial risk required to transform the discovery into a valuable product or service.</p> <p>It is to be expected that general results will contribute to science and the university's own know-how. Universities cannot exclusively assign or license their know-how without creating conflict with their primary mission. Only well defined IPRs (patents, copyrights, etc) can be licensed exclusively or assigned.</p>	<p>PDG: 2, 4</p> <p>The trend in Europe is towards the situation in which results belong to the university, which grant royalty-free non-exclusive licenses to the industry partner. There is a right of first refusal to obtain an exclusive license.</p> <p>Agreements shall be clear up-front concerning options to future rights. There shall be no automatic pipeline on improvements. Exclusive licenses are subject to commitment of diligence.</p> <p>In accordance with the basic principles of "maximum beneficial use," assignment of certain IPRs is acceptable in certain conditions subject to grant back in other fields. This prevents the freezing of future development beyond the narrow area of interest.</p>
C4	<p>Joint Ownership.</p>	<p>This is sometimes unavoidable, so the consequences to be defined in the agreement. There are significant transatlantic differences: most European legal systems do not allow licensing by one joint owner without the consent of the others, thereby potentially giving one party blocking powers.</p>	<p>PDG: 2</p> <p>We recommend moving towards to the US approach:</p> <p>a) Agreements should provide the right for the parties to grant non-exclusive licenses; b) Fair return to the other parties in case of successful exploitation by one of the joint owners.</p>

C5	Access to Background Knowledge and IPR.	This is a key consideration in selecting a particular university. Conditions established may control or prevent the use of the foreground knowledge and IPR.	<p>PDG: 2</p> <p>This and the next point are best dealt with using the principle of “no surprises.”</p> <p>Conditions for access should be defined prior to entering the agreement. Access to other background is on a non-exclusive basis, to the extent required to use the results (= commitment not to sue).</p>
C6	Compensation for Use of Know How.	Non-exclusive access to background and non-exclusive use of foreground should normally be compensated	<p>PDG: 2</p> <p>Reasonable up-front licence fees.</p>
C7	Overheads.	Universities are discouraged to perform collaborative research, unless there is recovery of all direct costs and reasonable overheads. Typical overheads run in excess of 50% on direct costs. Certain governments (and the EC) are setting bad examples by limiting overheads to very low numbers (20%).	<p>PDG: 2</p> <p>Governments should discontinue their bad practice. Industry should be expected to pay normal overheads.</p> <p>There is information available on what this entails.</p>
C8	Time and energy spent negotiating agreements.	Time is of the essence. Very often the negotiation of agreements takes too much time. Problem areas are ownership of IP, use rights, confidentiality, diligence and reporting. Legal issues need to be consequent on objectives, not the driver.	<p>PDG: 2, 3, 4</p> <p>In order to encourage long term relationships, the parties should consider writing master contracts, to be extended through subsequent “add ons.”</p> <p>Start by defining what it to be achieved. Only then involve the lawyers.</p> <p>Agreements need to reflect the financial and operational risks accepted by the partners as well as the underlying cost of the work, intellectual contributions and ultimate benefits.</p>
C9	Rights of Use for R&D	This may become a problem in view of some recent US experience. The limits of the research	<p>PDG: 1, 2, 4</p> <p>Should be granted to the university partner for the</p>

	purposes.	exemption are too narrow and not well defined.	purposes of conducting non-commercial research
C10	Confidentiality.	Universities are bad places to keep trade secrets. Protection of sensitive industry partner confidential information can only be implemented on a case by case basis.	PDG: 2, 3 It should be made clear what is confidential. The working assumption should be that everything else is not confidential. Universities shall implement reasonable measures for the protection of sensitive partner trade secrets.
C11	Delays on Publication.	Universities' key objectives concern their contribution to public knowledge and education. The involvement of students imposes additional constraints (thesis, graduation, etc.)	PDG: 2, 3 The delay before publication or disclosure of research results should be limited to 90 days. This gives time to identify possible patent applications and check for possible partner confidential information.
C12	Conflicts of Commitment.	University investigators often manage several activities concurrently, in addition to teaching or practice. They are generally not trained in project management and do not operate well on tight schedules.	PDG: 1, 2, 3 Relieve investigators from project management tasks and appoint administrators to coordinate collaborative research projects. This requires a willingness to provide sufficient money for project management.

Knowledge Transfer and Technology Acquisition		Explanation	Suggested Resolution
T1	Demand from Industry	<p>It seems that the most useful IP produced by European universities is often acquired by American companies. It also seems that much of the IP owned by European universities is not good enough to justify commercialisation.</p> <p>Yet while universities are being exhorted to improve their knowledge and technology transfer activities, there is insufficient demand or interest. Companies do not approach universities unsolicited.</p>	<p>PDG: 1, 2, 3</p> <p>Establish mechanisms that encourage more frequent interaction between universities and companies.</p>
T2	Awareness by Academia	<p>There is insufficient awareness, consensus and activity regarding the importance of exploiting the fruits of R&D.</p>	<p>PDG: 1, 2, 3</p> <p>Make this an integral part of students' basic training.</p>
T3	License terms	<p>Universities may have unrealistic expectations concerning the prospective value of technology. By the same token, companies may seem greedy.</p>	<p>PDG: 4</p> <p>Ensure more experience and professionalism in transfer offices. Provide better training in Good Practice. Explore other forms of compensation than royalties.</p>
T4	Quality of IP rights	<p>When patent applications are taken by universities without clear knowledge of the exploitation routes and the limits to enforceability, these patents are generally deemed to be of lower quality. Ownership rights and determination of inventors not always clearly established.</p>	<p>PDG: 1, 3, 4</p> <p>This requires a more professional management of IPR within university transfer offices.</p>
T5	Grace period	<p>University researchers communicate regularly with their peers on worldwide level. The basic academic values do not involve keeping trade</p>	<p>PDG: 1, 4</p> <p>Industry should reconsider its opposition to the introduction of a grace period in the EP and</p>

		secrets, which would be difficult to protect anyhow in an open environment. The risk of disclosure prior to filing is therefore several orders of magnitude larger than in industry. Many patent applications are jeopardized, except when filing in the US, which has adopted a grace period system.	Community patent systems. The benefits from a more efficient technology transfer in the European market outweigh the potential problems. This requires systems that are consistent and ensures quality.
T6	Cost of patenting	The cost of obtaining a patent in Europe is a true scandal. The most cost-effective patenting strategy for a European university would be to file patent applications only in the USA (lower cost, large market, grace period, larger demand from US companies).	PDG: 1, 4 Lobby for a faster adoption of the community patent in Europe. European countries should waive the requirement of translation into the national language upon validation, and require it only upon enforcement. Maintenance taxes should be reduced for universities as this is a tax on innovation!
T7	Enforcement	Universities have little or no experience on enforcing their IP or the signed license agreements. Most are reluctant or do not have the resources to initiate litigation. Many companies "forget" to report sales and to pay license revenues.	PDG: 3, 4 Adoption and enforcement of clear equitable policy statements in companies
T8	Liabilities	Universities cannot extend the same kind of warranties or accept indemnification provisions. They cannot assume liability for indirect or consequential damages.	PDG: 3, 4

Parallel Discussion Groups – General Points

Each discussion group is being asked to consider and report on how to make effective one aspect of the processes of collaborative generation, transfer and application of knowledge.

- Group 1: Strategic Research Coordination: Maximising the Generation and Application of Useful Knowledge**
- Group 2: Establishing and Managing Collaborative R&D**
- Group 3: Getting the Right Skills in Place: Enhancing Professionalism**
- Group 4: Technology Transfer: The Nuts and Bolts**

On a spectrum from the strategic to the more technical, the groups are organised as follows:

Strategic < --- --- --- Tactical --- --- --- > Technical			
Group	1	3, 2	4

The points issued before the conference and included again in this workbook overlap with the discussion themes.

Each Group should aim to get a fix on which of the indicated points are the most important in respect of the questions that it is asked to consider; then identify where there is agreement, what good practices exist, and who should do what. It is not necessary to debate these points in detail.

Everyone is pre-assigned to one of the four groups. If you consider that you are in entirely the wrong group, please let us know. But where possible, please attend the group indicated – space is tight and we need to cover a wide agenda.

The Discussion Groups have available an overhead projector but not a beamer. Laptops will be available for the reporters to prepare a summary record for presentation the next morning.

We ask that all chairs, reporters and facilitators meet in the main plenary room at 18:15 to review progress.

Parallel Discussion Group 1 (Tour Eiffel)

Strategic Research Coordination: Maximising the Generation and Application of Useful Knowledge

- Chair: Fernando Conesa**
- Reporter: Bernard de Geus**
- Facilitator: Andrew Dearing**

This group’s working title is effectively a statement of faith, which the group may accept or refute. On the spectrum of responsibilities, you are asked to concern yourselves primarily with the contexts that are needed in order to achieve the desired strategic outcomes. However, you should not ignore the practical consequences of their recommendations.

Mandate

Deliver recommendations in order to achieve:

1. Clear definitions of the partners' roles, requirements and expectations;
2. Equitable policies for implementing these roles, requirements and expectations;
3. Collective "buy in" that ensure that the policies are taken seriously and put into practice;
4. Raised awareness of the importance of this process.

Each recommendation must be actionable. You should indicate who will take the lead and how.

You should also indicate areas of actual or potential conflicts of interest and how these can be overcome

Workbook Barriers and Solutions

Each Discussion Group should aim to get a fix on which of the following points set out in the Workbook are the most important in respect of the questions that it is asked to consider; then identify where there is agreement, what good practices exist, and who should do what. It is not necessary to debate these points in detail.

P1, C1, C9, C12, T1, T2, T4, T5, T6

Timing

With two hours available for discussion and to reach conclusions, please a) briefly agree what you will, and will not discuss; b) spend most of your time hearing about one another's experiences; and c) make sure you draw some conclusions.

We ask that all chairs, reporters and facilitators meet in the main plenary room at 18:15 to review progress.

Participants

Paul Baekelmans
Umberto Bertazzoni
Bernadette Conraths
Andrew Dearing
Joke van den Bandt
Bernard de Geus
Goran Canbäck
Fernando Conesa
Thomas Gering
Frank Gielen
Philip Graham
Richard Granger
Josef Koubek
Conor O'Carroll
Yuri Pokholkov
Bob Smailes

Xavier Testar
Francoise Thys
Frans van Vught
L. Wilkin
Hans de Wit
Jancia Ylikarjula

Parallel Discussion Group 2 (Tour de Babel)

Establishing and Managing Collaborative R&D

Chair: Jan van den Biesen
Reporter: Peter Van Der Sijde
Facilitator: Louise Heery

Please consider how to achieve the most effective conditions for productive joint R&D. Assume that group 1 has done its job, so that there is an overall recognition that collaboration is in principle seen to be important.

Mandate

Deliver recommendations in order to achieve:

1. Effective mechanisms for selecting partners and projects
2. Proper resourcing of these projects to achieve results that all partners consider useful
3. An atmosphere of trust and collaboration
4. Sufficient stability to ensure long-term excellence

Each recommendation must be actionable. You should indicate who shall take the lead and how.

You should also indicate areas of actual or potential conflicts of interest and how these can be overcome.

Workbook Barriers and Solutions

Each Discussion Group should aim to get a fix on which of the following points set out in the Workbook are the most important in respect of the questions that it is asked to consider; then identify where there is agreement, what good practices exist, and who should do what. It is not necessary to debate these points in detail.

C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, T1, T2

Timing

With only two hours available for discussion and to reach conclusions, please a) briefly agree what you will, and will not discuss; b) spend most of your time hearing about one another's experiences of good practice; and c) make sure you draw some conclusions.

We ask that all chairs, reporters and facilitators meet in the main plenary room at 18:15 to review progress.

Participants

George Bergeles
Ingela Bruner-Newton
Gilles Capart
Bjorne Clausen
Peter Debreczeni
Luc Haspeslagh
Philippe Le Bozec
Ziad Habib
Louise Heery
Bruno Hubesch
Ilkka Kartovaara
Mario Marchionna
Maurizio Martelli
Olga Mazurina
Shuichiro Ogawa
Nick Peacock
Christian Picory
Camille Roy
Krzysztof Santarek
Dominique Sijnave
David Skuse
Graham Sims
Matt Steijns
Indrek Tammeaid
Isik Tarakcioglu
Jan van den Biesen
Peter van der Sijde

Parallel Discussion Group 3 (Tower of London)

Getting the right skills in place: Enhancing professionalism

Chair: Phil Gamlen

Reporter: Martin Haywood

Facilitator: Inge Knudsen

This group's task is to establish how to achieve professional excellence at all levels in companies and public and private research organisations, capable of supporting the desired models for generating, transferring and applying of knowledge.

Mandate

Your mandate is to deliver recommendations that will ensure:

1. People who are well-prepared for the tasks they (and their colleagues) will perform in collaborative R&D/knowledge transfer activities
2. Adequate structural support in institutions and companies
3. Efficient and effective outcomes

Each recommendation must be actionable and you should indicate who shall take the lead and how.

You should also indicate areas of actual or potential conflicts of interest and how these can be overcome.

Workbook Barriers and Solutions

Each Discussion Group should aim to get a fix on which of the following points set out in the Workbook are the most important in respect of the questions that it is asked to consider; then identify where there is agreement, what good practices exist, and who should do what. It is not necessary to debate these points in detail.

P1, C1, C2, C8, C10, C11, C12, T1, T2, T4, T7, T8

Timing

With only two hours available for discussion and to reach conclusions, please a) briefly define what you will, and will not discuss; b) spend most of your time hearing about one another's experiences; and c) make sure you draw some conclusions.

We ask that all chairs, reporters and facilitators meet in the main plenary room at 18:15 to review progress.

Participants

Emmanuel Boudard
Adrian Curaj
Ian Dobson
Phil Gamlen
Barend de Graaf
Guy Haemers
Marko Hakovirta
Martin Haywood
Frank Heemskerk
Inge Knudsen
Marjan Konings
Tomasz Kosmider
Brian McCaul
Gillian McFadzean
Emmanuel Narinx
Max Nielsen
Hendrik Oerskov
Pierre Saintoyant
Martin Sandford
Hendrik Schlesing
Ake Sjoström
Mette Skraastad

Parallel Discussion Group 4 (Tour Noire)

Technology Transfer: The Nuts and Bolts

Chair: Pat Frain

Reporter: Albert Zeestraten

Facilitator: Rebecca Ward

This group's responsibilities are at the tactical end of the spectrum. You are asked to consider the actual tasks that have to be handled in order for generated knowledge to have commercial value and for that value to be realised.

Mandate

Deliver recommendations that will ensure that:

1. Generated knowledge and technologies can have realisable value,
2. The transfer process is handled efficiently,
3. The outcome is productive and seen to be equitable and worthwhile.

Each recommendation must be actionable and you should indicate who shall take the lead and how.

You should also indicate areas of actual or potential conflicts of interest and how these can be overcome.

Workbook Barriers and Solutions

Each Discussion Group should aim to get a fix on which of the following points set out in the Workbook are the most important in respect of the questions that it is asked to consider; then identify where there is agreement, what good practices exist, and who should do what. It is not necessary to debate these points in detail.

C1, C2, C3, C4, C8, C9, T3, T4, T5, T6, T7, T8

Timing

With only two hours available for discussion and to reach conclusions, please a) briefly define what you will, and will not discuss; b) spend most of your time hearing about one another's experiences; and c) make sure you draw some conclusions.

We ask that all chairs, reporters and facilitators meet in the main plenary room at 18:15 to review progress.

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Ignacio De Castro

Jim DeCorpo

Bernard De Potter

Thomas Eberle

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Paul van Grevenstein
Lotte Jaspers
Thomas Kadi
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Bruno Lambrecht
Luc Meesters
Alain de Meringo
Laurent Miéville
Trevor Newsom
Consuelo Penataro-Yori
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Jan Rolfes
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Shell

Some Backgrounds, Hopes and Expectations

We invited delegates to describe what they hoped this conference would achieve and to indicate particular additional points of interest. Here is some of the feedback we received:

Camille Roy, Renault

Camille is attending the conference mainly to learn and share experience with other partners. She says that the most important recommendations that the conference could bring her are:

- a) an exchange of the best practices in collaborative R&D*
- b) the key issues and advice for managing joint research successfully*

Since the start of the year, I am working at the Research Division within the team "Research Strategy & International Networks", dealing specifically with International Networks (i.e. cooperation with Universities outside of the EU). Between June 2000 and the end of last year, I was in charge of the coordination of EU-funded R&D projects (FP5 mainly) also at the Research Division of RENAULT. My main task was the administration and financial aspects of cooperative projects (funded by the European Commission and the French Ministries).

Phil Gamlen, ICI

This topic is as long as a piece of string so we need to be careful to focus on the level appropriate for the policy makers. We may need to consider also the following areas (no priority implied).

- 1) Technology Transfer Block exemption - OK still being revised, but potentially a major problem. A good opportunity to get industry's input.*
- 2) Inconsistent National policies on rewarding inventors in institutes for the patents they have produced. Produces tensions in cross border collaborations.*
- 3) Inconsistent systems of postgraduate and postdoctoral studies (duration, funding etc). Affects the way they participate in projects with Industry.*
- 4) Inconsistent Institution policies on staff participation in industrial projects or consultancies. Produces tensions in cross border projects and removes some possible collaborators from the frame.*
- 5) Domination of some institutions by large local employees; effectively sterilizes the institution. Some anecdotal evidence that this is also done deliberately to exclude competitors from gaining access to certain key groups.*
- 6) Need to distinguish between a much wider range of potential suppliers viz Universities; Government funded research laboratories; commercial research laboratories.*
- 7) Need to broaden the consideration of customers e.g MNEs, local SMEs, and Venture Funds/Capital.*
- 8) Need to make the nature of the work explicit because there is a world of difference between long term exploration of an emerging area of science and the short term development of a piece of technology.*
- 9) This has an impact on the choice of a postgrad or a postdoc to do the work i.e. a post grad is a three or four year commitment as there is a link to the PhD at the end. This means the postgrad is most likely to get the longer term, more speculative work - however they are the least experienced to do it, and they suffer the most if the work doesn't turn out as expected (PhD fails). By contrast the postdoc*

gets the short term contract work that can be turned off at a moment's notice if milestones are not passed or the economy takes a dive.

10) Industry is usually loath to pay for capital investments in Universities. The proper funding bodies have also pulled back on this kind of spend, hence the infrastructure, and the instrumentation, is rapidly ageing and well off the leading edge required.

11) Conversely the higher quality institutions often 'suffer' from the fact that they are not short of funding, hence they see no need to take any interest in industrially focussed projects... 'we don't need the money' So the very best folk don't bother with industry.

12) Strong patents require a lot of work to get a broad claim and to have strong examples. This is often 'grunt' work and the Universities neither have the time or the funds to do this and get their patents strong.

13) Many of the hurdles in setting up projects come from the fact that the University Administration Office and the academic collaborator often don't know about each other, and so you get parallel and disconnected (and often inconsistent) negotiations going on in isolation. This gives problems with the project budgets, and with intellectual property ownership. All of this slows things down.

Having said all this - the UK is still a great place to work with the Universities, particularly with respect to the USA.

Gillian E McFadzean, Heriot-Watt University

Gillian has worked in university administration for over twenty years covering 4 Scottish universities from very ancient to "paint just dried". She has specialised in research policy and support and related knowledge transfer activity firstly at University of Stirling before joining Heriot-Watt in 2000. She is Chair-elect of the Association for University Research & Industry Links. AURIL's main focus is on lobbying government and industry leaders on KT matters and university/industry research. AURIL is also promoting development of the profession through training.

She says that she would like us to achieve consensus on:

a) how IP ownership should be handled in a range of scenarios such as collaborative research; contract research; licensing. To do this means that industry must recognise the costs of research and be willing to meet those costs or to value the IP and allow the universities to retain it instead of paying the full cost plus a small premium for research.

b) what needs to be done at government level (or European level) to allow this situation to be achieved

c) how all the players industry across Europe, and governments, can be persuaded to accept this position.

Regis Poisson, AETV-Balard

This congress is interesting for me at three levels

* I accumulated 20+ years of experience as R&D director, building relationship with universities and public research

* I am member of "ingénieur schools" boards and president of the board of ECPM in Strasbourg. The specificity of ECPM is to deliver an education in three languages to French students but also to foreign students mainly German and Spanish. I know through these positions the other side of the story. And I think the problems are really coming from this side.

** As a consultant, my mission is to help people in making the right decision in their innovation process. This is one of my activities to advise people in the establishment of relationship with the right laboratory. As soon as a company want to play in an area, which is not its core business or core competence, it is wise to go to companies like ours. Even of course if the R&D organisations could do the job by questioning colleagues. Time is money!*

a) In French universities, there is a lack of education (sic) and management skill as regards to innovation in the complete extent of the meaning and this is amplified by the political attitude that continues to maintain confusion between discovery, invention and innovation. See the last declaration of the UIC general manager, Jean Pelin, who pleaded in favour of an aggressive R&D fundamental research program to help the chemical industry!

b) On the other side there is a lack of education of the politicians and the managers as regard to innovation. We, R&D directors and members of the EIRMA, who spent our live between the general managers and the inside or outside research organisations, are well placed to talk about the structural difficulty of relationship between R&D future minded people and short term money minded managers. People are not aware of the slowness and the cost of the development of an innovation, this slowness (and cost) being exponentially dependant of the "breakthroughness" of the innovation.

Regis recently created his own company having spent 22 years in Rhone Poulenc in the field of inorganic materials and their applications, following which 12 years as R&D Director. He spent, afterwards, 9 years in Benelux, as R&D Europe Director in the Lhoist Company, worldwide leader in lime products and dolime refractory, to set up an R&D organisation. After two years as an associate director in a consulting company, he started his own business. He is active in the EIRMA as an individual member, member of the French scientific societies SFC (chemistry) and SF2M (materials) and Chairman of the board of the ECPM (European French "ingenieur" school of chemistry) located in Strasbourg.

Indrek Tammeaid, University of Helsinki

My focus is on the establishment and management of collaborative research programmes. As you mentioned in your overview document the bugbear is often misunderstanding of roles and languages.

Firstly, what is the purpose of these activities? If it is knowledge, then what kind of knowledge it is? Is it a purely scientific-technical knowledge or a broader entity of program/project knowledge? From my perspective, program/project knowledge includes also R & D process knowledge (procedural knowledge) and organizational (structural knowledge). Also access to human capital and access to certain networks could be fiscally measurable benefits of collaborative research activities.

And here's my question: if the expected results/outcome is far more than the technical report, what are the management practices and processes of this collaborative action which allow to get these expected deliverables. Especially companies spending/investing substantial amounts of funds are very much interested to capture also at least part of the tacit knowledge created in these activities. My experience is that, this is a question too often overlooked.

Secondly, as you wrote again in your background document companies and public institutions have usually different economical and societal roles. I think this is not the problem, but the problems do occur when we do not articulate this and do not come up with clear objectives. Representing here academia, I still honestly admit that in this question the biggest problems exist within universities and public research institutions. Too often private sector is seen only as an additional funding agency.

Public organizations and especially universities may be great value creators to private enterprises, but this need more systematic and strategic approach. The University of Helsinki is taking a step further

from CRM in developing our strategic partnership relations with approach we call meaning management.

Summarizing my points: we cannot separate three issues you brought up. As you wrote yourself, we are living in non-linear world. My view is quite simple collaborative research should be designed and carried out in a way it creates value (should be measurable) to all stakeholders. The process of knowledge transfer is then part of the Collaborative research process. Separating CR and knowledge transfer could be like separating product/service delivery and customer service in business world.

Işık Tarakçıoğlu, Textile and Apparel Research Center

Işık Tarakçıoğlu graduated from the University of Stuttgart / Germany as a textile chemist. He received his Ph.D. degree in textile chemistry at the same university. In 1982 he was offered a chair by Uludağ University. He is the founding director of Textile & Apparel Research Center and of Emel Akın College at Ege University. At present he is working as the founding director in Textile Research Center of The Scientific and Technical Research Council of Turkey.

Quite the contrary to the Western and Northern European Countries, in Turkey unfortunately there isn't a long-established tradition of collaborative work among industrial companies and public institutes. We are at the very beginning of collaborative research and development activities. So at this moment I don't want to express my view of the most important conclusions and recommendations that this conference can deliver.

For me as the director of a new established collaborative R&D Center (Some information about our Center is attached), it is important to learn what is the common good practice of managing joint research. I am sure this meeting will provide me a good opportunity to discuss the issues of effective collaborative R&D and knowledge transfer with distinguished experts from many countries and the several parts of civil society. I have no doubt that I shall leave the Conference with a clearer understanding of what others want to achieve and how different interests can be aligned.

Jan van den Biesen, Philips

Jan is Vice President of Philips Research and Director of Public R&D Programmes, he is currently heading EuroPartners, a department facilitating and coordinating Philips' participation in public programmes for R&D partnerships in Europe. In addition, he is representing Philips' R&D interests with public authorities in Europe. Educated as a physicist at Leiden University, Jan spent one year as a postdoc at the University of California in Berkeley before joining Philips in 1983 to work on semiconductor research.

He is "somewhat surprised by the overwhelming attention paid to IPR issues in the session on collaborative R&D. Maybe that is even symptomatic for the problem."

Göran Canbäck, SCA

Göran Canbäck's academic background began with a PhD in Polymer Science. He has worked in pharmaceutical industry R&D (Astra Zeneca) and hygiene products R&D (SCA). He is currently R&D Director, Fellow Scientist, co-ordinating and developing the external R&D network for the SCA Group.

He emphasises these points:

1. *This meeting is targeting large companies. As such we operate on a global basis.*

The background of this conference has a European dimension that might not always be aligned with the interests of global companies. The question is therefore how to balance these interests in this EU-focused consensus work.

2. *In my experience we need to develop a common way (industry-PRO) of estimating the value of IP from public research organisations.*
3. *We need a pan-European view on ownership of IP in PROs. Today the differences between states in the EU complicate contract work.*

Fernando Conesa, Universidad Politécnica de Valencia

Fernando Conesa is Deputy Director of the Research and Transfer Office of the Universidad Politécnica de Valencia "CTT". Relevant 2003 figures: turnover 35M€ (60% private, 40% public), 21 priority patent applications, 3 new spin-off.

Overarching principles:

1. *Specific university-industry collaborations are of high interest, but both companies and universities should also foster mid & long term collaborations which should be based on strategic policies. They may consider:*
 - a) *Joint projects, with knowledge flow in both directions*
 - b) *Several interactions mechanisms (projects, placements, training,...)*
 - c) *Pluriannual approach*
2. *Partnership potential, talent and excellence is not concentrated in a few sites, but may be found across Europe. Regional impact of long term collaborations should be considered and appreciated not only by both parties but also by other regional players.*

Ownership of Results and IPR:

3. *In those cases where ownership of results is assigned to industry, this should not include skills, know-how, techniques or intermediate information developed as a result of the project but which are not part of the intended results. These skills, know-how, techniques and information should be of free use for further R&D of the university.*

Use of licensed knowledge:

4. *Industry should not acquire/get a license of public university knowledge to prevent its use by others.*

Liabilities:

5. *Industry should cooperate with university in identifying university patent infringements by third parties.*
6. *An insurance system and a syndicate system should be established to facilitate university patent litigations when needed.*

Matt Steijns, Dow

Matt leads Dow Chemical Company's External Technology activities in Europe. Based on research/technology needs, which Dow does not want to address on its own, he gets involved in the

identification of suitable European research partners (universities, research institutes and companies). Next he facilitates the negotiation/conclusion of research agreements (bi- and multilateral). Where appropriate, Dow may participate in national and European programs, aimed at supporting/funding collaborative R&D in fields of interest. Furthermore he acts as the Dow R&D representative in various European networks and associations.

He hopes to get a better impression on what represents a typical and fair cooperation agreement between a European university and a company. What are the Do's and Don'ts, so really some practical/actionable guidelines, which can be used? In particular, he would like to hear about typical/fair IPR arrangements, the ownership and rights of use of generated knowledge.

Gerard A. van de Schootbrugge, TNO

Gerard A. van de Schootbrugge is a physicist, educated at the University of Utrecht. His career has been spent with TNO in the Netherlands and he is currently Coordinator EU Framework.

"A good start is half the work"

The EU framework programme triggers and encourages international R&D cooperation. And there are some very good reasons to act in this way. The broadness, complexity and speed of development of science and technology are such that specialization is needed on every level: in science and technology itself, in companies and even in countries. For many modern challenges and problems there are no simple answers or solutions. In those cases, the combined brainpower and the complementary experience of large groups of scientists and engineers is required to make progress. And for most participants in these large R&D projects the profit is much higher than just what results from their specified part in the project. The collaboration and interaction with other partners create a stimulating and learning atmosphere.

But cooperation in these international consortia has its own problems. I list some of the main issues that could obstruct an optimal result:

- Lack of trust
- Lack of commitment
- Different interpretations of objectives and sub-objectives
- Different agendas
- Different cultures
- Lack of personal interaction

It is clear that these aspects are not independent. It is also clear that they have to be addressed in the preparation phase of a project. However, especially in the big projects we have in FP6, it is quite expensive to invest enough time in countering these potential threats. The Commission should consider the option of funding these pre-contract activities to improve the success rate of the big instruments they have introduced to strengthen the European Research Area.

Conor O'Carroll, Conference of Heads of Irish Universities (CHIU),

I would like to make some comments on Policy Framework and on another aspect, how the University sector can collaborate with industry at a more general level to create an environment conducive to collaboration.

Policy Framework - Role of Government

The role of the government and research funding agencies in the overall collaborative process should not be ignored. For example, in Ireland, we have worked during 2003 with our main government departments and funding agencies in developing a National Code of Practice on Intellectual Property from Publicly Funded Research (final draft attached); this will be finalised in early February. The objective in 2004 is to produce National Code of Practice on Intellectual Property from Public/Industry Funded Research. I expect that this will be more difficult than the former but will provide a national framework for University/Industry interactions in Ireland.

Creating the Right Environment

Access to Research Expertise in the Universities

At a strategic level the 9 universities on the island of Ireland are collaborating to provide a web portal that will give online access to all of the research expertise in the academic sector. This has been strongly backed by Irish industry as a means for companies to source research expertise for collaboration, consultancy etc. The web portal is currently populated by researchers from 7 of the 9 universities and is expected to be fully populated by May 2004. The project is funded by InterTrade Ireland (cross border funding agency) and you can access it at www.expertiseireland.com. This started as a University initiative to put the CV's of academic staff online but quickly realised the potential of allowing full public access to this information via a web portal. We are now discussing with the Irish and Multinational industry sector putting the research expertise of companies online as the next step.

Universities providing direct support to Industry in FP6

We are fortunate that our office provides the national delegate and contact point to the Marie Curie Programme in FP6. While our universities are fairly well resourced in this area through their Research Offices this is not the case for companies. We help companies write proposals for this programme and also provide more generic information on FP6 issues (consortium agreements, cost models etc). This has been excellent for building up "good will" between Universities and Industry.

I see the examples above as the type of strategic initiatives that will facilitate greater University/Industry collaboration.

In addition to the above I would like to stress that I see agreed policy frameworks at regional, national and European level as critically important. As I mentioned above we are seeking to develop a National Code of Practice on IP from public/industry funded research this year in Ireland. This will be difficult but the result should give enough scope for individual deals. It will certainly help to manage expectations on both sides before detailed negotiations begin.