



Responsible Partnering

Joining forces in a world of open innovation

A guide to better practices for collaborative research between science and industry



Europe has long been known for its excellence in research. Studies and surveys demonstrate year after year that we are world-leaders when it comes to publishing articles in scientific journals. However, Europe is still relatively weak in translating the results of research into innovative products and services that can boost competitiveness.

We raised this very point in the European Commission's contribution to the Spring European Council – "*Working together for growth and jobs*" – where we state that, in order to meet the Lisbon agenda and Barcelona (3%) objective, "*Universities' contribution to the creation and dissemination of knowledge throughout the Union must be reinforced*".

We firmly believe that, unless research results are properly disseminated and exploited, merely increasing the quantity of European research will fail to exert an optimal impact on Europe's competitiveness.

One of the principal barriers to such exploitation of results has historically been the difficulty in aligning university and industry interests, especially in the perspective of creating long-term partnerships. We are therefore extremely pleased that European stakeholders – EIRMA, EUA, EARTO and ProTon – have taken the initiative and developed this *Handbook on Responsible Partnering*. It will contribute towards building an internal market for research, knowledge and technology in Europe, by helping to create a level playing field for transnational cooperation between industry and public research organisations.

Evidently, additional work will be necessary to promote the actual implementation of the good practices identified so far, to explore some of them in more detail and to complement them by tackling additional issues.

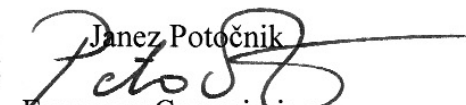
This is why we see this initiative as a process rather than a product. A process in which European universities and industry will interact more regularly than in the past, building trust and establishing mutually beneficial relations, while respecting each others' core objectives.

We call upon European universities and industry to adhere to this initiative in the most constructive way possible, for the benefit of European society at large.



Günter Verheugen

European Commission Vice-President for
Enterprise and Industry



Janez Potočnik
European Commissioner
Science and Research

Responsible Partnering

Joining Forces in a World of Open Innovation

A Guide to Better Practices for Collaborative Research and Knowledge Transfer between Science and Industry

What's in this for us?

This Handbook describes a voluntary programme of **Responsible Partnering** aimed at improving the organisation, management and overall effectiveness of joint research and strategic knowledge transfer activities involving public research organisations and companies. The Handbook contains guidelines (not rules) intended to help senior managers in the public and private sectors responsible for the creation, transfer and application of knowledge.

The world in which research, development and innovation take place has changed fundamentally. Today, Open Science and Open Innovation co-exist, creating new opportunities and interdependencies. New management practices are required to handle the situation. As the subtitles make clear, this Handbook is about achieving these practices, realising these opportunities and making better use of the skills and knowledge that are available.

For Companies

Outsourcing now accounts for around 10% of business sector R&D. With the R&D investment of European companies exceeding €100 billion, the payback from even small improvements in the efficiency of outsourcing is clear. Responsible Partnering offers the prospect of large improvements. More important, it offers the prospect of greater effectiveness: the possibility to create more value from the investment.

For Universities

Knowledge transfer is increasingly seen as part of the core mission of universities. By establishing the foundations for successful research partnerships with industry and public bodies, Responsible Partnering reinforces the value of the university within society, creates new opportunities and enhances the prospect for continued top-quality research and education.

For Research and Technology Organisations

As research and technology organisations become more market-oriented, it is important that they know how to create, apply and transfer knowledge effectively. Responsible Partnering develops that capacity by creating better mutual awareness and understanding.

For Society

Society benefits most when the fruits of research are fully exploited. Responsible Partnering creates more opportunities for this to happen. Without substantial “bottom-up” engagement of the type that Responsible Partnering promotes, it will be impossible for Europe to achieve the political objectives embodied in the Lisbon Declaration.

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Definitions

Responsible Partnering	<p>An initiative intended to improve the effectiveness of joint research and knowledge transfer activities involving Public Research Organisations and Companies by means of a voluntary programme.</p> <p>Responsible Partnering addresses situations in which participants from the public and private sectors make significant contributions to the eventual success of joint projects. The principles that are set out in this Handbook have been obtained by examining factors that have proved to lead to sustainable “win-win” situations. Implementing these principles depends primarily on establishing appropriate organisational strategies and professional management skills.</p> <p>In adhering to Responsible Partnering, PROs and Companies recognise that their interests interact and establish procedures that enable them to work together effectively. Responsible Partnering does not provide a rule book. In the first instance, compliance is validated through a process of self-certification.</p>
Public Research Organisation (PRO)	<p>Universities, Research and Technology Organisations and other publicly-funded bodies carrying out research and/or development work that can achieve broader application and benefit.</p>
Collaborative Research Agreement	<p>The contract document setting out the purpose, objectives and conditions of an intended collaboration research project or programme of projects.</p>
Open Science	<p>The traditional paradigm of research between scientists worldwide based on the free collaboration and rapid public disclosure of results with no restrictions on use other than acknowledging the source.</p>
Open Innovation	<p>The emerging paradigm for innovation, involving business models that use partnering, licensing and venturing to combine internal and external sources of ideas and technologies.</p>

1. Scope and Purpose

Summary

- 1.1 This Handbook describes a voluntary programme of Responsible Partnering intended to help Public Research Organisations and Companies improve the effectiveness of their collaborative research and knowledge transfer activities. The Handbook is aimed primarily towards senior managers with strategic or operational responsibilities for the creation, transfer and application of knowledge.
- 1.2 The Handbook is organised into the following sections:
- Scope and Purpose
 - Collaborative Research and Knowledge Transfer as Key Sources of Innovation
 - Responsible Partnering
 - Identifying Good Partners
 - Constructing the Collaborative Research Agreement
- Appendices map out a three-stage approach for implementing Responsible Partnering (“Entry”, “Expert” and “Strategic” levels) and establishing suitable assurance processes. References point to reports and web sites that can also help make the programme concrete. Some concluding remarks are given that may help the development of national and European public policies to support the objectives of Responsible Partnering.
- 1.3 Responsible Partnering builds on experience shared at a Special Conference held in 2004 among the members of Europe’s leading associations for research-based companies (EIRMA), universities (EUA), research and technology organisations (EARTO) and knowledge transfer organisations linked to PROs (ProTon Europe). The report [1] of that Conference illuminates the reasons for preparing this Handbook.
- 1.4 In this first edition, the Handbook is concerned primarily with collaborations between PROs and larger companies. The needs of smaller innovative companies are also important, and we believe that these fit within this programme. During the next stage, we will check that this is the case, and if necessary extend Responsible Partnering to serve also the needs of this constituency.
- 1.5 All effective partnerships require mutual understanding and respect, a certain amount of give-and-take, and a great deal of professionalism and hard work. The purpose of Responsible Partnering is to achieve durable, effective collaborations, not to give rules that should be followed regardless of other considerations. Our hope is that readers will treat the Handbook in this spirit and use the contents mainly to inform and guide their own behaviour, not as a way of imposing their values on potential partners.

Responsible Partnering as part of effective Collaborative Research and Knowledge Transfer

- 1.6 The research, development and knowledge transfer activities of Public Research Organisations and Companies underpin the vitality of our societies. Better integration of these activities has become an increasingly important part of the process of developing advanced knowledge and skills, converting these into useful products and services, and ensuring the continued availability of high quality jobs and cadres of educated, informed people. Achieving this integration depends on developing effective forms of collaboration between public and private sector organisations [2].
- 1.7 Many rapid changes are occurring in approaches to research and innovation. While industries and public organisations have different needs and face different challenges, it is certainly possible to learn from their experiences and often possible to transfer the solutions they have found.
- 1.8 Responsible Partnering offers a flexible, voluntary framework for achieving more effective research collaboration and knowledge transfer, based on these experiences, solutions and good working practices. Its objective is to provide greater value for all parties and to enable Public Research Organisations to make useful and direct contributions to innovation without detriment to their core missions. Responsible Partnering highlights:

- The opportunity and urgent need for step-change improvements in the effectiveness of collaborative research, knowledge transfer and useful knowledge transformation;
 - The need for systematic and systemic efforts at a senior level in order to gain these benefits.
 - The shared responsibility for creating a competitive system of innovation.
- 1.9 Responsible Partnering focuses first on making a proper assessment of the part that joint research and knowledge transfer activities shall make in meeting a Company's and a PRO's strategic objectives. It then addresses how to develop and implement these activities and how to ensure that the approach works properly. Aspects of the framework concern the equitable handling of the Intellectual Property as one important element within the overall task.
- 1.10 The Handbook defines two principles as building blocks governing the use of knowledge that has been created or made possible through public funding. It provides ten guidelines to make these principles operational. From these guidelines, a compliance process is developed, tailored to reflect the distinct needs and activities of Companies, Universities and Research and Technology Organisations.
- 1.11 Gaining full benefits from Responsible Partnering will depend on widespread stakeholder adoption and supportive public policy measures. As more players adopt the approach, the guidelines given in this Handbook are expected to evolve to reflect experiences and to accommodate other aspects of innovation.

Durable Partnerships

- 1.12 From experience, we find that research tends to be most productive within stable frameworks that are nonetheless punctuated from time to time by new ideas and challenges. Collaborative research will also deliver the greatest benefits within these long-term partnerships. It is trust and stability, not the contract, which provide the conditions for establishing programmes that meet partners' needs. These result from demonstrated commitment, leading to good results, mutual understanding and respect.
- 1.13 Durable collaboration takes many forms:
- Continuing affiliations to sustain a succession of projects between companies and PROs and underpin key skills and resources.
 - Long-term strategic efforts, perhaps involving a dynamic group of players. The human genome project is a good example.

Figure 1 classifies different forms of collaboration in a matrix, according to the level (individual or institutional) of organisation within the Company and the PRO.

Responsible Partnering is concerned mainly with the top right hand corner of the matrix (institution-to-institution) and with encouraging movement into this box where appropriate.

So-called "Contract Research" tends to be shorter-term in nature, driven by different dynamics, and requires specific types of agreement that reflect the straightforward business deal that is intended. Nonetheless, many of the principles of Responsible Partnering remain relevant.

PRO	<i>Institutional</i>	<ul style="list-style-type: none"> • Part time professors • Academic sabbaticals • Secondments • Governing boards 	<ul style="list-style-type: none"> • Industrial affiliation • Strategic consortia • External programmes • Subsidiary programmes
	<i>Individual</i>	<ul style="list-style-type: none"> • Peer-to-peer contacts • Conference visits • Guest lectures • Committees 	<ul style="list-style-type: none"> • Students (MSc/PhD) • Postdocs • Industrial sabbaticals • Advisors
		<i>Individual</i>	<i>Institutional</i>

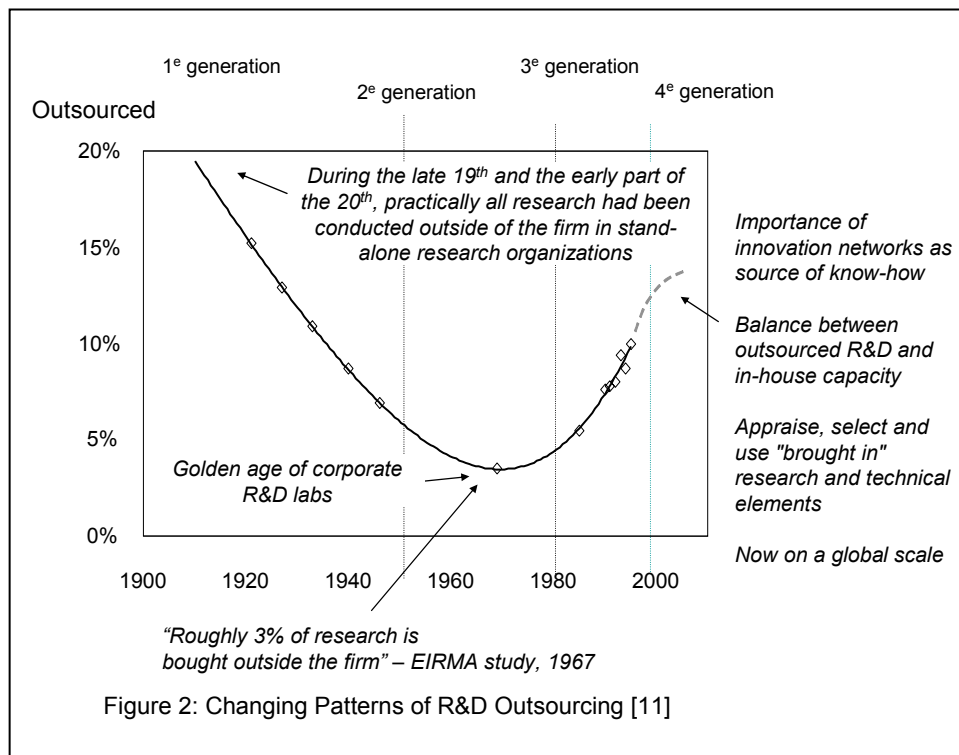
Company

Figure 1: Scales of Collaboration [11]

2 Collaborative Research and Knowledge Transfer as Key Sources of Innovation

The Trend towards Open Innovation

- 2.1 Europe's dense network of Public Research Organisations carries out work of the highest standards. Its knowledge creation capacity (particularly of universities) has traditionally been measured by the number and quality of publications and trained students that emerge. In this "Open Science Model," researchers collaborate closely, but often without regard to securing wider economic value and social benefits from the knowledge they are creating. Today, and particularly in Europe, more attention is being given to realising achieving this value and benefits. The trend towards new patterns of innovation (often referred to as Open Innovation [5]) highlights that such new opportunities exist and can be realised.
- 2.2 Figure 2 illustrates this shift towards much greater collaboration among companies and between companies and public research organisations.



- 2.3 At the same time:
- European universities are proactively resolving to play a more active role in the innovation process and implement policies and resources to do this effectively.
 - Public research and technology organisations are learning to become more market-oriented.
 - Companies are recognizing the value of leveraging the results of public research as sources of innovation for increasingly complex products and services.
 - Public policies at local, national and European levels are encouraging greater commercial exploitation of the available public research and knowledge base.
- 2.4 Many PROs have implemented processes to address three main areas:
- Managing the knowledge they generate as (tradable) Intellectual Property (IP);

- Leveraging this knowledge and IP by working with industry, so achieving short- and medium-term economic benefits and better skills and competencies; and
 - By creating new companies that seed longer-term economic rejuvenation.
- 2.5 These initiatives are described in recent reports [3, 4] sponsored by the European Commission and OECD. Results have been very encouraging for all parties involved. As more adopt similar measures, Europe becomes a very interesting place to develop businesses building upon the knowledge base.
- 2.6 Gaining the full benefits of Open Science and Open Innovation requires some changes in the way that knowledge generated by PROs is handled and protected. To the question “Why should these PROs protect intellectual property,” appropriate answers are “To encourage the economic applications of their discoveries for the benefit of the public” and “To make the research function more attractive and better supported.” To the question “How should this property be protected,” it is appropriate that the PRO takes steps itself, provided these steps reflect good understanding of where and how the benefits can accrue. A blanket policy of patent protection is unlikely to be appropriate for an institute any more than for a company, since these patents have to be managed and in some way applied before they will create value.
- 2.7 A number of national governments have developed codes of conduct that describe how to handle IP generated by publicly funded research. Some governments and national industry federations are now considering the handling of collaborative research [8]. Groups such as AURIL and Proton have described the professional skills required within the PRO to handle the knowledge transfer task well [9].

Aligning Interests and Achieving Equity

- 2.8 Among the challenges of realising the benefits of Open Innovation are to align interests and achieve equitable outcomes without causing complacency. This requires that each partner understands and respects what is important to others and to themselves.
- 2.9 Universities serve the public interest through education and research, and are now expected to address the third mission of knowledge transfer. The academic measures of quality relate to publication records, teaching standards and intellectual rigour. Companies aim to satisfy customer needs and maximize shareholder value while facing increasingly global competition and product complexity. Speed, consistency and predictability are central to reducing the risks that are inherent in their business investments and activities. Public Research Organisations (especially those of a non-academic nature) are under pressure to become more self-sufficient, perhaps moving from public to private sector ownership. They must demonstrate that the institute’s knowledge has broad value and that this knowledge can be managed and developed professionally and in ways that realise this value.
- 2.10 Examination of successful collaborations in the USA and Europe shows that sustainable “win-win” structures can be obtained, which:
- Produce good science;
 - Publish results without unreasonable delay;
 - Contribute to the general education and training of new graduates; and
 - Generate valuable intellectual property that supports innovation by private sector partners.
- The principles and guidelines in this Handbook come from analysing these examples. [2, 6, 7]
- 2.11 By the same token, the commonest sources of difficulties concern:
- Lack of professionalism on both sides, including poor project and IP management;
 - Diverging interests and cultures and volatile relationships;
 - Problems over speed of negotiation, ownership of results and exclusivity;
 - Compensation for indirect costs and background knowledge;
 - Fair returns in the event of successful commercialisation.

3 Responsible Partnering

- 3.1 Responsible Partnering is a voluntary programme for improving the effectiveness of collaborative research and knowledge transfer. The programme addresses the strategic role and organisation of these activities and the handling of knowledge and intellectual property.
- 3.2 The potential benefits are far-reaching and will result from the voluntary subscription of a sufficient number of PROs and companies. Widespread adoption will demonstrate that a systematic and equitable approach provides better results for the individual and for society than case-by-case appropriation of the fruits of public research. It will also make it more difficult for some players to benefit from flaws in the current system at the expense of more responsible players and the sustainability of public research.
- 3.3 Although many aspects of Responsible Partnering will apply regardless of the nature and time scale of the collaboration, it is important to emphasise that the programme is concerned primarily with establishing the conditions that lead to durable collaboration.

Two Principles that underpin Responsible Partnering

- 3.4 Two principles underpin Responsible Partnering. These are described and then elaborated into ten guidelines, capable of being implemented in a staged approach by companies and PROs. The manner of implementation depends on the nature and priorities of the organisation. The Appendices suggest an certification and benchmarking process in the form of checklists describing three levels of compliance.

3.4.1 Maximum Beneficial Use of Public Research

There are many reasons why public money is invested in the creation of new knowledge, including the better education of people, the desire for economic competitiveness, to address social priorities and to obtain well-informed societies. Whatever the reason, benefits appear only when knowledge is disseminated and put to productive use.

This first principle recognises the need to demonstrate that such benefits are being achieved. In adhering to Responsible Partnering, the public and private partners:

- recognize the importance of continued public investment in knowledge creation and the importance of quality;
- understand the need to achieve maximum beneficial use of the knowledge and skills generated through public sponsorship; and
- commit to taking steps that contribute to this objective.

This requires the adoption of policies that reflect:

- the role of public institutions within their communities and their relationships with the business sector;
- the need to generate knowledge and skills that will be appropriate to the needs of these stakeholders;
- the need for effective mechanisms for disseminating and transferring knowledge and skills; and
- the need to protect knowledge and skills in ways that encourage productive application.

3.4.2 Responsible Use of Public Research

Many types of knowledge and skills are used to produce useful products and services. In adhering to Responsible Partnering, public and private sector bodies also recognise that their success depends on others' contributions. This leads to policies that concern the Responsible Use of Public Research:

- the responsibility to be diligent in developing research results and inventions
- the need for all parties to share equitably in the rights to these results and inventions;
- the expectations of these partners when engaging in joint programmes to achieve lasting benefit;

- the need to ensure that results and inventions resulting from public investment are used in ways that also serve the general public interest;
- the need to organise collaborations in ways that foster their long-term vitality; and
- assurance that ethical aspects of the research are taken fully into account.

Ten Guidelines that turn these Principles into Action

3.5 From these two principles, some actionable guidelines can be obtained, illustrated in figure 3.

3.5.1 Foster strong institutions

Strong, well-connected public institutions are essential in order to ensure continued, privileged access to world-class knowledge and skills. We share vested interests in sustaining this strength and connectivity. Responsible Partnership requires that Companies and PROs take steps to reinforce this strength.

3.5.2 Align interests

Effective knowledge and skills transfer depends upon being able to align the partners' interests. Companies and PROs can only collaborate effectively when their researchers are empowered to work in this way and can spend sufficient time and effort to understand what each has to offer and each requires.

3.5.3 Treat collaboration strategically

It is important to make a strategic decision about the part that collaborative R&D and knowledge transfer will play in meeting the PRO's or company's objectives. Explicit policies are required and steps have to be taken to ensure that these policies are communicated, understood and acted upon. The place to take these decisions is at the highest level of the organisation.

3.5.4 Organize for lasting relationships

There is strong evidence that effective collaborative programmes happen within long-lasting relationships. The commitment to sustain and fund such programmes depends upon developing a general sense of trust and understanding that results will match expectations. Responsible Partners organize themselves in ways that make likely the emergence of these lasting relationships.

3.5.5 Provide the right professional skills

Effective management of collaborative R&D and knowledge transfer requires high quality professional supporting skills. Responsible Partnership requires commitment to establish these resources and to train people to an appropriate level [9].

3.5.6 Establish clear intent

When planning collaboration, the first priority is for the partners to explore and agree what they expect to accomplish. Responsible Partnership requires the early adoption of open processes that establish clear intent and eliminate hidden agendas and abuse of bargaining power.

3.5.7 Use standard practices and communicate regularly

Adopting standard practices encourages the development of effective frameworks for long-term collaboration. The stumbling blocks in developing good collaborative research projects are widely recognised. The best way to avoid them is to work with others who have already discovered what works and why. This also frees up time to discuss the points that are most germane to the current collaboration. Responsible Partners share good practices and interact regularly, at a high enough level and as part of

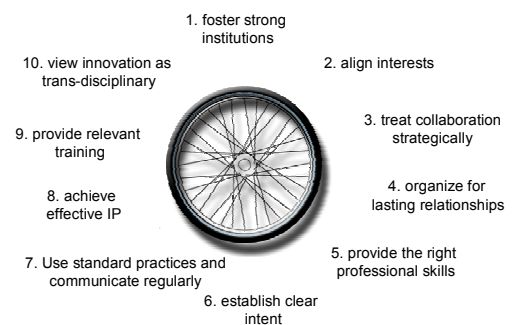


Figure 3: A Cycle of Ten Guidelines

professional management development.

3.5.8 Achieve effective Intellectual Property

Effective management of Intellectual Property (IP) is central to the knowledge transfer process, particularly since the emergence of new types of knowledge-based industry is straining the IP system. Responsible Partners protect their Intellectual Property in ways that facilitate value creation in a context of Open Innovation, and use (and contribute to improving) public IP systems in ways that encourage future investment in public and private research.

3.5.9 Provide relevant training

Effective knowledge transfer requires competencies and skills in many fields beyond knowledge and IP management. For example, project management, entrepreneurship and business development skills are also important. Responsible Partners develop appropriate programmes and safe learning environments to learn the skills and common language appropriate for the world of open innovation. (These take many forms. At one end of the scale, the Framework Programme and schemes such as the Marie Curie programme provide young people with the opportunity to broaden their experiences. At the other end are role-playing exercises within university and business courses in which participants learn about creating and developing start-up companies.) [9]

3.5.10 View innovation as a trans-disciplinary activity

Innovation is not simply technological advance. Choosing the best business model or social structure is sometimes more important than being the first to discover or invent. Similarly, scientific skills must be combined with the humanities, economics, sociology and law. Responsible Partners recognise this trans-disciplinary nature of innovation and organise themselves accordingly.

A Structured Approach is needed to implement these Guidelines

3.6 Responsible Partnering is a voluntary programme. It is unrealistic to expect that the principles and guidelines given above will immediately turn into effective operational routines. Achieving effective procedures will require a structured approach, learning and adjustment in the light of experience.

3.7 These implementation procedures must reflect the choices, priorities and strategy of the individual company or PRO, while aiming for sufficient consistency for it to work effectively with others. A first step is to decide whether and at what level to adopt Responsible Partnering. The intention is that these Principles and Guidelines can stimulate this decision and discussion about the role of collaborative research and knowledge transfer activities in meeting strategic objectives.

3.8 Implementation, assurance and improvement processes turn the decision into action. The checklists in the Appendices can be used to construct these processes. Parallel sets are suggested for Companies, Universities and Public Research and Technology Organisations, reflecting the different nature and balance of activities in these organisations.

3.9 Each checklist provides for three levels of compliance, enabling the Company or PRO to test current and planned levels of adhesion and set out a plan for improvement. There is an Entry level, providing a sufficient basic framework to demonstrate commitment and establish process. The Expert and Strategic levels are progressively more challenging in terms of organisation and co-ordination. Depending on the nature of the Company's or PRO's activities and strategies, it may not be necessary or appropriate to move to higher levels.

3.10 The approaches recommended here reflect the experiences of many public and private organisations in Europe and the US. Some aspects are known to present particular practical difficulties. Two of these concern the identification of good partners and the construction of good collaborative research agreements. The next sections of this Handbook suggest how these can be achieved.

4 Identifying Good Partners

4.1 In developing this Handbook, we learned that many Companies and PROs find it difficult to identify good partners. Various tools and approaches exist that can facilitate this challenging task.

4.2 Provide clear communication channels

PROs and companies are generally rather complex organizations. Without a detailed inside knowledge of the division of responsibilities, it is often difficult to identify which groups are likely to be interested in collaborative research, what competencies and requirements exist, and the fields in which an approach will be encouraged.

As part of a policy of developing collaborative research and knowledge transfer, each organization should publicize [for example, on its web site] its policies concerning these activities and have clearly identified contact points of persons, offices and functions that handle and direct enquiries.

4.3 Publications

Checking publications in recognized scientific journals is one of the most effective ways to identify the leading research teams. Internal teams within companies and PROs generally know where to find research partners and so should be part of the process of identification and selection.

4.4 Patents

The content of a patent discloses considerable information on an invention. Patent publications are also indicative of the spirit of innovation of researchers and their organisation. Evidence of such background intellectual property and the capacity to innovate are main considerations in selecting a research partner.

4.5 Scientific Conferences

Conferences offer the advantage over patents and publications of faster access to results and direct contact with the investigators.

4.6 Seminars and other form of direct interaction

Innovation does not necessarily require new technologies. Existing technologies may be applied in new ways and these incremental improvements are important to small and large companies alike. It is often sufficient to bring together firms operating in a given sector and academic researchers in order to identify these opportunities. PROs and local business communities can organize regular interactions with each other. Many forms have been tested and proven useful.

4.7 Projects within the EU Framework Programme

These programmes can involve business and academic partners from several European countries excellent opportunities to start pre-competitive collaborative research in new fields.

4.8 Intermediaries

Many intermediary bodies, including the European Commission, membership associations and businesses, exist to match business needs with available research capabilities.

4.9 Internal Company Networks

Multinational companies can make use of their own internal networks to obtain contacts into foreign societies, including with universities and public institutions. It is often helpful to designate focal points who will assist this process.

5 Constructing the Collaborative Research Agreement

- 5.1 This section concerns the Collaborative Research Agreement, which provides the definitive description of the collaboration, documenting what is to be done, the rules of conduct (including completion and termination) and applicable legal codes, ownership, rights of use and the management of intellectual property.
- 5.2 A number of issues frequently arise when negotiating and applying Collaborative Research Agreements. It is neither appropriate nor possible to propose forms of words here that will solve all these issues. Instead, we emphasize that the underlying concerns are real, and require consideration (and negotiation) in the light of the specific objectives that the partners seek to achieve.
- 5.3 Nonetheless, we do encourage the development of standard approaches and conditions where possible. Establishing “templates with options” helps all parties get what they are looking for, focus attention on those aspects that genuinely require special handling, and get the deal done.
- 5.4 Several European governments have developed codes of practice for managing intellectual property from publicly-funded research and some are now developing recommendations and suggesting model contracts for collaborative research. Standard requirements also exist for projects executed within the European Union’s Framework Programme. The references [8] identify some of these codes of practice and recommendations.

Points to Consider Before Writing a Collaborative Research Agreement

- 5.5 Before drafting any legal documents (other than preliminary non-disclosure agreements), the first - and key - step is to establish what the collaboration is intended to achieve.
- 5.6 It is important to obtain professional guidance even at this early stage. Contamination of information is often a key concern; sometimes exclusivity of use is important; in other situations, the project serves purely a research purpose for the company and the agreement can be less rigid; while from the PROs perspective, the ability to attract future investment and collaborations will be important.
- 5.7 In allocating roles, the partners should consider their different competencies, experiences and internal organisations. For example, the company will typically understand market conditions better than the PRO and be more familiar with handling business risk and liabilities, whereas the PRO will tend to have deeper understanding of the subject matter. Responsibilities and procedures should be defined accordingly.
- 5.8 Bear in mind that Collaborative Research is typically longer-term and more open-ended than Contract Research, which is typically a straightforward agreement to complete a well-defined task. Approaches and forms of agreement and ownership depend on where the intended project sits on this spectrum.
- 5.9 Beware of trying to force a deal in which any partner feels it loses something important. Recognise that all parties possess significant background knowledge: this is the justification for the collaboration in the first place. It is a matter of discussion and negotiation how much of this background knowledge is to be made available and on what terms.

Points normally covered within a Collaborative Research Agreement

- 5.10 Collaborative Research Agreements cover a range of standard points. The following remarks suggest possible formulations, and are intended to guide discussion and should not be treated as binding.
- 5.10.1 Definitions, Identification of Parties, Objectives and Partner Selection
- An early section in the Agreement defines terms, identifies the objectives of the collaboration and sets out the main considerations used for selecting partners. Definitions include the concepts of Affiliates, Technology, Background and Foreground Intellectual Property, Confidential Information, etc. Ensure that these definitions will be workable.

Generally, companies will wish to extend the benefits of the collaboration to their Affiliates. The definition of these Affiliates should be made clear, and the performance expected of these non-signatories warranted by the relevant signatory.

5.10.2 Confidential Information

Universities are not organized to keep trade secrets, so some consideration needs to be given to avoiding the accidental disclosure of information that has actual or potential proprietary value. This might be achieved, for example, by defining “Confidential Information” as written documents that are clearly marked as confidential and identifying the channels for exchanging confidential information (and then taking adequate measures to avoid disclosing information that is not needed for the collaboration).

5.10.3 Scope

This sets out the framework of the collaboration in terms of field, technology, markets or objectives. Usually, the detailed project description will be attached as an appendix, or (in case the agreement can cover several projects) in riders that are executed separately and incorporated by extension as part of the framework agreement.

5.10.4 Resources

Attachments or riders to the agreement detail any special needs, for example in terms of personnel, equipment and materials.

5.10.5 Funding and Pricing

This part of the agreement sets out the principles for compensating the research performed by the PRO, for calculating financial contributions, determining payment terms and making price revisions. The overhead that is paid on top of direct project costs will depend on the nature of the collaboration, the use that both partners expect to make of the results, and the rights and benefits that each retains. The determination of acceptable overheads should include a reasonable contribution to supervisory and infrastructure costs of facilities made available to the project by the PRO. Riders to the agreement detail the agreed budgets.

5.10.6 Governance and coordination

This sets out the role and responsibility of the project leaders (often known as Principal Investigators). The section will define and explain the role of bodies such as coordinating committees (if these are warranted by the size and complexity of the projects) and administrative functions. The development of an adequate coordination plan is now an integral requirement within parts of the Framework Programme. Although everyone will hope that the project is successful, it is important to set out how failures will be handled, for example through early termination and in situations that require arbitration.

5.10.7 Reporting

This should set out the expected content and schedule for the intermediate and final reports, to be detailed in the project riders.

5.10.8 Publications and Confidentiality

The ability to publish results that are of scientific interest is an essential consideration for universities and some other PROs. Publication should not be delayed unnecessarily (6 months is a good target, but this may not be possible in some countries and cases) in order to permit filing for patent protection. Inclusion of confidential information belonging to the other parties will require prior written approval, but there should also be a general expectation that this will not be withheld without good justification.

5.10.9 Access rights to Background Information

The availability of background information and knowledge is a key consideration in selecting the partners. Consequently, it is important to agree what access rights will exist, and ensure that these are sufficient to allow the project to proceed satisfactorily and to permit results to be put to the intended use. Restrictions must be defined prior to entering the agreement, if known after reasonable enquiry. Conditions, access

fees and royalties should be determined before each project. Each party should know the circumstances in which its own technologies were developed or acquired, the history of its own patents and the fields of its own technologies, so that it can warrant that it is entitled to grant a licence on the contemplated use and that it is not aware of potential infringement of third party rights other than disclosed.

5.10.10 Ownership of Foreground

It is particularly important to address questions of ownership and use. Often, being clear about ownership while giving well-defined, efficient (sometimes exclusive) rights of use and ways of defending these rights is more important than obtaining strict legal ownership. A general starting point is that each party owns the inventions that it (or its employees) generates itself. Depending on how the work is executed, this may be established (for example) by defining its premises or in terms of inventive steps.

Careful consideration should be given to the ownership of inventions created jointly. While joint ownership may be a possibility, this can lead to unintended problems, whereas allocating ownership arbitrarily is inequitable. Considerations include the possibility to gain future reward, controls over new applications, the ability to manage matters efficiently, and the legal implications of joint ownership.

5.10.11 Patents and other IP

The usual situation is that each party takes steps to protect its own inventions. The handling of joint inventions should be discussed: for example whether the PRO shall file for protection or assist the company in filing; the terms on which license options are granted; whether the commercial partner shall bear the costs of the PRO's activities; etc. The parties should also consider who will be responsible for defending patents and pursuing infringements. It is generally better that the parties do not plan to act jointly in these matters: this approach risks creating additional disputes and delays.

5.10.12 Licence for use

Each party will expect fair compensation for the commercial use of the inventions that it helped generate. Deciding "what is fair" will depend on the nature of the collaboration, as well as a sense of realism. One of the considerations of Responsible Partnering is to ensure maximum beneficial use of knowledge that has been generated partly through public funding. This can be achieved by establishing non-exclusive licences to several licensees or by granting exclusive licences to the partner on those uses that he is committed to develop diligently.

Compensation can take many forms, for example licence fees, milestones, running royalties or by sharing profits and can be subject to exercising a license option on defined terms. Assignment of IP is possible as an alternative to exclusive licences, subject to grant-back of non-exclusive licenses in the non-exclusive field. The agreement should generally avoid restricting the use of results for research purposes by PROs. Use for teaching purposes may also need to be considered.

Unless agreed otherwise, each joint owner should have a non-exclusive license on joint inventions, provided that, in case of successful exploitation of the joint property by one of the joint owners, the other joint owners receive a fair compensation.

Except in special instances, sublicensing should be permitted to facilitate maximum use.

5.10.13 Diligence

When the agreement grants exclusive rights, this generally involves some expectations of diligence, whereby, if conditions are not met, the licence can be terminated and ownership rights revert to the PRO.

6 Concluding Remarks

- 6.1 Innovation is like a chemical reaction. It happens quickly and effectively when the right raw materials come together and are excited in the presence of catalysts that reduce barriers to change. As a result, useful outcomes emerge.
- 6.2 The shortages we face are generally not the raw materials of innovation. We have these in plenty. The key tasks are to remove the barriers to the productive transformation of knowledge and to ensure demand for the products from which to build and maintain leading knowledge-based economies. When these points are dealt with, the reaction can become self-sustaining.
- 6.3 This Handbook is offered as a tangible step towards achieving a sustainable reaction. We encourage organisations and people to endorse and adopt Responsible Partnering and to help us improve the framework in the light of their experiences.
- 6.4 Responsible Partnering will succeed because a sufficient number of actors find it useful. In order to reach that point, we need investment to build capacity in the form of supporting skills and infrastructures. We encourage public authorities to contribute to this capacity-building process, recognising that a voluntary and widely-adopted programme can yield substantial payback to society as a whole.

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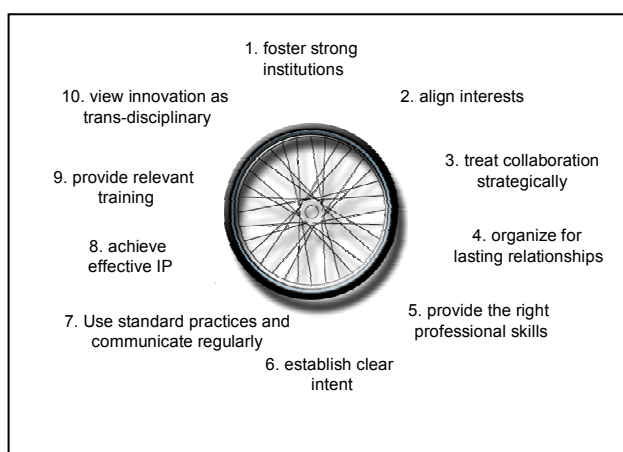
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Appendix 1: Implementation Guidelines for Companies

Responsibility for implementing Responsible Partnering rests within the company and the extent and manner of implementation depends on its organisation, priorities and strategy. These recommendations propose three levels of adherence to address the guidelines described in the Handbook.



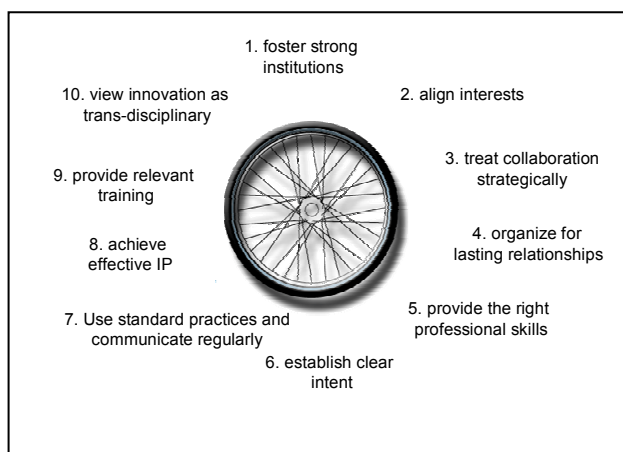
	Relevant to Guidelines									
	1	2	3	4	5	6	7	8	9	10
Entry Level										
Collaboration with Public Research Organisations is recognised as an important strategic driver for acquiring knowledge and technology			■							
Identified and adequately-trained personnel have assigned responsibilities for establishing and ensuring the success of these collaborative projects.					■					
Prior to entering into all new projects, these focal points ensure that the appropriate partners have been identified; mutual interests explored; and balanced objectives, terms and conditions established and agreed.		■								
Research agreements exist that set out detailed plans and objectives, are implemented by procedures at an appropriate level of detail, and given adequate professional support.					■	■				
Focal points have been appointed to monitor and report regularly on the effectiveness of individual projects and take steps to improve future effectiveness through better procedures.				■		■				
Procedures are in place to ensure that results requiring patent protection are identified and protected promptly, allowing scientific publication within a reasonable time, normally less than six months.	■	■								
The company checks to ensure that there are equitable terms of employment exist for personnel engaged by its partners in collaborative research projects	■	■								

Expert Level	1	2	3	4	5	6	7	8	9	10
Procedures exist to ensure that rights to results generated by the public partner, including background intellectual property, are claimed only when these are reasonably required for purposes of commercialisation, and that claims are mitigated by granting back rights of use in non-competing applications.		▨				▨		▨		
There is a good understanding within the company of the areas of knowledge in which it is in the public interest to develop exclusive long-term relationships with specific PROs.		▨				▨				
Procedures recognised as constituting “best practice” exist to ensure equitable compensation for required exclusive or non-exclusive use rights, either through licence or assignment of ownership. Where these procedures commit the company to develop these rights, the process is handled with due diligence and provide mechanisms for these rights to return to the partners or become non-exclusive.		▨				▨		▨		
Corporate training programmes ensure that the personnel involved in collaborative research activities receive proper training in Responsible Partnering. Relevant parts of this training are carried out jointly with the public partner.					▨		▨			
The establishment and management of projects reflect clear understanding of trans-disciplinary aspects, to ensure the proper availability of skills.										▨
Mechanisms are in place to improve the quality of collaborative research through exchange programmes.							▨			

Strategic Level	1	2	3	4	5	6	7	8	9	10
As part of the company’s long-term vision, clear policies have been established with respect to all aspects of research collaboration. These policies are widely understood and endorsed at the most senior levels of management, and published for external review. Progress is monitored and reported openly and regularly. The value of these policies to the company is measured, and is explained in its communications to shareholders.			▨	▨		▨				
The company has identified the universities and public research organisations with which it seeks to work on a long-term basis, and has established partnerships with these. These institutions have been selected on the basis of merit and suitability.				▨		▨	▨			
Relationships with these institutes are managed at a senior level within the company and extend beyond the parameters of individual research projects. These relationships are designed to help strengthen the public institute.			▨	▨						
The company can handle collaborations with institutions in other countries as effectively as those within the home territory.			▨							
The company makes an active contribution to undergraduate and postgraduate courses that develop awareness of innovation processes and the handling of intellectual property. These courses include “hands on” activities designed to provide safe learning environments.	▨									
The clear and evident level of trust that exists between partners makes it easy to establish new projects, develop new collaborations with new partners, and cease collaborations with existing partners.		▨								
Terms of contracts, the handling of intellectual property rights, payments and quality of project management exceed expectations and are seen as equitable by all partners.	▨	▨								

Appendix 2: Implementation Guidelines for Universities

Responsibility for implementing Responsible Partnering rests within the university and the extent and manner of implementation depends on its organisation, priorities and strategy. These recommendations propose three levels of adherence to address the guidelines described in the Handbook.



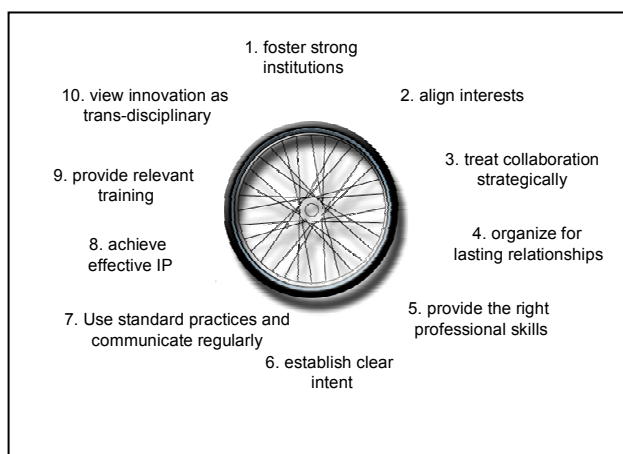
Entry Level	Relevant to Guidelines									
	1	2	3	4	5	6	7	8	9	10
The University recognises at the highest level that Responsible Partnering with industry supports its education and research missions and fosters innovation and development.	Diagonal lines		Grid							
There are regulations applicable to all researchers concerning: - first ownership of research results to the institution; - funding of collaborative research; - reporting and managing conflicts of interest - involvement of students in commercial research			Grid							
Professional knowledge transfer staff assist the researchers in defining the terms of collaborative agreements with industry and manage intellectual property issues.					Diagonal lines					
Research agreements are formulated to define clearly the intent of the parties, the objectives of the research, the deliverables, the responsibilities of the parties and the use of the results and background.						Horizontal lines	Grid			
There are procedures in place to review research results before publication to review potential applications and seek IP protection, if appropriate, in consultation with partner.					Diagonal lines		Grid	Grey		
There are procedures in place to safeguard confidential information and avoid disclosure and contamination, without creating unrealistic burden.			Grid			Horizontal lines	Grid			
There is adequate motivation for researchers to perform collaborative research, either in terms of scientific interest or success fee or both.							Grid			

Expert Level	1	2	3	4	5	6	7	8	9	10
The knowledge transfer function ensures that rights not retained by corporate partner are properly identified and their use is promoted as basis for more research or commercialisation		▨				▨		▨		
The University has identified the fields of excellence and the intellectual property rights which can be used in the framework of collaborative research with industry partners.					▨	▨	▨			
Procedures are in place to monitor the use of licensed technology by corporate partners and ensure that the proceeds are distributed in a way that encourages research and innovation.							▨	▨		
The University seeks patent protection whenever this would increase the likelihood that the research results be turned into useful applications. It consults with company partners to establish the most effective approach.							▨	▨		
Training programmes are provided to researchers and knowledge transfer professionals in the relevant aspects of research project management, innovation and intellectual property, as appropriate, consistent with the principles of Responsible Partnering.		▨			▨		▨		▨	
Research teams are assembled and managed with due consideration of availability of skills and competence in all the disciplines involved.	▨	▨		▨						▨
Where appropriate, direct interaction between University and industry partner scientists is promoted through steering groups or mixed teams.			▨	▨			▨			▨

Strategic Level	1	2	3	4	5	6	7	8	9	10
The University has established clear policies with respect to its research collaborations with industry. These policies are widely communicated, understood and endorsed by University management and by the researchers. Progress is monitored and reported openly and regularly. The value of these policies to the university is recognised, measured and explained to the public and the stakeholders	▨	▨	▨			▨				
The University has identified companies and company clusters, public authorities and research organisations with which it seeks to form long-term relationships as a means to develop excellence in research	▨	▨	▨	▨		▨	▨			
The long term relationships with industry partners is monitored at appropriate level within the University and/or faculty management to ensure proper alignment of interests without compromising University missions.	▨	▨	▨	▨		▨	▨			▨

Appendix 3: Implementation Guidelines for Research and Technology Organisations

Responsibility for implementing Responsible Partnering rests within the institute and the extent and manner of implementation depends on its organisation, priorities and strategy. These recommendations propose three levels of adherence to address the guidelines described in the Handbook.



	Relevant to Guidelines									
	1	2	3	4	5	6	7	8	9	10
Entry Level										
Collaboration with companies is recognised as a strategically important element of the mission of RTOs.			█							
Collaboration with companies is seen as a basic element of demand-driven knowledge development programs by RTOs.			█							
RTO researchers are part of a professional R&D-organisation and so they are supported by professional in-house staff (legal, financial, IPR) to ensure the success of collaborative projects.					█					
Collaboration agreements (internships, exchange of researchers, collaborative research projects) are supported by corporate staff units and supervised by the RTO board.		█			█					
Research agreements set out detailed plans and objectives and are implemented by procedures within the appropriate institutional framework.						█				
The research unit involved defines the research fields and goals of the collaborative project, which fit in the RTO's strategic objectives. The monitoring of the collaborative efforts is undertaken by the involved researchers and their peers, reporting to the appropriate authorities.			█	█		█	█			
The research unit can rely on effective procedures to ensure that results requiring intellectual property rights and patent protection are identified and submitted.					█		█	█		

Expert Level	1	2	3	4	5	6	7	8	9	10
Corporate expert staff ensure that rights to results generated by researchers, including Intellectual Property Rights, are handled in accordance with the rules and regulations in force and agreements made with collaborative partners.		▨				▨		▨		
Corporate expert staff are in place to ensure compensation for use rights, prepare patent applications, issue licences, based on assessment of appropriate means of compensation.					▨	▨	▨			
Training programmes, targeted at researchers or staff ensure that the RTO employees receive introductions and proper training in Responsible Partnering. Relevant parts of this training is co-organised with other RTOs and with private partners, as appropriate.	▨	▨			▨	▨	▨		▨	
Projects are established and managed by the relevant players within the RTO – research units, departments, science parks, incubators, inter-departmental centres, etc. – and aim at providing the optimal critical mass and inter-disciplinary approach. The projects are monitored scientifically as well as administratively by the appropriate authorities (peers and legal/financial administrators).	▨	▨		▨						▨
Mechanisms are in place to improve the quality of collaborative efforts through evaluation by partners, collection and exchange of best practices, and benchmarking.	▨		▨	▨			▨			

Strategic Level	1	2	3	4	5	6	7	8	9	10
The RTO has established clear policies with respect to aims and perspectives of its research collaborations and their role and position in the RTO's mission. The policies are widely understood, endorsed by management and published for external review.	▨		▨			▨				
The RTO has identified companies and company clusters, public authorities and research organisations with which it seeks to form long-term relationships to generate demand-driven knowledge and know-how in an efficient and effective way. It is generally accepted that this is of common interest to the business sector, to the RTO for continuity and quality, and to society at large through realisation of an innovation mechanism that provides value for (public) money. Representatives of partner organisation act as board members to strengthen long-term relations.	▨		▨	▨		▨	▨			
The RTO leadership is engaged in activities to promote awareness of science and technology, knowledge diffusion and the stimulating role, RTOs and RTO networks can play in a global perspective. Such activities extend beyond the individual research projects but form an essential part in establishing strong relations with partners, based on trust and mutual benefits, without which the individual projects would not prosper.	▨		▨			▨	▨			▨
The RTO management stimulates participation in Public-Private Partnerships, such as the European Technology Platforms, as challenging environments for long term strategic collaboration programs and projects.	▨	▨	▨							▨
Part of the strategy is internal promotion of entrepreneurship among employees. Long-term collaboration with industry is seen as a learning ground for entrepreneurship, most of all when there is an accompanying active mobility and exchange policy. RTOs become a natural follow-up for many post-graduate (and also postdoctoral) students by creating a professional climate in the interface between academic education and market driven efforts, providing opportunity for research and acquiring experience in generating definite economic value in collaborative projects.	▨	▨	▨	▨						
Mutual trust exists based on transparent objectives, adequate communication and a growing portfolio of successful projects. Policies are internalised in central strategies. The clear and evident level of trust makes it easy to establish new projects, develop new collaborations with new partners, and cease collaborations with existing partners.		▨		▨						

Appendix 4: The Role of Governments

One of governments' key roles is to establish the conditions that will enhance value-creating knowledge transfer. We suggest approaches designed to foster the two principles of Responsible Partnership:

- Maximum Beneficial Use of Public Research and
- Responsible Use of Public Research

The groups involved in developing this programme recognise that Public Research Organisations (universities and research institutes) and Companies exist to serve important but distinct purposes. Companies do not wish to force PROs to engage in commercial knowledge transfer activities to the detriment of research and education activities, nor do PROs wish to press companies to adopt practices that are not commercially viable. Rather, we understand that effective knowledge transfer is possible without detriment to the tasks of educating people, carrying out good research and bringing products effectively to market, and have tried to suggest how this can be achieved.

Strong Science, Strong Industry, Well Connected

- 1 Economies benefit most when the fruits of research are fully exploited. Responsible Partnering creates more opportunities for this to happen. Without substantial “bottom-up” engagement of the type that this initiative is intended to promote, it will be impossible to achieve the political objectives embodied in the Lisbon Declaration.
- 2 Consequently, we encourage governments to concern themselves primarily with creating and supporting the conditions which will foster Responsible Partnering: a top quality Science and Research base, competitive Industry and strong, effective interactions between Science and Industry.
- 3 In order that Public Research Organisations can contribute effectively to innovation, they must adopt appropriate strategies and maintain the professional skills and resources required to support these strategies. This requires funding, the ability to concentrate resources where these can be most effective (i.e. freedom to differentiate according to strengths) and recognition (for example as part of the evaluation criteria) of the resulting effectiveness of knowledge transfer within the chosen mission.
- 4 It is likely that configurations of companies and PROs will develop dynamically, with inevitable peaks and troughs in demand. Public funding should be available to enable PROs to survive these ups and downs without detriment to academic excellence.
- 5 Governments can help by establishing better information systems to help Companies (especially SMEs) and Public Research Organisations find Responsible Partners. They can also support the development by these Companies and PROs of an independent certification system for Responsible Partnering and of effective mechanisms for disseminating good practices.
- 6 The current patent system was designed in a world of closed innovation characterised by isolated and individual inventors. Innovation has become a much more interactive process. In order to encourage knowledge transfer in today's world of collaborative research and joint innovation, the patent system needs to be improved and made internationally more consistent.
- 7 It is also important to foster debate on ways to improve mobility between public and private sector research and development and across national boundaries.
- 8 Measures should strive for simplicity, consistency and effectiveness, particularly across national boundaries and in rules of participation, ownership and rights of use to Intellectual Property. A good working principle is to check that the players who are capable of making a difference consider that it is worthwhile to participate!

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This **Handbook on Responsible Partnering** is issued by the main European organisations supporting research, development and knowledge transfer in companies, universities, and public research organisations.

The **European University Association (EUA)** 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 is a pan-European network of Knowledge Transfer Offices linked to Universities and Public Research Organisations. It is supported by the European Commission as part of the Gate2Growth Initiative. ProTon Europe's ultimate objective is to boost the economic and social benefits 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.

The **European Association of Research and Technology Organisations (EARTO)** is the trade association of Europe's specialised research and technology organisations (RTOs). Its members build bridges between basic research and industrial applications. They are innovative and competitive problem-solvers for all sectors of industry and services, technology developers, adapters and transfer intermediaries, helping to ensure more effective exploitation of research by the enterprise sector. They 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.

The **European Industrial Research Management Association (EIRMA)** aims to enhance innovation through more effective market-oriented research and development. Its unique features are networking and personal contact among companies.

EIRMA 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 the evident source of insight and information into business-led R&D.