RESPONSIBLE PARTNERING

Joining Forces in a World of Open Innovation:

GUIDELINES

FOR COLLABORATIVE RESEARCH AND KNOWLEDGE TRANSFER BETWEEN SCIENCE AND INDUSTRY

eirma FACING THE INNOVATION CHALLENGE

EUA European University Association

EARTO

PROTON EUROPE Innovation from Public Research

RESPONSIBLE PARTNERING

Revision History

March 2005	Initial release, version 1.0
October 2009	Version 1.1, updated to reflect the conclusions of the December 2007 Conference and subsequent analysis of issues such as SMEs, State Aid, Human Factors; the growing maturity of the knowledge exchange system; the 2008 Community Recommendations on IPR management; and results from the DOC-CAREERS project published in 2009.

Supporting Institutions

The Responsible Partnering Initiative was launched in 2004 by the following institutional organizations:

- European University Association
- European Association of Research and Technology Organizations
- European Industrial Research Management Association
- ProTon Europe

Other organizations may elect to endorse the initiative and its recommendations by informing the coordinating team via one of the addresses given on the back cover. Such organizations will be kept informed of developments, including planned revisions to this Handbook, and may submit suggestions and comments, although, for practical reasons, it is not possible to ensure that endorsements always correspond to the latest version of the Handbook or that all submitted suggestions and comments have been addressed.

The initiative and its 2005 recommendations have been endorsed by:

- BUSINESSEUROPE
- European Commission, Commissioners Potocnik and Verheugen

Contents

Responsible Partnering

Joining Forces in a World of Open Innovation:

Guidelines for Collaborative Research and Knowledge Transfer between Science and Industry

This Handbook describes a voluntary programme of Responsible Partnering aimed at improving strategic collaboration and knowledge exchange between companies and publicly-funded research organizations (for convenience, referred to as PROs), including Universities, Research and Technology Organizations and other public and semi-public bodies which engage in R&D. It addresses the organization and management of collaborative research and knowledge exchange, and the contexts (including education) in which these activities take place. The Handbook provides "self help" guidelines intended to help senior staff develop and implement effective approaches to these activities, develop the right professional skills and achieve an effective internal orientation directed towards addressing the organization's objectives through partnership.

Society benefits when the fruits of research are exploited for social and economic purposes. Responsible Partnering reflects the belief, which is widely substantiated, that well-managed collaboration between public and private sector bodies benefits everyone. Taking a strategic approach to collaboration enables the development of radically new products and services and better innovation, thereby creating more value from the investments made and greater effectiveness as well as efficiency. Furthermore, by establishing better foundations for successful research partnerships and knowledge exchange, it reinforces the value of the PRO within society, thereby enhancing the prospect for continued top-quality research and education.

When this Handbook was first being written, the consequences of global, open approaches to science and innovation were only starting to become apparent. A major benefit of the Responsible Partnering exercise has been the continuing involvement of the main stakeholders, resulting in a significantly increased appreciation of the issues involved in the development of long term strategic partnerships. Alongside this increased experience and understanding, major policy initiatives have been launched to establish and strengthen the European Research Area and underpin regional capabilities. But ultimately the success of these initiatives depends upon what happens at "grass roots" level. This revision aims to bring the Handbook up-to-date with these developments without fundamentally changing the principal recommendations.

Definitions

Responsible Partnering A voluntary initiative to improve the effectiveness of collaborative research and knowledge exchange involving the public and private sectors. Responsible Partnering addresses situations in which participants from the public and private sectors each make significant contributions to the eventual success of collaborative research. The principles set out in this Handbook have been obtained by examining factors shown to lead to sustainable "win-win" situations.

Implementing these principles depends on appropriate organizational strategies and professional management skills. In adhering to Responsible Partnering, players recognize that their interests overlap and establish procedures to work together effectively. This Handbook provides guidance for handling these situations and is not a rule book. Compliance is validated through internal self-assessment and dialogue with partners.

Publicly-Funded Research Organization (PRO) Any institution (Universities, Research and Technology Organizations and others) that carries out R&D for broader application and benefit, to a significant extent using public funding.

Collaborative Research Activities where several parties are engaged in research towards shared objectives, collectively building on their individual background and sideground in the creation of new foreground knowledge.

Collaborative Research Agreement The contractual document setting out the purpose, objectives and conditions of the intended collaborative research project or programme of projects.

Contract Research Activities where one or more parties perform a task for another at an agreed price and on contract. Contract Research tends to be shorter-term in nature, and be driven by different dynamics than Collaborative Research, and requires specific types of agreement that reflect the straightforward nature of the business deal. The term "Contract Research" is formally defined in the European State aid rules. Although many of the principles of Responsible Partnering are relevant for Contract Research, this Handbook is not primarily concerned with such activities.

Open Science The traditional paradigm of public-sector research based on the free collaboration and rapid public disclosure of results with no restrictions on use other than acknowledging the source.

Open Innovation The emerging paradigm for innovation, involving business models that use partnering, licensing and venturing to combine internal and external resources, ideas and technologies.

1. Scope and Purpose

1.1 This Handbook of Responsible Partnering describes a voluntary programme designed to help Companies and Publicly-Funded Research Organizations (PROs) improve the effectiveness of their collaborative research activities and knowledge exchange. It is primarily written for use by senior managers who have strategic or operational responsibilities for such work and is organized as follows:

- Scope and Purpose
- Collaborative Research and Knowledge Transfer as Key Sources of Innovation: Changing Patterns and Changing Obligations
- How to be a Responsible Partner
- The Human Aspects of Effective Collaboration
- Identifying Good Partners
- Constructing the Collaborative Research Agreement
- Other Legal Aspects of Collaboration

The appendix provides a checklist of steps that organizations can take to implement the guidelines given in the body of the Handbook. References are provided to other reports and web sites that help make the outlined approach more concrete. Copies of this Handbook and supporting material can be obtained at www.responsible-partnering.org

1.2 Responsible Partnering reflects the belief, already widely substantiated, that well-managed collaboration between public and private sector bodies benefits everyone. It is important to understand that (with the exception of the legal points covered in chapter 7) the approach recommended here is based upon internal commitment and self-assessment rather than external certification. In order to be a Responsible Partner, a Company or a PRO commits itself to the spirit of these guidelines by:

- Implementing a structured process that is consistent with the principles of Responsible Partnering, defines clear and equitable objectives in respect of collaboration and knowledge exchange and then achieves the desired level of performance by using learning from others, regular feedback from partner organizations and documented self-assessments to ensure the quality of active partnerships.

Achieving durable partnerships requires considerable mutual understanding, respect and give-and-take, and a great deal of professionalism and hard work. The process begins by assessing the part that collaborative research and knowledge transfer activities make in meeting a Company's or PRO's strategic objectives and continues by considering how to implement these activities in ways that will be effective in meeting this strategy and also be considered equitable by the desired partners.

Responsible Partnering provides a framework for the company or PRO to establish objectives, priorities and approaches that are relevant to its situation and objectives. Readers are encouraged to use the Handbook to inform and guide their own approaches, not to impose their values on potential partners.

Responsible Partnering as part of Effective Knowledge Exchange

1.3 The Responsible Partnering initiative builds on the experiences shared during a series of events involving the members of Europe's leading associations for research-based companies (EIRMA), universities (EUA), research and technology organizations (EARTO) and knowledge transfer organizations linked to these PROs (ProTon Europe), including Special Conferences held in 2004 and 2007 [1] and an extensive validation exercise carried out in 2006 with a broad group of stakeholders. The findings of these activities provide the context for this Handbook.

1.4 Companies and PROs have different missions, but their combined activities in the fields of education, research, development, innovation and knowledge transfer activities help to underpin the diversity and vitality of our societies. The events that launched Responsible Partnering demonstrated a widely-shared belief in maintaining the distinct missions of public and private sector bodies; highlighted changes which bring some aspects of these missions closer together; but also confirmed that the challenges associated with effective knowledge exchange are an inevitable consequence of

the different missions and accompanying mindsets. Handling the consequences is becoming an increasingly important feature of the development of advanced knowledge and skills, the conversion of knowledge into useful, innovative products and services, and the continued provision of cadres of well-educated and informed people.

1.5 At first, the Responsible Partnering initiative focused on the changing patterns of research collaboration between larger PROs and companies, mediated by (often newly established) technology transfer offices. This scope has been extended to include the experiences of smaller companies and institutions and subsequently developed further to address aspects of education, in particular joint doctoral training. This development in the scope of knowledge exchange is expected to continue, mirroring changes in the environments supporting effective education, research and innovation, and aiming always towards achieving strong and sustainable links between the public and private sectors.

1.6 As building blocks, Responsible Partnering defines two principles governing the use of knowledge that has been created by PROs using public funding. It emphasizes the need to maximize the local benefits obtained from knowledge generated through public investments (for example achieved through strengthening the local research and innovation "ecosystem") and the need to adopt responsible approaches to this task. Using these principles, the Handbook develops guidelines for strategic and operational management and a self-assessment compliance process tailored to reflect the distinct needs and activities of Companies, Universities and Research and Technology Organizations.

Durable Partnerships

1.7 Experience indicates that research and innovation activities are most productive within relatively stable, yet also dynamic, environments that encourage the mobility and use of ideas and are punctuated from time to time by significant new challenges. Some authors use the phrase "Research and Innovation-Friendly Ecologies" to describe these environments. However, it is trust and stability – not only the individual research contract or excellent facilities – that provide the primary conditions for establishing programmes that meet partners' needs. Good outcomes are a result of demonstrated commitment.

1.8 Durable collaborations can take many forms:

- Continuing affiliations that sustain a succession of projects 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 according to the degree of organization (primarily individual or institutional) within the Company and the PRO. Responsible Partnering is mainly concerned with encouraging more activities to take place in the top right hand corner of this matrix (institution-to-institution).

1.9 "Contract Research" tends to be driven by different dynamics, shorter-term in nature and requiring specific types of agreement to reflect the straightforward nature of the business deal. Although many of the principles of Responsible Partnering are relevant for Contract Research, this Handbook is not primarily concerned with such activities.

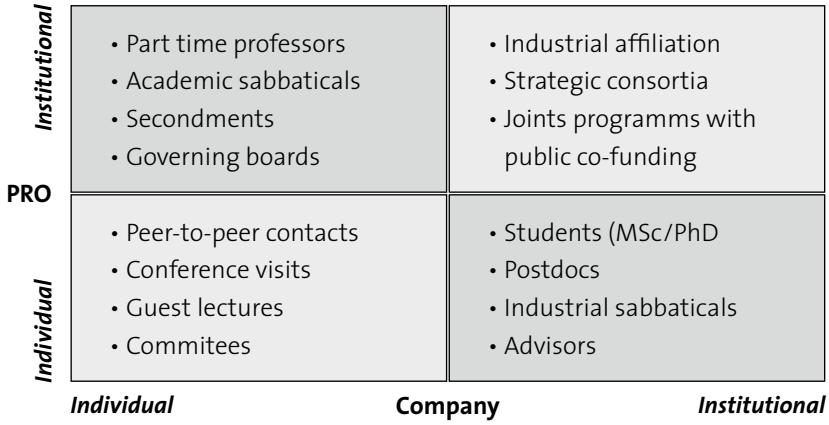

Figure 1: Scales of Collaboration (source: Philips)

2. Collaborative Research and Knowledge Transfer as Key Sources of Innovation: Changing Patterns and Changing Obligations

2.1 Many types of knowledge and skills sustain our societies. Universities serve the public interest through their pursuit and dissemination of understanding, thereby providing advanced education and training, carrying out research and facilitating knowledge exchange and transfer. Their primary measures of quality relate to publication records, teaching standards and intellectual rigour. However, they and other publicly funded Research Organizations (especially those of a non-academic nature) are under pressure to become more self-sufficient, in some cases moving from public to private sector status, and to demonstrate that the institute's knowledge and skills have broader value and are managed and developed professionally. In turn, companies use knowledge and skills to satisfy customer needs, maximize shareholder value and respond effectively to competition and product complexity. Speed, consistency and predictability are central to reducing the risks inherent in their activities.

2.2 Traditionally, the public sector's knowledge-generating capacity has been measured by the number and quality of publications and trained students that emerge. In such an "Open Science" model, researchers collaborated closely but often without too much regard to securing wider economic value and social benefits. Today, more attention is being

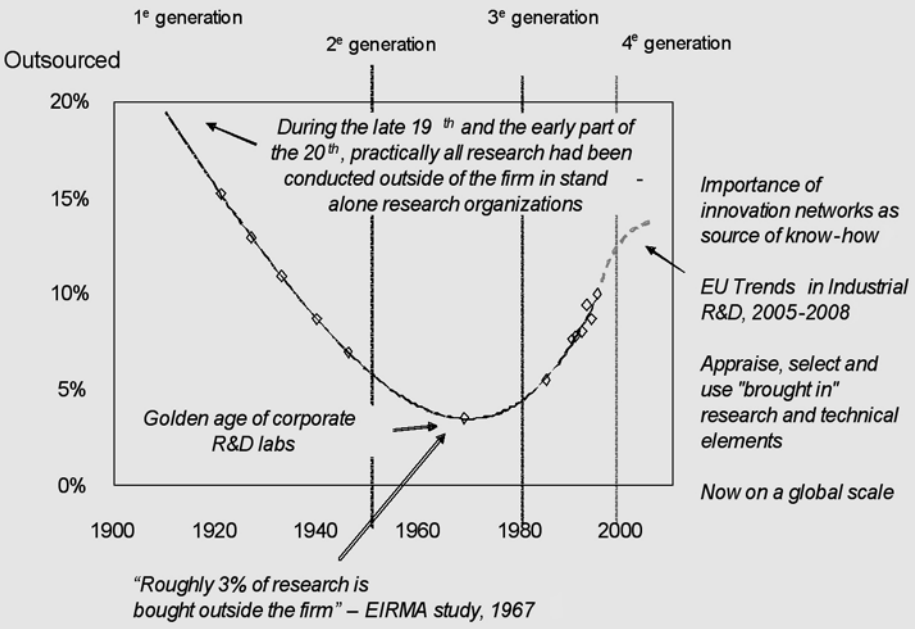

Figure 2: Changing Patterns of R&D Outsourcing (source: TNO)

given to ways of valorising these benefits and to organising advanced degrees such as doctorates in ways that address industrial interest, involve joint supervision and provide a wider range of skills. In many countries, their contribution to innovation is now regarded as part of universities' mission, and they are expected to ensure that intellectual property arising from publicly funded research is identified and commercialised for the benefit of the tax-payer and the economy. Metrics relating to knowledge transfer and innovation are increasingly seen as important in the allocation of research and other funding for universities, as well as for research and technology organizations.

2.3 At the same time, new patterns of industrial innovation have emerged (often referred to as "Open Innovation") that emphasize the joint use of internal and external resources achieved through a combination of collaboration and competition [2]. Companies are seeking to obtain knowledge more quickly from external sources and use more of their results as sources of innovation. and research and technology organizations are becoming more market-oriented.

2.4 In seeking to achieve beneficial outcomes, it is important that all parties fully understand the trends and drivers and take these into account in the approaches they take. Industry needs to recognise governments' intent that universities play a greater part in the commercialisation of research and the creation of new ventures. Universities need to understand how industry operates in order to remain competitive. Governments need to ensure that they do not place contradictory pressures on the research and innovation system.

2.5 Figure 2 illustrates changing patterns of collaboration among companies and between companies and PROs. Addressing these trends has required changes in the ways that intellectual assets are handled and protected. Many PROs, for example, have implemented processes that address three main areas:

- Leveraging their knowledge and skills by working collaboratively with industry;
- Managing the knowledge they generate as (tradable) Intellectual Property Rights (IPRs); and
- Stimulating the creation of new companies that can seed longer-term economic rejuvenation.

The first of these, collaboration with industry, is widely considered to have the greatest impact in the medium to long term with regard to the development and use of advanced knowledge and skills, although (particularly in times of recession) universities may be under pressure to commercialise such IP through start-up companies in an effort to offset unemployment.

2.6 These developments have been described in reports sponsored by the European Commission and OECD [3, 4]. The European Commission subsequently published a Recommendation and Code of Practice [5] concerning the management of intellectual property in knowledge transfer activities involving publicly funded research organizations, which has been endorsed by the Council of the European Union. National governments and national industry federations have also developed codes of conduct that describe the handling of IP generated by publicly funded research and groups such as AURIL, ProTon Europe, ASTP and TII have described the professional skills required by a PRO in order to handle the knowledge transfer task well and provide regular training courses for new technology transfer professionals [6].

2.7 While it is important to engage with the changes that are taking place, this should be done by acting in ways that reflect good understanding of where and how the benefits of research accrue and where the costs lie in translating and applying knowledge. The contractual arrangements surrounding the management of IPRs have proved to be a common source of contention in what are otherwise straightforward negotiations. For example, while it is generally recognised that the industrial partner should be given first option to commercialise in its area of commercial interest, the university's need to facilitate exploitation in areas which are not of commercial interest to the current industrial partner (e.g. by licensing to other companies or by establishing new start-up ventures) is often seen as problematic.

2.8 Those who developed their professional skills in a world of Open Science often ask "Why should PROs protect intellectual property?" (Appropriate answers are "To encourage the economic applications of their discoveries for the benefit of the public" and "To help make research more attractive and better supported.") But a blanket policy of patent protection by PROs would be just as inappropriate as a policy of laissez-faire, since IPR has to be managed, defended and in some way applied before it can achieve economic value. Some PROs in Europe are equipped to provide the required level of management skills but many still need to progress to enhance their quality. To the more fundamental question, "What are universities for today," we point to a recent publication by the League of European Research Universities [7] to remind us that, while changes and reforms are needed, they should not be implemented in ways that harm the central parts of the PRO's mission.

3. How to be a Responsible Partner

3.1 Responsible Partnering aims to improve the effectiveness of collaborative research and knowledge transfer, encourage greater take-up of the results of research and more effective advanced education and training. The programme addresses the strategic role and organization of these activities and the operational handling of project management, knowledge and intellectual property. Principles and guidelines come from analysing examples of successful collaborations from around the world. Sustainable "win-win" structures are a result of taking active steps to ensure:

- Continued production of good science and publication of results without unreasonable delay;
- Contribution to the general education and training of new graduates;
- Generation of valuable forms of knowledge and intellectual property that support innovation;
- Competent use of available knowledge, including for applications that were not originally envisaged;

and

- Appropriate and effective steps to secure commercialisation in ways that are consistent with national, corporate and institutional priorities.

3.2 Achieving this positive outcome requires overcoming common difficulties such as diverging cultures, volatile relationships and the human tendency to "keep things close to the chest." One of the main challenges is to align interests sufficiently, so that people can concentrate on addressing their shared research objectives. This requires that each partner understands and respects what is truly important to others as well as to themselves and be willing to take steps to:

- Eliminate problems during project and IP management such as speed of negotiation, ownership of results, and exclusivity of use; and
- Provide for equitable compensation, including where appropriate for indirect costs and background knowledge, and/or with fair returns in the event of successful commercialisation based on a realistic understanding of value and costs.

3.3 Although these points tend to apply regardless of the nature and time scale of a joint programme, Responsible Partnering aims to establish the conditions for durable collaborations. The potential benefits depend upon its voluntary adoption by a sufficient number of PROs and companies in order to demonstrate that a systematic approach provides better results, improves consistency and overall professionalism, and makes it more difficult for some players to benefit from any flaws in the system.

3.4 In order to be a Responsible Partner, a Company or a PRO commits itself to the spirit of this Handbook by implementing a structured process that is consistent with the principles of Responsible Partnering, defines clear and equitable objectives in respect of collaboration and knowledge exchange and then achieves the desired level of performance by using learning from others, regular feedback from partner organizations and documented self-assessments to ensure the quality of active partnerships.

Principles Underpinning Responsible Partnering

3.5 Two principles underpin Responsible Partnering. These are elaborated into ten guidelines amenable to implementation by companies and PROs, depending on the nature and priorities of the organization. The Appendix suggest checklists that can enable a staged approach to their implementation.

3.5.1 Maximum Beneficial Use of Public Research

Public money is invested in the creation of new knowledge and skills to help social and economic development. The benefits of these investments only appear when knowledge is disseminated and brought into productive use. In adhering

to Responsible Partnering, the public and private sector 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 working in ways that support these objectives.

This requires the adoption of policies that reflect an understanding of:
- the role of PROs within their communities and their relationships with the business sector;
- the need to generate knowledge and skills appropriate to stakeholders' needs;
- 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.

3.5.2 Responsible Use of Public Research

Many forms of knowledge and skills are used in the development of useful products and services. In adhering to Responsible Partnering, public and private sector bodies recognize that their own success depends on others' contributions and are also realistic about their own contributions and the importance of sharing responsibility for commercialising research output. 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 parties to believe they are sharing equitably in the rights to results and inventions;
- the need to ensure that the use of results obtained from public investments also serves the general public interest;
- the need to organize collaborations in ways that foster their long-term vitality;

and
- assurance that ethical aspects of research and research management are taken fully into account.

Guidelines that turn these Principles into Action

3.6 Actionable guidelines can be obtained from these principles. Companies and PROs (and also governments) should take steps that:

3.6.1 Treat collaboration strategically

It is important to develop a strategic view of the part that collaborative R&D and knowledge transfer are expected to play in meeting the PRO's and company's objectives. This allows each to establish explicit policies and take steps to ensure that these policies are communicated, understood and acted upon. The place to take these decisions is at the highest level of the organization.

3.6.2 Align interests

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

3.6.3 Organize for lasting relationships

There is abundant evidence that collaborative research is most effective 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.

3.6.4 Provide the right professional skills

Effective management of collaborative R&D and knowledge transfer requires high quality professional supporting skills, and hence a commitment to establish or provide access to these resources and to train people to an appropriate level.

3.6.5 Establish clear intent

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

3.6.6 Use standard practices and communicate regularly

Adopting standard practices helps to encourage the development of effective frameworks for long-term collaboration. The stumbling blocks in developing good collaborative research projects are widely recognized. 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. Regular sharing of good practices, at a high enough level and as part of professional management development is an important accompaniment to operational effectiveness.

3.6.7 Achieve effective management of 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, and involves protecting their Intellectual Property in ways that facilitate value creation in a context of Open Innovation and maximise the potential for commercialisation, and using (and contribute to improving the relevance, quality and understanding of) public IP systems in ways that encourage future investment in public and private research.

3.6.8 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. Providing these competencies requires that companies as well as PROs develop programmes and safe learning environments in which people can learn the skills and common language appropriate for the world of open innovation. (These take many forms. At one end of the scale, schemes such as the Marie Curie programme have provided many young people with opportunity to broaden their experiences by working in other countries. At the other end are role-playing exercises within university and business courses in which participants learn about creating and developing start-up companies. The establishment of the Institute of Knowledge Transfer is an important initiative in increasing the status and recognition of the knowledge transfer profession.)

3.6.9 View innovation as a trans-disciplinary activity

Innovation is not simply about technological advance. The development of innovative business models, designs or organizational structures 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. It is important to recognize this trans-disciplinary nature of innovation and organize accordingly.

3.6.10 Foster strong institutions

Continued access to world-class knowledge and skills depends upon maintaining strong, well-managed and well-connected public institutions able to carry out advanced research, provide high standards of education and training, and the effective commercialisation of this knowledge requires competent knowledge transfer professionals, investment in knowledge transfer offices and related support services particularly in universities, and an effective IPR system consistent with current approaches to innovation.

A Structured Approach is needed to Implement these Guidelines

3.7 Responsible Partnering is a voluntary programme, assured through self-assessment. It is unrealistic to expect that the principles outlined here can immediately turn into effective operational routines, or that even the most effective routines can resolve all situations to the satisfaction of all parties involved. (Assessing the value of a technology for application by one industrial partner compared to its potential value for other, as yet unidentified, applications in different areas is always likely to prove problematic.) Instead, a structured approach is required that emphases organizational learning based on experience.

3.8 Implementation procedures will always reflect the choices, priorities and strategy of the individual company or PRO, but must also provide the consistent, equitable conditions that will facilitate working with others. A first step is to decide whether and at what level to adopt Responsible Partnering, based on its perceived relevance to organizational needs. The intention is that these Principles and Guidelines can stimulate discussion about the role of collaborative research and knowledge transfer activities in meeting strategic objectives.

3.9 Implementation, assurance and improvement processes turn the decision into action. The self-assessment checklists in the Appendix can be used to construct these processes. The checklists provide for differentiated levels of implementation, enabling the Company or PRO to test its current and planned levels of adhesion and set out a plan for improvement, starting with a basic framework and moving on to progressively more advanced and challenging forms of organization and co-ordination. Depending on the nature of the Company's or PRO's activities and strategic interests, it may not be necessary or appropriate to move a more advanced level of implementation.

3.10 The approaches that are recommended here reflect the experiences of many public and private organizations worldwide. Some aspects are known to present practical difficulties, including the identification of good partners, the construction of good collaborative research agreements and the human skills that support effective day-to-day project management. Subsequent sections of these guidelines suggest how these can be addressed.

4. The Human Aspects of Effective Collaboration

4.1 Introduction

Partnerships are run by people. Knowledge exchange happens through people. Organizations must therefore attend to selecting the right people and make clear how these people contribute to organizational objectives, what is expected from them and what they stand to gain in return. They will take steps to organize collaborative research in ways that will allow the individuals concerned to blossom and develop their skills. It must surely go without saying that they will be aware of, and follow, the requirements of employment law and good employment practices and apply these in respect of their partnerships as well as internally.

For the individual, being involved in partnership activities provides many personal benefits, including the possibility to build and maintain networks, learn from others and enhance career perspectives. It is important that organizations promote these benefits, that people receive incentives to contribute to Responsible Partnering and that they are adequately rewarded for their contributions.

4.2 Education as well as Research

Training in innovation and entrepreneurship is becoming a more common element of many university courses. Furthermore, when Companies and PROs undertake joint research programmes, a significant part of the work will be carried out by younger researchers who are still training for a doctoral or master's degree. In these circumstances, attention should be given to the effectiveness of the training that is being received, including matters such as joint supervision, transferrable skills and conditions of employment. The guidelines given in the Appendix include a section devoted to doctoral training, taken from the findings of the DOC-CAREERS project [8] carried out in parallel to the Responsible Partnering initiative.

4.3 Skill Development

The skills required to carry out collaborative research projects effectively are not always the same at those required to handle in-house activities. For example, working well across organizational boundaries can conflict with the desire for recognition of personal expertise that is the hallmark of many scientists and engineers. The traits associated with the "T-shaped" person, who can go in depth as well as work across broader organizational boundaries, seem more likely to develop and flourish in environments that encourage multidisciplinary, team-based approaches to problems.

4.4 Effective Environments

Personal development and strategic engagement are facilitated by proximity, physical as well as intellectual. Partnership arrangements that work well in one area may be less suitable in another. As illustration, underpinning long-term requirements for fundamental technological understanding may involve establishing centres of excellence that concentrate on specific core technologies. For applications in the consumer goods area, it may be better to concentrate partnerships on solving practical problems that can lead to the formulation of new research areas. More generally, temporary staff exchanges can be a highly beneficial way to establish the skills and understanding that underpin effective collaboration.

4.5 Tailoring Skill Development to Organizational Size

Approaches that work well between larger groups may not be effective for a smaller university working with local SMEs. In the latter situation, "Skills Scholarships" schemes can be effective, where structured programmes prepare and train individuals to contribute to research as professionals, while increasing the research capacities of SMEs by linking with a Ph.D. project and thereby encouraging SMEs to undertake research and recruit researchers.

4.6 Overcoming Distance Problems

When working on problems for other organizations, there is always a risk that the partners seem uninterested in the results. Commitment and quality of outcome are likely to improve when steps are taken to raise awareness of the mutual interest in the outcome. One of the best ways to accomplish this is through regular review procedures, with straightforward metrics that concentrate on what has been accomplished, what has been transferred, what intellectual property has been secured, and how people have developed.

4.7 Partner-Oriented Mindsets

Organizations that expect their staff to aim for a high level of strategic engagement with others have also to consider how to establish the institutional mindsets that underpin that strategy. This entails changing the institutional approach from being process-oriented to outcome-oriented and able to identify partners' expectations and understand when it is appropriate for the organization to seek to deliver according to these expectations.

5. Identifying Good Partners

5.1 Companies and PROs often find it difficult to identify good partners. A range of tools and approaches have developed to facilitate the task.

5.2 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.

5.3 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.

5.4 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 organization. Evidence of such background intellectual property and the capacity to innovate are main considerations in selecting a research partner.

5.5 Scientific Conferences

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

5.6 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.

5.7 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.

5.8 Intermediaries

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

5.9 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.

6. Constructing the Collaborative Research Agreement

6.1 The Collaborative Research Agreement provides the definitive description of the collaboration, by documenting what is to be done, the rules of conduct (including completion and termination) and applicable legal arrangements such as ownership, rights of use, management of intellectual property, and the state of prior art.

6.2 A number of issues tend to arise when negotiating and applying Collaborative Research Agreements. It is neither appropriate nor possible to propose forms of words here to solve all these issues. Instead, we point out that the underlying concerns are real and require considered negotiation in the light of the specific objectives that partners are seeking to achieve.

6.3 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.

6.4 The European Commission and several national governments have developed codes of practice for managing intellectual property from publicly-funded research. Some are now developing recommendations and suggesting model contracts for collaborative research. Standard practices and guidelines exist for projects executed within the European Union's Framework Programme, although not all European-level activities have yet adopted the same standards. Several templates for consortium agreements are also available, such as the Lambert models, DESCA and IPCA from DIGITALEUROPE (formerly known as EICTA) [6]. Greater attention needs to be given to resolving inconsistencies between these codes of practice and the terms that individual companies consider to be appropriate to their needs.

Points to Consider Before Writing a Collaborative Research Agreement

6.5 Before drafting any legal documents (other than preliminary non-disclosure agreements), the key first steps are to establish what the proposed collaboration is intended to achieve and each partner's interests and motivation in taking part. An appropriate balance also has to be struck between understanding institutional requirements and detailed discussion of technical objectives.

6.6 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 while 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 is important. Evidently, the approach must be legal in all respects (for example in respect of State Aid Rules discussed in the next chapter).

6.7 In allocating roles, partners should consider their competencies, experiences and internal organizations. For example, the company is likely to understand market conditions in its area of interest better than the PRO and be more familiar with handling business risk and liabilities, whereas the PRO will have deeper understanding of aspects of the subject matter and may recognise other opportunities that the company has not considered. Responsibilities and procedures should be defined accordingly.

6.8 Collaborative Research will typically be longer-term and more open-ended than Contract Research, which typically involves 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.

6.9 Beware of trying to force a deal in which any partner feels it loses something important. Recognize 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

6.10 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.

6.10.1 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 because they work as economic unity with these entities. The definition of these Affiliates should be made clear, and the performance expected of these non-signatories warranted by the relevant signatory.

6.10.2 Confidential information

Universities are not well 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).

6.10.3 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.

6.10.4 Resources

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

6.10.5 Funding and pricing

If applicable, this part sets out principles for compensating the research performed by the PRO, for calculating financial contributions, determining payment terms and making price revisions. The compensation paid 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.

6.10.6 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.

6.10.7 Reporting

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

6.10.8 Publications and confidentiality

The ability to publish results that are of scientific interest is an essential consideration for universities and some other PROs and companies. 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. When the scale of effort justifies such an approach, the partners may choose to establish mechanisms by which sensitive results can be taken outside the sensitive context, thereby permitting publication. 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.

6.10.9 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. Conditions and restrictions must be defined prior to entering the agreement, to the extent that these are known after reasonable enquiry. 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 to its knowledge it is not aware of potential infringement of third party rights other than disclosed.

6.10.10 Ownership of foreground

A general starting point for collaborations is that each party owns the Foreground that it (or its employees) has generated.

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. In such cases, a Joint Ownership Management Agreement should be agreed.

It is often important to differentiate between ownership and use. Giving partners efficient (sometimes exclusive) rights of use and ways of defending these rights can be sufficient, provided the inventor is able to manage the responsibilities that go with ownership.

Unless agreed otherwise, each joint owner should have the right to use joint inventions and the Foreground IP thereon. Except in special instances, licensing by each of the joint owners should be permitted to facilitate maximum use. All parties must have the right to sub-licence if they are to have equal rights to commercialise jointly owned Foreground IP.

6.10.11 Patents and other IP

The usual situation is that each party will take steps to protect its own inventions at its own discretion. The handling of joint inventions should be discussed: for example whether the PRO or the company shall file for protection or only assist the other party in filing; the terms on which licenses are granted; whether the commercial partner shall bear the costs of the PRO's activities or vice versa; 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, since this approach risks creating additional disputes and delays, although especially in litigation, the interests of the other owner should be understood and properly taken into account.

6.10.12 Licence for use

Each party will expect fair compensation for the commercial use of the inventions that it has helped generate. Deciding "what is fair" will depend on the nature of the collaboration but also on a sense of realism about future costs and risks. (Such fair compensation may also be in-kind, e.g. free access to each other's Foreground.) 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.

The granting of exclusive rights to partners in their areas of commercial interest is typically a preferred route for universities wishing to licence unexploited IP to new ventures, as a non-exclusive licence is often not attractive to new ventures seeking to raise investment.

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, but also other benefits that a party may get from the collaboration such as use of equipment that the other party has made available for the project, the opportunity to publish collaboration results or even the cooperation itself. Assignment of IP is possible as an alternative to exclusive licences, often 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 and teaching purposes by PROs.

6.10.13 Diligence

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

7. Other Legal Aspects of Collaboration

7.1 Research partnerships have not only to reflect internal institutional objectives, policies and practices, but also comply with legal and regulatory requirements. Although many of these requirements may be clear, some are frequently misunderstood. This chapter discusses two areas where particular care is advised. Please recognize that the remarks made here do not constitute legal advice. They should be read in conjunction with, and as a supplement to, the rules and regulations concerned, the terminology and definitions of which has been taken over as much as possible in this chapter.

State Aid in Public-Private R&D Partnerships

7.2 To avoid distortion of competition and trade, a principle of the EC Treaty is that Member States may not use their State resources in ways that give selective economic advantages to undertakings (e.g. companies) or other organizations with economic activities. Certain derogations exist from this ban. The Commission is tasked with controlling State aid; Member States are required to inform the Commission in advance of any plan to grant aid; and the Commission decides whether the notified measures are compatible with the EC Treaty. Exemptions exist from this notification obligation, as laid down in the Block Exemption Regulation[1] (BER) adopted in August 2008, where it is up to the Member State – without prior notification to the Commission – to decide if the aid is compliant with the BER, and therefore compatible with the Treaty or not. As of January 1, 2007, new rules[2] on State aid have applied to Research and Development and Innovation (R&D&I), which may impact upon research collaborations.

7.3 Undertakings and research organizations[3] are encouraged to develop a good understanding of these rules to recognize situations where State aid may be involved and assess to what extent it is compatible with the Treaty and therefore permissible. Familiarity with the rules facilitates partnering without the risk of overlooking permissible public funding opportunities or making arrangements that violate these rules.

7.4 State aid for R&D takes two forms:

a. Direct State aid, when a government is directly funding economic activities, e.g. through subsidies. It is important to understand that both undertakings and research organizations can be recipients of direct State aid, regardless of their legal status, when they engage in activities of an economic nature.
b. Indirect State aid, which may exist inter alia in collaborations when a research organization transfers its Intellectual Property Rights (IPRs) to an undertaking. In the case of indirect State aid, a research organization may act as a vehicle for State aid to an undertaking.

Generally speaking, research organizations and Members States aim to avoid indirect aid. In the absence of indirect aid, the assessment of State aid becomes much simpler: one only needs to ensure that direct aid remains below the applicable ceiling (see 7.7). Therefore, this Handbook focuses on methods that avoid indirect state aid as much as possible. In the following, we put forward a non-limitative set of notes of clarification on the conditions for no indirect State aid in collaborations between undertakings and research organizations. These notes of clarification:

• build on the spirit of Responsible Partnering, the UK Lambert Agreements[4] and the Commission's Recommendation and IP Code of Practice[5]; and

[1] Commission Regulation (EC) No 800/2008 of 6 August 2008 declaring certain categories of aid compatible with the common market in application of Articles 87 and 88 of the Treaty (General block exemption Regulation), Official Journal of the European Union L 214, 9.8.2008, p. 3–47.

[2] Community framework for state aid for research and development and innovation, Official Journal of the European Union C 323, 30.12.2006, p. 1–26.

[3] According to the State aid rules, 'Research organization' means an entity, such as university or research institute, irrespective of its legal status (organized under public or private law) or way of financing, whose primary goal is to conduct fundamental research, industrial research or experimental development and to disseminate their results by way of teaching, publication or technology transfer; all profits are reinvested in these activities, the dissemination of their results or teaching; undertakings that can exert influence upon such an entity, in the quality of, for example, shareholders or members, shall enjoy no preferential access to the research capacities of such an entity or to the research results generated by it. In practice, this definition in most cases corresponds to the Publicly-Funded Research Organizations referred to as PROs in the other chapters of this Handbook

[4] Lambert Tool Kit for Collaborative Research, http://www.innovation.gov.uk/lambertagreements/

[5] Commission Recommendation on the management of intellectual property in knowledge transfer activities of universities and other public research organizations; 10 April 2008; C(2008)1329.

• are intended as a harmonized reference to overcome undue hesitations for setting up effective R&D partnerships and for individual assessments of contractual agreements by Member States.

7.5 One of the general criteria for identifying State aid is that it provides an economic advantage that the undertaking (or other organization with economic activities) would not have received in the normal course of business. This implies a key principle for indirect State aid: a collaboration of an undertaking with a research organization benefiting from public funding for its R&D activities only involves indirect State aid if the terms of the collaboration with the research organization are more favourable than the undertaking would have obtained in collaborations with other undertakings. In this respect, we wish to stress that some arrangements may be disadvantageous for the research organization, because it is in a different position than an undertaking, e.g. has fewer possibilities to use IPRs of other parties commercially in its own products. However, such disadvantage for the research organization is not relevant for assessing whether an arrangement involves State aid. That assessment is about whether the undertaking has received an advantage that it would not have received in the normal course of business. Of course, such unbalance or disadvantage may be something to address otherwise in the framework of Responsible Partnering.

Other key principles underlying the notes of clarification are the following:

a. Intellectual Property Rights (IPRs) are deemed to be owned by the inventing partner unless the full cost of the work that led to the IPRs was paid by another partner.
b. A research organization may transfer or exclusively license its IPRs at market price.
c. The market price is deemed to be the price agreed in real negotiations, with the research organization seeking to obtain maximum benefit at the conclusion of the contract. (Note that also non-monetary benefits should be taken into account, e.g. opportunities to expose research organization staff to a business environment. Also note that market price is not the same as cost, it can be more or less, and can vary over time according to the expectation of extracting any value from the results. For this reason, R&D valuation is sometimes based on financial option theory.)
d. An undertaking that has contributed to the R&D cost of the research organization gets a corresponding discount on the market price for IPRs in order to avoid "paying twice".
e. Alternatively, if partners have ex ante agreed to pool their resources (e.g. in a "common pot"), an undertaking that has contributed to the cost of the project gets an advantage over third parties in the form of a proportional discount on the market price for IPRs in order to recognize investments made and risks shared.
f. The State does not become the (co-)owner of IPRs and other results by virtue of having supported some of the R&D actors. Therefore, any direct State aid to the undertaking or to the research organization is treated as part of its respective contribution to the collaboration project.

Notes of clarification on conditions for no indirect State aid

The conditions under which in any case, according to the State aid rules, collaboration projects between undertakings and research organizations involve no indirect State aid have been reproduced below in ***bold italics***, including the original footnotes. These conditions may apply to a whole project or separately to individual subprojects. Based on the principles outlined in 7.6, specific notes of clarification have been added.

According to the State aid rules for R&D&I, there is deemed to be no indirect aid in a collaboration project if one of the following three conditions applies:

(1) the participating undertakings bear the full cost of the project.

Note 1.1. Condition (1) is met when the participating undertakings bear the full project cost of the research organization and own all IPRs and other results from the activities of the research organization in the project. As the research organization is fully compensated for its project costs, indirect aid is avoided. Whether the undertakings themselves receive direct aid for their contributions to the project is not relevant in this respect.

[6] 'Full allocation' means that the research organization enjoys the full economic benefit of those rights by retaining full disposal of them, notably the right of ownership and the right to license. These conditions may also be fulfilled if the organization decides to conclude further contracts concerning these rights including licensing them to the collaboration partner.

(2) the results which do not give rise to intellectual property rights may be widely disseminated and any intellectual property rights to the R&D&I results which result from the activity of the research organization are fully allocated[6] to the research organization.

Note 2.1. Condition (2) is met when any IPRs from the project are fully allocated to the inventing partner, which then grants access rights to its results to other partners. This is in line with the usual provisions within the Seventh Framework Programme, which is explicitly implemented in accordance with the State aid rules. Free non-exclusive licenses may be provided for use of the licensed partner's own project IPRs and also more broadly for all other use in case of balanced partnerships characterized by comparable levels of expertise and contributions.

(3) the research organization receives from the participating undertakings compensation equivalent to the market price for the intellectual property rights[7] which result from the activity of the research organization carried out in the project and which are transferred to the participating undertakings. Any contribution of the participating undertakings to the costs of the research organization shall be deducted from such compensation.

Note 3.1. The compensation payable for the transfer of IPRs should also apply to exclusive licences, which in practice provide nearly the same economic benefits as the ownership of IPRs. However, as described above in Note 2.1, free non-exclusive licences may be provided for use of the licensed partner's own project IPRs and also more broadly for all other use in case of balanced partnerships characterized by comparable levels of expertise and contributions.

Note 3.2. In case partners have agreed to pool financial and other resources in the project and the research organization carries out research on behalf of all partners collectively ("common pot"), the investments made and risks shared by the participating undertakings should be duly recognized by taking the relative contributions made by the undertakings into account in negotiations on the compensation for IPRs payable to the research organization in case of transfer or license of the IPRs. This approach for taking partners' contribution into account should be agreed ex ante, i.e. before the collaboration project begins and any possible results leading to IPRs are known.

Note 3.3. In case an invention cannot be solely attributed to a single inventing partner, a compensation equivalent to the market price is only payable in case of transfer or exclusive license of the research organization's part of the joint IPRs, with the latter determined on the basis of partners' relative contributions to the project. Non-exclusive use of a joint invention may be for free.

If none of the previous conditions are fulfilled, the Member State may rely on an individual assessment of the collaboration project[8]. There may also be no State aid where the assessment of the contractual agreement between the partners leads to the conclusion that any intellectual property rights to the R&D&I results as well as access rights to the results are allocated to the different partners of the collaboration and adequately reflect their respective interests, work packages, and financial and other contributions to the project.

Note 4.1. For example, if mutually agreed before the project begins, undertakings may compensate a research organization for performing R&D at less than its full cost when this is fair and reasonable in view of other benefits accruing to the research organization. This may be appropriate in case the economic benefits of IPRs of the research organization are not fully transferred, for example, when a research organization retains access rights for non-commercial use, receives a lump sum for IPRs transferred to participating undertakings, receives running royalties and/or success fees for the transferred IPRs, gets access to certain background IPRs or know how of the participating undertakings, benefits from Public Relations, etc.

Note 4.2. More generally, any other way for handling IPRs that is agreed in real negotiations between partners as adequately reflecting their respective interests, work packages, and financial and other contributions to the project would be appropriate for avoiding indirect State aid. Such contractual arrangements should be agreed ex ante, i.e. before the collaboration project begins and any possible results leading to IPRs are known.

[7] 'Compensation equivalent to the market price for the intellectual property rights' refers to compensation for the full economic benefit of those rights. In line with general State aid principles and given the inherent difficulty to establish objectively the market price for intellectual property rights, the Commission will consider this condition fulfilled if the research organization as seller negotiates in order to obtain the maximum benefit at the moment when the contract is concluded.

[8] This provision does not intend to modify the obligation of the Member States to notify certain measures on the basis of Article 88 (3) of the EC Treaty.

7.6 It is emphasized that these notes of clarification are not intended to be exhaustive, and that they assume reasonable symmetry between the partners in terms of professionalism, with partners assumed to enter the collaboration agreement voluntarily because of expected mutual benefits.

7.7 If conditions (1), (2) or (3) in 7.5 are not fulfilled and the individual assessment of the collaboration project by the Member State(s) does not lead to the conclusion that there is no indirect State aid, the full value of the contribution of the research organization to the project is deemed to constitute indirect State aid to undertakings. However, even such aid may be allowable. The combined aid from direct government support and (where they constitute indirect aid) contributions from research organizations to that project may not exceed the applicable aid ceiling for each benefiting undertaking. The relevant aid ceilings are currently 100% for fundamental research; 50% for industrial research; and 25% for experimental development. These ceilings may be increased with certain bonuses for small and medium size firms and in some other situations. For example, in case of effective collaboration an increase of 15% applies under certain conditions.

Competition and Antitrust

7.8 Competition is a basic mechanism of the market economy and encourages innovation. The EC Treaty prohibits agreements between two or more undertakings that restrict competition, subject to some limited exceptions. Although R&D collaborations are in principle considered to be pro-competitive, certain restrictions do apply. Outside State aid, the main rules that need to be taken into account are the block exemption regulations on horizontal R&D agreements[9] and technology transfer agreements[10]. Their impact strongly depends on the specific situation of the agreement at hand, for example on market shares of the partners and whether they are competitors, potential competitors or non-competitors. These rules particularly affect access to and exploitation of the results from R&D collaboration.

[9] Commission Regulation (EC) No 2659/2000 of 29 November 2000 on the application of Article 81(3) of the Treaty to categories of research and development agreements (Text with EEA relevance), Official Journal of the European Union L 304, 5.12.2000, p. 7–12.
[10] Commission Regulation (EC) No 772/2004 of 27 April 2004 on the application of Article 81(3) of the Treaty to categories of technology transfer agreements, Official Journal of the European Union L 123, 27.4.2004, p. 11–17.

8. Concluding Remarks

8.1 Innovation is like a chemical reaction. In principle, it happens when the right raw materials come together, but catalysts are often required to reduce the barriers to change and ensure that useful outcomes emerge.

8.2 The shortages we face are generally not the raw materials of innovation. We have these in plenty. The key tasks are to remove 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.

8.3 This Handbook is offered as a tangible step towards achieving a self-sustainable reaction. We encourage organizations and people to endorse and adopt Responsible Partnering and to help us improve the framework in the light of their experiences.

8.4 Responsible Partnering will only 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 – so-called Research and Innovation-Friendly Ecosystems. 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.

Appendix: Implementation Guidelines

By definition, the results of research projects cannot be guaranteed in advance. The purpose of Responsible Partnering is to improve the likelihood of success by eliminating weaknesses that are under an organization's control, and thereby provide assurance that the majority of collaborations will be considered to have been effective and worthwhile in meeting its own and partners' objectives.

In order to be a Responsible Partner, a Company or a PRO commits itself to the spirit of this Handbook by:

- Implementing a structured process that is consistent with the principles of Responsible Partnering, defines clear and equitable objectives in respect of collaboration and knowledge exchange and then achieves the desired level of performance by using learning from others, regular feedback from partner organizations and documented self-assessments to ensure the quality of active partnerships.

The following two checklists suggest points to consider when implementing Responsible Partnering, organized in terms of increasing levels of engagement. The first checklist addresses strategy, relationship management, learning processes, review procedures and communication. Most of the points will be relevant to all types of organization, but some address the specific situations of Companies, Universities and RTOs or may only apply in certain circumstances. Consequently, many Companies and PROs may consider it unnecessary to address all the points that are suggested. The second checklist is aimed more specifically at situations that aim to support advanced training and education (e.g. collaborative doctoral programmes).

It is always recommended that the implementation process reflects 'SMART' principles: i.e. involves steps that are Specific, Measurable, Attainable, Realistic and Timely. It will usually be most effective to assess the current situation in terms of scales such as "Not yet begun/Underway/Completed," and to provide for broad and open discussion of what further efforts are needed to achieve effective outcomes.

For example, an organization may begin by discussing the criteria it will use to identify desired partners and introduce straightforward procedures for managing relationships with these partners. At this stage, its review processes are likely to be quite informal and aimed mainly at learning about current projects, with the findings used to improve management of future projects. Thereafter, steps should be taken to formalize, but also simplify, the approach with a view to providing quick understanding of areas of strength and weakness, regular audits of commercial and other potential, and a way to identify and resolve problems.

At each stage, systematic efforts will be undertaken to check that the preferred approach reflects external standards of "good practice" and good understanding of partner objectives and priorities. Eventually, the organization may decide to implement a number of strategic relationships with some key partners, in which case these relationships are likely to be managed at a senior level and extend beyond the parameters of individual research projects.

Suggested Checklist Items for Strategic Collaborative Research

Element	Recommendations
Corporate/institutional strategy and internal awareness	1.1: Develop a strategy for collaborative research, reflecting the principles of Responsible Partnering, setting out why and how the Company/PRO intends to work with others. Ensure that senior management endorses the approach and monitors its implementation.
	1.2: Take steps to achieve a mature understanding within the organization of the consequences of this strategy (including any ethical and legal considerations). Use this process to stimulate regular discussion and ideas for improvement.
	1.3: Regularly assess the implementation and effectiveness of the strategy in the context of the current project portfolio. Ensure that policies and procedures are applied consistently and considered effective and socially responsible, and that there is active management of the portfolio of collaborative research activities.
Operating procedures	2.1: Develop clear operating procedures that explain what is required when establishing and running collaborative research projects, such as choice of partner, negotiation and contractual arrangements, project management, legal and ethical matters, etc.
	2.2: Make routine checks that these operating procedures are being followed, and considered effective and not burdensome, both internally and by partners.
	2.3: Check that the operating procedures have generally resulted in high levels of mutual trust, effective working practices and greater confidence in delivery, internally and among partners.
Training	3.1: Promote a "partner-oriented" mindset. Identify the skills and knowledge required to manage collaborative research projects, and take steps to provide appropriate training and promote awareness of Responsible Partnering.
	3.2: Establish training programmes for research employees and knowledge transfer professionals, with regular refresher courses where appropriate, where relevant involving staff from partner organizations. Use staff exchange programmes to improve quality and mutual awareness.
	3.3: Actively support public initiatives that develop greater awareness of innovation processes, the handling of intellectual property and the management of collaborative research. Contribute to external development and certification programmes which aim to improve the competencies of knowledge transfer professionals.
Contractual matters and IPR protection	4.1: Establish contractual procedures (ideally standardised) that provide for the equitable and effective protection of IPRs and are consistent with partner requirements.
	4.2: Obtain assurance that the procedures are effective and not burdensome (for example that a private sector partner claims rights to results generated by the public partner, including background intellectual property, only when these are reasonably required for purposes of commercialisation and on fair and reasonable terms, and that such claims are mitigated by granting back rights of use in further research or for non-competing applications).
	4.3: Demonstrate that contractual and operating procedures are recognized as constituting "best practice" and provide equitable compensation for required exclusive and 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 unused rights to return to the partners or become non-exclusive.

Element	Recommendations
Communication	5.1: Ensure that current and potential partners can readily access information on the Company's/ PRO's approach to collaboration, including for example areas of collaboration, policies, etc., and encourage reciprocity.
	5.2: Consider reporting the impact and value of collaboration policies openly in external communications.
Other	6.1: Make appropriate checks to ensure that partner organization practices are consistent with the company's stated policies in key areas such as safety, culture, terms and conditions of employment, etc.

Suggested Checklist for Situations involving Collaborative Research Training[11]

1. Identify knowledge/technological needs and challenges that need R&D input
2. Exchange views on knowledge/technological challenges with university/industry
3. Plan medium-long term R&D strategy (e.g. within five years)
4. Develop high quality research proposals
5. Know the costs of your research and identify funding sources
6. Raise your awareness of the respective research environments in which to collaborate in your field (university, industry)
7. Develop/Participate in forums for soft ways of interaction between students, researchers and industry experts with good research content (conferences, fairs, etc.)
8. Organise small-size highly-specialised workshops/meetings that pool experts from different research fields and sectors
9. Seek the right expertise to assist you (IPR issues, contractual issues, etc.)
10. Formalise doctoral collaborations in solid and fair agreements combining structure and flexibility
11. Consider physical proximity as an asset to develop mutual trust – promote face-to-face dialogue
12. Commit to excellence in doctoral education, research and management

[11] Source: DOC-CAREERS report [8]

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RESPONSIBLE PARTNERING

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

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.

The **European University Association** (EUA) is the main organization 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.

The **European Association of Research and Technology Organizations** (EARTO) is the trade association of Europe's specialised research and technology organizations (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.

ProTon Europe is a pan-European network of Knowledge Transfer Offices linked to Universities and Public Research Organizations. 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.

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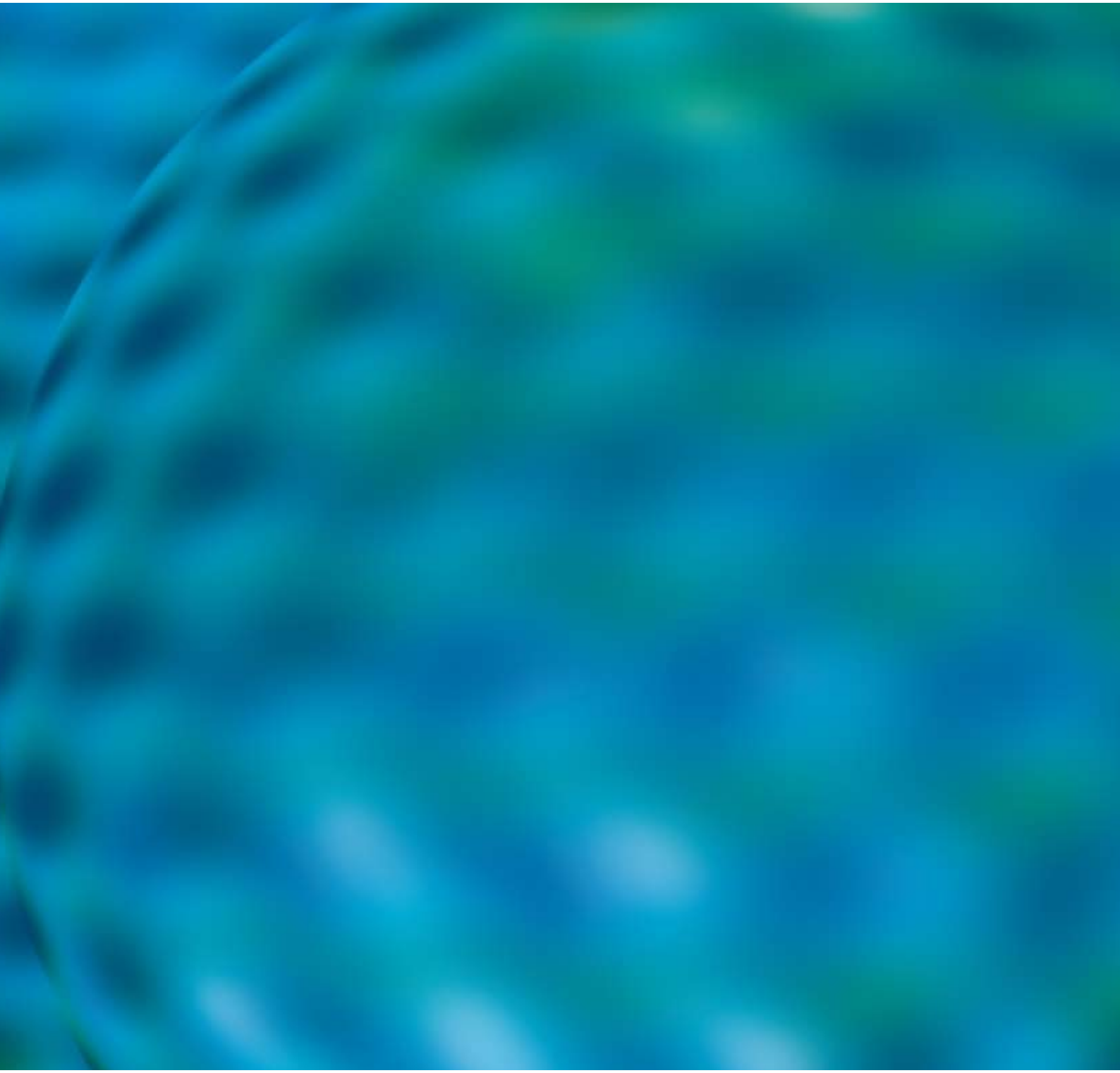

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FACING THE INNOVATION CHALLENGE

EUA
European University Association

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