EUROPEAN UNION **Brussels, 11 February 2011**

EUROPEAN RESEARCH AREA COMMITTEE

– ERAC –
Secretariat

ERAC 1202/11

NOTE

To:	ERAC delegations
Subject:	Report by the ERAC Working Group on Knowledge Transfer

Delegations will find in the annex the report by the ERAC Working Group on Knowledge Transfer entitled " 2010 Report on the implementation of the Council Resolution and Commission Recommendation on the management of intellectual property in knowledge transfer activities and code of practice for universities and other public research organisation by Member states (MS) and Associated countries (AC)" as adopted by ERAC at its meeting on 7 and 8 October 2010

REPORT BY THE ERAC WORKING GROUP ON KNOWLEDGE TRANSFER

2010 REPORT ON THE IMPLEMENTATION OF THE COUNCIL RESOLUTION AND COMMISSION RECOMMENDATION ON THE MANAGEMENT OF INTELLECTUAL PROPERTY IN KNOWLEDGE TRANSFER ACTIVITIES AND CODE OF PRACTICE FOR UNIVERSITIES AND OTHER PUBLIC RESEARCH ORGANISATION BY MEMBER STATES (MS) AND ASSOCIATED COUNTRIES (AC)

2010

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Introduction

This working group report offers ERAC (CREST) an overview on the progress the Member States and Associated Countries have made in 2008-2009, towards implementing the *Commission Recommendation on the management of intellectual property in knowledge transfer activities and the Code of Practice for university and other public Research organisations (or IP-Recommendation) and the respective Council Resolution*[1].

The purpose of the working group report is to:

- identify initiatives taken and envisaged at national levels to implement the IP-Recommendation
- pinpoint progress made and identify future challenges for the group future work
- fulfil the obligation of the working group mandate to inform ERAC on a yearly basis. The report also serves the purpose of informing the Commission by 15 July 2010 and every two years thereafter on measures taken to implement the IP-Recommendation, in order to follow up the Council Resolution.

Since the CREST decision in January 2009 to set up a CREST Working Group on Knowledge Transfer, the group members engaged in many activities which already have bared some fruits and are also expected to continue to do that in the coming year(s). While the focus of this report is on the outcome of the first two years of implementation of the IP-Recommendation, the level of detail and information given by the MS and AC exceeded the expectation.

The ERAC working group on KT wants to acknowledge and give special thanks to the rapporteur, Erik F. Øverland (NO) for his valuable work and comprehensive commitment and engagement in the preparation for the report.

The structure of the report

Chapter 2 starts with a brief overview of the political context of knowledge transfer and IP-management, followed by a description of the working group and its mandate. Chapter 3 offers a synthesis of what countries have done and plan to do in order to implement the IP-Recommendation. Chapter 4 and 5 zoom in on the (ongoing) work done on international cooperation and development of knowledge transfer indicators. Chapter 6 describes the main conclusions about the progress the working group made, which are linked to the next steps in 2010 and thereafter.

[1] Council Resolution on 30 May 2008 (reference 10323/08)

1. CONTEXT AND ERAC WORKING GROUP

1.1. Context

The European Research Area provides for open circulation of knowledge across national borders in Europe and with third countries. Specifically public authorities at all levels jointly pursue an outward-looking approach to collaboration with third countries, based on mutual benefit and appropriate intellectual property management and protection. The European Research Area is at the core of all major global networks of scientific and technological knowledge producers, distributors and users" (ERA 2020 Vision).

The world is moving rapidly towards a knowledge-based economy. Countries are competing globally for the provision of research, for the establishment of partnerships, and for the commercialisation of the results of research. At the same time, increased focus is being placed on tackling global societal challenges, the solutions to which are also a potential source of economic growth. This has been recognised in the Europe 2020 strategy where fostering the knowledge society and addressing societal challenges have been identified as two of the three key drivers for growth.

Innovation Union

The Europe 2020 sets up an ambitious agenda for Europe based on smart, sustainable and inclusive growth. One of the flagship initiatives to under the smart growth agenda is Innovation Union. The knowledge transfer issue is an integral part of this flagship.

Open Innovation

Businesses are also beginning to embrace open models of innovation, relying on more complex systems of creating, transferring and acquiring knowledge and increasingly depending on external partners. Often open innovation strategies are combined with more conventional ones within same company; value chains, branches or sectors. These more complex partnerships, which have a growing international dimension, necessitate more sophisticated internal strategies for knowledge management.

This all requires new and differentiated approaches towards the management of knowledge, optimising existing legal systems and funding rules, both from a European and international perspective. As knowledge production and use is becoming increasingly internationalised, there is a growing need to ensure first-rate access to that knowledge. Knowledge needs to be managed in a more strategic way, through international collaboration and coordination of research programmes.

European Research Area

The policy background to the increased attention to Knowledge Transfer at the European level, which the ERA 2020 Vision reflects, is the re-launched European Research Area (ERA) and the objective of promoting more private investment in R&D. An effective and improved knowledge interchange and transfer between private enterprises and Public Research Organizations are one between many important conditions to reach such goals. Professionalization of Knowledge Transfer is essential in order to increase the

exploitation of research and to increase the return of investment in R&D. Countries and regions around the world are increasingly trying to develop effective policies to promote successful knowledge transfer in order to exploit the result of research for public benefit, to strengthen innovation and to facilitate the growth of jobs. So do the MS with the European union and Associated Countries and the major challenge is to define a genuine European policy in the field which both coordinate and back up national strategies. The European Research Area has become the key reference to research policy in Europe, and is reflected as a self-standing objective in the new Lisbon Treaty. In the Green Paper "The European Research Area: New Perspectives", SEC (2007) 412, the Commission announces six main features for a future ERA. One important such feature is:

– **Effective knowledge-sharing** notably between public research and industry, as well as with the public at large.

The ERA Green Paper both steered the need for an open access to knowledge throughout Europe by exploiting the potential of ICT, and the improvement of knowledge transfer between public research and industry.
An important step as a response to the challenges described above and the Green Paper was the adoption of a Commission Recommendation on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organizations in April 2008[2] as one of the five ERA initiatives.

The aim was to offer a coherent framework for the management of intellectual property by the public research sector, to promote knowledge transfer between the public and private sectors, both within and between Member States. To that end, the Recommendation and Code comprise:

– a set of key policy recommendations to Member States which public authorities may rely on when introducing or adapting national guidelines or other measures;

– a "Code of Practice" containing more operational guidance for Public Research Organisations and Universities performing research, aiming to enhance the way they manage intellectual property, thereby to promote knowledge transfer between the public and private sectors;

– an annex containing good practice examples of policy measures already taken by public authorities in certain Member States, and which could help others implement the Recommendation.

The Commission Recommendation was subsequently endorsed in a Council Resolution passed on 30 May 2008[3] (reference 10323/08) and invited Member States and the Commission:

[2] Commission Recommendation on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organizations (COM(2008)1329)
[3] Council Resolution on the management of intellectual property in knowledge transfer activities and on a Code of Practice for universities and other public research organizations – "IP Charter Initiative" (10323/08)

„…to actively support the Recommendation, and to promote the effective take-up of the Code of Practice by universities and other public research organisations, while fully respecting their autonomy in dealing with IPR"

"…to establish, in partnership, light and effective governance arrangements, including the monitoring and evaluation of the take up and impact of the Recommendation and Code of Practice, on the basis of indicators, the exchange of best practices with active involvement of stakeholders, which could lead to the definition of further guidelines on specific issues of common interest where justified."

1.2. ERAC working group

CREST decided in January 2009 to set up a CREST Working Group on Knowledge Transfer to follow up the Council Resolution. The mandate for the CREST Working Group was adopted in June 2009. The ERAC working group is open to all Member States and Associated Countries. It currently consists of representatives of 33 countries and the European Commission (Annex 1). The working group is chaired by a Member State representative elected with a mandate for two years (Germany - Klaus Uckel). The Commission is a member of the group and provides the secretariat.

In 2009 and 2010 the CREST working group held 6 meetings in May, June, September, October, January and April.
With the Council decision on 26 May 2010 CREST got a new set up as ERAC (European Research Area Committee). Following this the working group on KT is now an ERAC working group.

To implement the Council Resolution, the group concentrates on the following tasks:

- Exchange information on the status and progress of national and Commission policies and initiatives to promote and enhance knowledge transfer along the lines of the Recommendation and Code of Practice.

- Identify/disseminate good practices relating to policies/programmes for improving knowledge transfer and the management of intellectual property, both at a national level and across borders.

- Consider and discuss outcomes of the University-Business Knowledge Transfer Forum for stakeholders.

- Discuss and study different issues (e.g. international cooperation, application of the Recommendation and Code of Practice to relevant EU policies/instruments) and, where appropriate, develop guidelines on specific issues or problems of common interest.

- Engage in forward-looking activities (foresight) to identify longer-term policy needs and actions in knowledge transfer within Europe and the world (identifying potential problems in the more distant future, and potential solutions).

- Liaise with and coordinate their efforts with other working groups established under the governance of the five ERA initiatives.

- Define and use common indicators to monitor the implementation and impact of the Recommendation and the Code of Practice.

- Provide a consolidated report in 2010 and every two years afterwards on measures taken to follow up the Resolution and implement the Recommendation and Code of Practice, as well as their impact.

The group work is complemented by annual forum on Knowledge Transfer with business and research stakeholders to discuss implementation of the Code of Practice and exchange best practices (two forums were held in 2008-2009, next forum will take place in autumn 2010). This forum is part of the wider University-Business Dialogue initiative organised by the European Commission[4].

For the first two years of its work the working group has identified the following 4 priority topics:

- Reviewing and reporting on initiatives taken at national levels to implement the Recommendation and Code of Practice;
- Identifying specific issues related to international knowledge transfer (i.e. beyond the EU) including the development of practical guidelines where appropriate;

- Identifying indicators for measuring progress in implementing the Recommendation and Code of Practice;

- Reviewing how the Recommendation and Code of Practice are promoted in relevant EU initiatives (e.g. the European Institute of Innovation and Technology (EIT), the Seventh Framework Programme for Research and Technological Development (FP7), the Competitiveness and Innovation Framework Programme (CIP) etc.).

[4] University-Business Dialogue, http://ec.europa.eu/education/higher-education/doc1261_en.htm

2. FROM TECHNOLOGY TRANSFER TO KNOWLEDGE TRANSFER

During the last decades a considerable number of Technology Transfer Offices (TTO's) have been established by and around European Universities and other Public Research Organisations. According to a study of technology transfer in Europe (Inno et al., 2004), there were already in 2004 close to 1,400 technology transfer offices (TTOs)[5] in Europe. Many started as industry liaison offices and also developed services for PRO personnel to encourage commercialisation of research results. Many of these have developed specialised staff and services for assessing disclosed inventions, patenting, licensing, and developing and funding spin-offs and other start-ups[6]. In addition they have actively approached firms for contract based arrangements (projects and transfer deals). Quite a number of countries in Europe have also implemented legislation, by which universities were required to exercise an IP policy, focusing on patenting and licensing[7]. Also OECD has addressed this issue by several occasions (ie. OECD: Turning Science into Business. Patenting and licensing at public research organizations", Paris 2003).

The Working Group on Knowledge Transfer is, however, of the opinion that technology transfer, and especially, knowledge transfer, should be seen in a broader context than merely IP management ("to identify, protect, exploit and defend intellectual property"). As pointed out in the KT Metrics report[8], the term knowledge transfer has later been established as a broader and more encompassing concept, and even though the term technology transfer office (TTO) is still widely used by public research organizations, it is also common to integrate such units as part of a larger of knowledge transfer offices (KTO). Technology is not the only field of knowledge for which transfer is considered important, commercialization and economic impacts are complemented by social, cultural, and personal benefits on the output side, and there are other useful forms of transfer than those requiring strong IP protection.

It is common to associate the original concept of technology transfer as a one dimensional transfer activity in which technology research developed within the PROs should be transferred to industrial partners. Contemporary theories of knowledge, innovation policy perspectives etc., consider this too simple. Knowledge transfer will always have a two way dimension. Also research environments within the PROs may profit considerably of industrial partners within collaborative projects, as the opposite way around. Knowledge transfer takes therefore place in channels of interaction between

[5] The Inno study actually used the term technology transfer institution (TTI), which is slightly broader; for example, some science parks were included.

[6] 'Spin-off' is here considered as something different than 'start up'. The word 'spin-off' refers to a firm established on the basis of formal knowledge transfer from a PRO, while the word 'start-up' indicates any new firm established involving PRO staff or students. Thus the former is a subset of the latter. These words are used inconsistently between surveys.

[7] In the US, the Bayh-Dole act, adopted in 1980, permits universities to pursue ownership of an invention and other intellectual property resulting from research funded by federal government.

[8] The report from the European Commission's Expert Group on Knowledge Transfer Metrics (European Communities, 2009) gives an outline of the concept of Knowledge Transfer which is useful for our purpose here.

PROs and other actors. Knowledge can be produced, mediated, reproduced, acquired, and transformed in and between the different forms through these channels.

The activities of the ERAC Working Group on KT are based on this broader understanding on KT. The next chapter will describe the current state of play.

3. CURRENT STATE OF PLAY

In order to assess the current state of play on the implementation of the Council Resolution by Member States and to gather information about the actions envisaged, the group decided as one of the first activities, to collect information from its members via the questionnaire. The questionnaire was prepared and distributed in autumn 2009 and 28 replies were received by 1 September 2010 (Annex 2).

This section is grouped according to the questions of the questionnaire (Annex 3).

3.1 Promotion of Knowledge transfer in the strategic mission of PRO

Countries increasingly recognize the importance of KT. A number of countries have a package of legal requirements, policies and incentives in place which stimulate the transfer of knowledge from PROs to the private sector and society as a whole. Other countries have KT-policies which contain very valuable elements which are at this time of a more fragmented nature.

3.1.1 Legal framework and steering mechanisms

The countries differ in their approach and phase of making KT a strategic mission of PROs. In order to make KT between universities and industry a permanent political and operational priority, several countries adopted legislation which feature KT prominently. Others countries use legislation which refers to KT in a more generic way. A third group of countries makes use of other steering mechanism in addition to or as an alternative to legislation. With regards to future activities, a couple of countries are planning to develop measures to promote the inclusion of KT in the strategic missions of PROs and universities.

a) legal framework

Several countries mention they require -by law- that Universities and PROs cooperate with the private sector and society in order to improve KT (FR, CZ, DK, SE, LU, NL, HU, BE, DE, NO, TR). In DE and NO for example, the change in the law of the Employee Invention Act entitled an employee to an appropriate financial gratification for an invention he has made. The so-called university teachers' privilege has been abolished. When the new paragraph 42 of the Employee inventions Act in DE was introduced, incentives had to be developed for institutions of higher education to successfully implement this change in paradigm in the sense of better KT and stronger innovation

impetus for industry and company start-ups. In addition, all 16 Länder laws on universities stipulate TT as an objective. In TR the Law on Public Financial Management and Control obligates all universities to prepare their strategic plans in accordance with national priorities, which includes national strategy documents on KT and IP-issues. The universities also established performance programs in line with their strategic goals defined in their strategy plans.

A number of countries (BE, DE, DK, FR, HU, LU, NL, SE, TR) support this legal obligation with a policy-mix:

- An example of a policy mix are the programs in BE which, with considerable financial means, are put in place to accelerate KT. The approach for PROs is different than for universities: KT is included in the mission statement and targets are incorporated in 5 year performance agreements. Non-achievement of these yearly targets has direct financial repercussions.
- The NL launched an initiative in which all stakeholders join actions in the field of KT to be implemented by all parties ('a national KT agenda'). To oversee the implementation of this KT agenda a High Level Committee was appointed by the government which monitored as well as formulated additional actions.
- In DE for example, the federal and Länder governments influence KT through their programme and project budgets for research and innovation funding –in particular between science and industry- by publishing calls for collaborative research, projects and providing incentives for long-term and sustainable collaboration, for example cluster competitions. DE also has leading-edge cluster funding at federal level which is based on joint strategy, starting with individual strengths of clusters and aimed at defining future objectives.
- In LU the law requires since 1987, that PROs cooperate with the private sector in order to promote knowledge and technology transfer. KT is included in the mission statements of PROs and indicators are incorporated in their 3 years performance contracts. The government programme 2009-2014 foresees the creation of a shared KT and management structure for IP. The government intends to establish a national strategy document on knowledge and technology transfer and IP issues.
- In HU the Act on R&D and technological innovation was adopted in 2004. By force of this law, the government has adopted a medium strategy on science, technology and innovation accompanied by action plans and has supported enterprises in the exploitation of R&D results. The strategy also enables the exploitation of national IP and technology abroad. KT is promoted by means of the promotion of an innovative attitude, social reception of R&D&I, the foundation of enterprises -and spin offs, incentives for capital investment, handling of IP and the infrastructure requirements of technology transfer.

CZ reports that even though it requires that Universities shall cooperate with the private sector, there are at this point no provisions on KT yet.

ES informs that the Project[9] for its Science and Technology Law dedicates Chapter II to KT and as a preamble it states that "*Transfer that is deemed essential to encourage changes in the production system, as the Law aims to achieve. In order to help such change, regulations are established, whereby, any contracts that Public Universities, Research Institutions, Foundations and other Research Centres, funded by the Government, may enter for setting up companies or collaboration agreements to render services or transfer results have to fully meet Private Law provisions. Moreover, it is generally required that contracts have to be directly awarded. As concerns the researcher's involvement, their compulsory collaboration, when copyrights of industrial research results are applied for, is specifically required to ensure that not only those results are fully and properly protected, but a more efficient transfer is achieved, as well*".

b) legislation – in more general terms:

A smaller group of countries use legislation which describes KT in more general terms (FI, LV, PL, LT). For example, LV requires that institutions disseminate knowledge and encourages the use of research results. In FI, the University Act incorporates in the mission of universities that universities shall, as part of their education and research tasks, co-operate with the surrounding society and promote the societal impact of research results. FI also reformed the Finish University act in 2009 which extended the autonomy of universities with independent legal status and stronger financial responsibility. The new Act gives universities better possibilities to enhance the KT activities. In addition to an act with incentives for KT, PL refers to a national centre for R&D action for the support for commercialization and other forms of KT.

With regards to future activities PL is planning to develop a new bill that will promote inclusion of KT in the mission of universities and obliges universities to adopt IP management regulations, principles and measures that enable KT via spinoffs. In LT the parliament is considering inclusion of procedures on the use of IP in law. LT wants to ensure that institutions define KT as a strategic mission. In SI, the Act on Inventions from Employment defines KT in substantial detail (article 21).

c) steering mechanisms

The majority of countries (AT, CH, CY, DE, EE, IE, FI, IT, IL, NL, NO, RO, SI, TR, UK) refer in their contributions more to non-legal approaches such as steering dialogues, schemes and national programs. The examples below highlight different measures taken to promote KT. Some examples:

- **Performance and collective agreements:** In AT performance agreements are part of general funding. Universities are obliged to develop a strategy and mission for IP management. These performance agreements will be monitored in 2011. In MT a collective agreement was signed with the PRO which includes rules regarding IP. KT is recognized as an important aspect of its mission. MT plans to put a necessary framework in place to facilitate and support KT. In AL the Academy of Sciences and universities have contracts and there are contracts between PROs and Ministries-local authorities, based on specific project requests.

[9] Project of Law is more than a draft of Law. It means that the Spanish Parliament has approved the project and in the following months the final Law should be approved.

- **Funding patent activity**: AT also refers to a funding scheme for universities which is an initiative to promote professional patent management at Universities. EE has a series of structural funds in place, aimed at things like increasing patent activity and KT capacity, strengthening cooperation between PROs and firms. In SI partial patent funding activity was started within INO09.
- **Funding KT capacity:** In the UK the government launched a fund which supports KT capacity. The funding (which currently stands at £ 150m for 2010/11) is allocated on formulaic basis stemming from indicators captured by comprehensive annual higher education -business community interaction survey and therefore structural- also a portion of QR research funding, 60 million pounds is dedicated to KT activities. The support of this fund goes directly to universities and is available to all higher education institutions. Activities which are supported include the strengthening of TTO offices, proof of concept funding and support for a business development function in an institution. A new assessment framework for research is being developed which explicitly recognizes the impact from research on economy and society. SI started to financially support KT activities in 2009 when a public tender for supporting KT activities was launched for the first time.

  In ES a new sub-programme called "INNPACTO" aims at PROs and firms to develop R&D joint projects based on the transfer of knowledge to the private sector in order to put new products into the market.
- **Steering dialogue and supporting KT programs:** NO engages in a steering dialogue on behalf of the government with universities which incorporates IPR and university business collaboration. In addition NO has a program which supports commercialization of research based business ideas (by licensing, start ups, funding of infrastructure, license agreements, proof of concept funding). The financing of PROs and HEIs is under evaluation. In FI the Ministry of Education, Science and Culture invited the HEIs to update their strategies and to take KT and utilization of research findings in consideration. These strategies were discussed at the performance negotiations between the Ministry and HEIs and funding was allocated accordingly.
- **A national plan on KT:** A similar situation as in NO can be found in the NL where there is a program that supports the commercialization of research with a focus on start-ups. At this moment this program is being redefined to be part of a bigger and enhanced program which focuses on all aspects of knowledge transfer ('National KT Plan). ES also includes a specific "Instrumental Action Line" called "Knowledge use and technology transfer" in its 6th national plan for R+D (2008-2011). This instrumental action aims to encourage protection, valorisation and commercial exploitation (licences, creation of spin-offs) of RTD results generated by universities and research organisations. It promotes cooperative research activities of groups and units that nurture relations and KT between research organisations, enterprises and institutions and contributes to providing stability and professional opportunities of human resources dedicated to technology and KT. Another three instrumental actions of the Spanish national plan include different actions related to KT. KT is also mentioned as a key element in the new Spanish Strategic Plan on Innovation.

- **Steering board representation:** In SI and ES[10] the collaboration of PROs with the business sector is a key priority and permanent goal of R&D policy on national level. In addition, the government has representatives in steering boards of PROs and promotes the inclusion of KT in strategies through this measure. All PROs and universities are obliged to prepare 5 year workplans.
- **TT strengthening scheme:** IE underlines that the commercialization of research results is a government priority and refers to a number of measures, including a TT strengthening scheme. A review of the program is foreseen in 2010.
- **Strategy funding:** DE supports higher education institutes, entrepreneurs and SMEs with legal protection and commercialization of innovative ideas (under the SIGNO umbrella brand). The German Federal government also provides strategy funding for universities and PROs that want to further optimize and expand their commercialization activities.
- **Salary subsidizing and coaching**: In CH the government promotes R&D projects, in particular between PROs and private sector by principally subsidizing the salaries of researchers in public organizations. It also proposes a coaching program for selecting start ups and KTT networks which offer SMEs access. In ES the programmes of human resources called "Torres Quevedo" and INNCORPORA, subsidize and give loans to the private sector to hire and recruit highly skilled technologists and for high qualification training programs. Most of these skilled technologists come from PROs and universities and they function as a bridge between PROs and private sectors.
- **R&D&I strategies:** EE, HU and AL have a Research Development and Innovation strategy which supports the development of KT activities of PROs (like development of KT, promotion of entrepreneurship, commercialization of results). The promotion of cooperation between PROs and the private sector is a government priority (classes on IPR at university, workshops and conferences). PROs are also obligated to report periodically about their activities to the government. In HU for example, the HEIs are required by law, to draft strategies of research, development and innovation in which they define among others, the method of exploitation of their research results. The rules of spin-offs founded by the HEIs are also regulated.
- **Pre-competitive technology aid and revenues:** IS points out that KT is a well developed issue and the total TT companies revenues from research service is USD 150 m. IS also has a program which aids development of pre-competitive technology and aims to integrate technology in firms.
- **Technology Development Zones and Centers:** In TR a policy mix was set up to expedite knowledge circulation for Research, Development and Innovation and cooperation Networks. The policy mix includes the establishment of technology parks (provide incentives for researchers to work with private companies in the park), Technology development centres (incubators within universities for start ups), industrial thesis projects Program (funds for researchers who develop innovative

[10] In same cases, Spanish Government names the head of the PROs. In other cases, the Government are represented in Steering Boards of PROs, singular researches infrastructures, and other research institutions.

products/processes), support program for research projects of PROs (encourage public-private cooperation through public procurement).

3.1.2 Incentives

Incentives are in many cases used to promote KT. Often these incentives are part of a program.The incentives vary between the countries. The measures focus on a few or a mix of elements valuable to KT like the structural anchoring of KT, stimulating cooperation- networking and building expertise:

a) incentives to structural anchor KT

16 countries refer to measures which are aimed at the structural anchoring of KT. The measures focus in a several countries on KT performance agreements or contracts with Universities and/or PROs. In DK, AT and NO indicators on KT may play a role in these schemes. Most of the (additional) measures concern funding. Some of the funding measures have the objective of promoting KT in a direct manner: For example, in SE and ES funding is provided for building innovation offices. DE and ES have programmes which sets out to improve the climate for start ups at universities and research institutions and to increase the number of start-ups (EXIST –University-Based Business Start-Ups). Other funding is based on KT criteria. In FR, KT activity is considered when budgets are negotiated. In EE we see a similar situation: baseline funding of R&D rewards KT (the number of patents and revenue from licensing agreements are taken into account).

Incentives to structural anchor KT	**Countries**
• Performance agreements, contracts	DK, AT, NO, LU, UK, IE
• Funding for organizations to promote KT specifically	NL, BE, SE, DE, TR, AL, ES, UK, IE
• Criteria for allocating funding for Universities or PROs	SE, FR, EE, BE, ES, UK, IE, HU

Future activities are of diverse nature and scale. The NL will establish a new subsidy scheme to support PROs and industry with their KT activities (e.g. funding offices, seed money, IP-management). CY will introduce mediation centers in future to support technology transfer, LT will set up centres of KT to promote commercialization and AL will set up a programme for accelerating KT and encourage KT by using PROs as subcontractors.

b) incentives to cooperate and network

17 countries provide incentives to boost cooperation and networking. The incentives vary from providing conferences and workshops in order to enhance collaboration, to funding industrial placements of researchers and specific subsidy instruments which are designed to bridge the gap between the academia and the private sector.
One of these instruments is the Dutch originated innovation voucher scheme. The innovation voucher stimulates SMEs to contact a higher education institute and get 'a research question answered' by an university or a PRO. The objective is to boost the

innovativeness of SMEs. At least 9 countries which responded to this question have established a vouchers-scheme on national level or are planning to do so.

Incentives to cooperate and network	Countries
• conferences and workshops	IT, AT, SI, AL, UK
• funding for cooperation or placement of researchers in business	CZ, UK, DK, EE, CH, SI, TR, ES
• promotion /funding/matching funds of collaborative research	NO, UK, NL, DE, TR, DK, ES, IE , HU
• fiscal incentives to firms working with PROs/ universities	NO, SI, TR
• innovation voucher scheme for SMEs	NL, EE, RO, CY, CZ, UK, CH, DK, IE

c) incentives to building expertise

The third, smallest category, of incentives to promote KT is 'building expertise'. Several countries refer to measures which focus on strengthening and stimulating KT-skills. IE and UK provide funding for TTOs in universities. SE, NL provide seed financing for business development. Individual researchers and students are also stimulated to develop KT-activities. TR provides funds to graduate students who develop new technology based products and process in their theses.
In FR and ES patents are used in the evaluation of researchers. In ES, technology transfer activities (i.e. patents) are included in the researcher curriculum and used for evaluation and accreditation purposes. In 2008, answering to a ministerial call, most Spanish universities drew up a Strategic Plan for their Research Results Transfer Office. In the UK many universities provide enterprise education. Also in HU the law states that HEIs must include the development of entrepreneurial skills and IPR knowledge in the education of researchers. In ES, the government has developed laws for university training programs (Bologna plan) and universities have incorporated new training programs in their degrees.

Countries are planning to introduce more incentives in the future. LV and EE will stimulate KT expertise by dissemination of the Commission Code in their PROs. AL will establish a Business Rely Innovation Centre, responsible to accelerate the TT and TTO networking and provide IPR training to universities and PROs. CY will introduce a program of business incubators and IE will expand a pilot which brings entrepreneurs into research groups to assist start-ups. In the UK the assessment of research grants may accommodate an element of economic impact. The NL will introduce funding for a new subsidy scheme for training, networking and entrepreneurship.

3.2 Steps to encourage PROs to establish policies and procedures for IP management

Measures taken to encourage PROs to establish policies and procedures for IP management fall into 3 (broad) categories which vary from using regulations, to steering dialogue to more generic incentives. Within this context a large number of countries also refer to the Code of Practice specifically.

a) Regulation: Several countries have established regulation (CY, DE, DK, ES, FI, FR, HU, IE, RO). In CY this regulation consists of complying with rules -which are in line with the Commission Code. RO, ES and HU refer in this context to a national patent law. In HU for example, all the PROs are required by law to adopt an IP policy (otherwise they loose the right to apply for funding). The policies have been up-dated these last years with due regard to the Commission Code. In addition, a comparative study has been commissioned in order to summarize the experiences of the last 5 years and highlight good practices and shortcomings of IP policies of universities. The findings of the study will contribute to the set-up and operation of a self-organizing forum of TTOs. The objective is to facilitate the dissemination of good practices and to canalize the PROs into the governments' decision making process. DK, IE and AT require that universities (and government institutions) themselves establish appropriate IP management policies. In IE the government agency is working with the TTO offices both individually and collectively to improve the standards of such policies. FR introduced a new regulation: a simplification of the IP regime within laboratories managed by several PROs. In addition, FR also has developed a KT and an IP-guide in which the network of TTOs have played an important role. DE has special funding regulations that contain target oriented provisions for the commercialization of results with the aim of stimulating innovation. FI introduced the 'Act on Inventions' in 2007, with the aim to clarify the rights to inventions in HEIs and to promote the utilization of these inventions. Inventions are divided in FI into 3 categories: open research, contract research and inventions. The inventor must disclose his invention in all cases to the institution. Most inventions belong to the contract research category. In these cases the institution has the possibility to claim the rights to the invention and the inventor has the right for a reasonable compensation. Most HEIs have established policies and procedures in order to manage the inventions according to the new 'Act on Inventions' in HEIs.

b) Steering dialogue: NO does not use regulation, but depends on a steering dialogue and formal correspondence with the institutions to improve IP management and KT. Also HEI's increasingly are obliged to report on their activities. In the NL the Code (and KT communiqué) was a major source of inspiration when drafting a national agenda on KT (an initiative in which all stakeholders join actions in the field of KT). Different elements of the Code and KT are therefore interwoven in current Dutch policy of stakeholders. BE underlines that -as policies and procedures are laid down in legal decrees- further policies and procedures are up to the institutions and need to be laid down in internal regulations. The Universities in BE do however need to report on regulations (yearbooks). Also in AT universities are obliged to develop a strategy and a mission for IP management as a result of performance agreements. These performance

agreements are part of general funding. In CH each PRO manages IP on his own, though for a R&D funded project of the agency it is mandatory that the IPR question is solved before the start of the project.

c) Recommending IP in general: 9 countries (AL, CZ, EE, FI, MT, LU, LV, TR, SE) have incentives in place which address IP in a more general way. These measures consist of raising awareness and/or recommending stakeholders to establish a plan in order to improve their IP management while there is not (yet) an obligation to do so for the stakeholders. The focus of the recommendations may be on one activity of IP management (for example IP application) or more on KT in general (which may or may not include IP). In LU the Ministry of Higher Education and Research underlined the use of the Code of Practice in the context of encouraging PROs to establish policies for IP management. The government supports 'Luxinnovation', a national agency for promotion of research and innovation, to take measures to raise awareness and to recommend PROs to establish policies and procedures in order to improve their exploitation of research results. SI introduced 'Centres of Excellence' where the science and business sector come together. Both parties are autonomous in defining the IPR system. The result is a spill over effect where both sectors jointly look for the most appropriate system. The Centres also provide an informal platform for the exchange of good practices.

Incentives	**Country**
National plan recommends strategic KT plan	MT
Funding requires strategic KT plan of universities (IPR not mandatory)	SE
Funding requests evidence IPR and KT activity (not yet mandatory)	CZ
Centres of excellence	SI

d) Use of the Code of Practice: In addition to measures described above, several countries underlined the use of the Code of Practice in the context of encouraging PROs to establish policies for IP management:

- *A large number of countries (AT, CY, DE, DK, ES, HU, IT, LV, LT, MT, NL, PL, UK) have disseminated the Commission Code (i.e. by putting it on the ministry-website or sending it to PROs) and a number of countries have taken measures to actively encourage the use of the Code. The Code proved to be a useful vehicle to promote IP management in general. In several countries the Code has been introduced in national policy measures and legislation. The number of activities which are planned for the future is even larger.*

  In order to promote the Code for example, the UK contacted all the professional KT organizations. CY, ES and AT decided to contact all the PROs. As a result the PROs in CY have committed to comply with the Code and to adjust their own IP policies. IT and AT organize seminars in which the Code is presented and IP management in general is discussed. LV, LT and AT have stimulated their Universities to take provisions of the Code into account, especially in their (strategic) plans. In future several countries plan (AL, CY, CZ, IT, NO, PL, RO, SI) to further promote and integrate the Code of Practice. The UK and BE will develop IP handbooks. In the

UK for example, this will include a section on the IP–Recommendation. RO will prepare a TTO manual for innovation and tech transfer. FR and SI will establish working groups. AL will disseminate the Code, encourage PROs to use them through media, organize seminars in which the Code will be presented.

- *The Code has also been used by countries to develop their IP policies*. In MT the Code resulted in a publication of a university IP policy (the Code was declared a 'central tenet'). In ES the RED OTRI of Spanish Universities has published technical manuals related to good practices for IP management, which include the reference to the Code and the Manual.

  Several countries are planning to use the Code in order to develop their IP policies: AT and LV are planning to develop new (national) guidelines for IP management and SI plans to include the Code in the national R&D strategy. IE is currently reviewing a national program on impact, which will result in recommendations and may be enhancements. In DE the Federal Government considers how far existing activities or individual efforts are in line with the IP Charter Initiative. Further steps that might be necessary will be taken, including the adaptation of funding measures. AL has established Ethic Commissions in PROs and will establish an IP strategy and improve standards.

- *In addition the Code has been used by countries to develop or improve legislation*. In LT the Code provided the bases for a new law and PL will reflect on the IP-Recommendation when drafting new legislation. AL is harmonizing legislation on IP and will be compiling the rules in accordance with the Commission Code. AT will start an internal process to access the relevant national regulations in light of the EU IP-recommendation.

3.3 Support of the development of KT capacity and skills in PROs

All of the countries report that there is some form of support for the development of KT capacity and that measures have been taken to raise awareness and skills in PROs regarding IP, KT and entrepreneurship. Some of these measures are of more temporary nature, whereas others are more structural. They surprise two broad categories: training & networking and funding of TTOs.

3.3.1 Training and networking

In general the support for development of KT capacity and skills consists of providing specific KT education, training and networking opportunities (AT, CH, DE, DK, EE, FI, IE, IT, HU, LU, MT, NL, NO, SE, UK). Mostly these activities are directed at PROs and universities. Sometimes these include other stakeholders like firms and banks (IT, MT, NL).

AT and ES promote IP management and awareness through different programs. As a result student's training for IP and transfer activities have been implemented in the education curricula. In HU, the HEIs are obliged -by law- to educate their researchers in entrepreneurship. Also SI has a program for respectively students and PhD students with

courses about entrepreneurship. In DE a Federal Government Program (EXIST) provides funding for among others projects with the aim to establish an entrepreneurial culture is teaching and research. FI has published guidelines for entrepreneurship education. The guidelines cover all levels of education and also stress networking amongst different forms of education and stakeholders). In addition, a committee set up by two Ministries[11] made proposals in 2009 to promote entrepreneurship and entrepreneurship education in universities and polytechnics.

In 5 countries (CY, EE, HU, IE, MT) the state agency funds activities for or in PROs (like training, forum). 2 countries (EE and IT) have existing programs to develop KT capacities and skills. CH has provided coaching for selected start ups. IT participates in the EPO program on IP dissemination and has adopted the TTO training model developed by EU project CERT-TTT-M. In MT a collective agreement introduced more flexibility in the duties of its academic staff, allowing them to take time off and to concentrate on research and KT activities as a first step. In AL, PRO members participate on committees dealing with promotion of R&D and improving the system of RTD and Innovation.

Besides education and training some countries also support TTO networks specifically. For example, 3 countries (DK, SE, UK) provide funding for the cross institutional Network of TTOs or provide training for TTO professionals. Also IT has set up support schemes as a means to structuring networks among all stakeholders involved in the innovation process.

KT capacities and skills are also developed through 'training on the job'. Several countries have schemes in place which fund researchers/PhD students to spend time with and within the private sector. The schemes differ in their set up in time and the recipients of money (PhD student or corporation). In SI the agency performs a program called 'young researchers for business sector' which supports and connects young researchers with academics and the business sector. Centres of Excellence are an important element of sectorial mobility in SI. DK, FR and the UK provide funds for short time placement of academics in the business sector: FR gives fellowships to students to collaborate with industry. Also grants are given to companies for the salaries of PhD students working for their doctorate about half time within their teams. In DK, PhD students can collaborate with industry with a fellowship and the UK provides 50% cost assistance to industrial placements for recently qualified graduates. TR has a National strategy on science-technology and human resources which includes improving the framework allowing inter-sectoral mobility which also serves for development of KT skills in PROs and universities. On international mobility TR highlights the establishments of an ad hoc Committee in 2008 with the aim to make TR an "attractive destination" for international researchers (issues considered include incentive bonus and easy access to information on work).

[11] Ministry of Education, Science and Culture and Ministry of Employment

3.3.2 Funding of TTOs:

A large number of countries make funds available to support the TTO-structure in order to foster capacity and skills within the PRO environment (BE, CZ, DK, HU, EE, IE, LT, NL, NO, PO, SE, UK).

The nature of the support varies:

11 countries provide funds to develop and operate TTOs (BE, CZ, DK, EE, ES, HU, IE, NL, NO, UK, TR). BE for example, makes a distinct difference between universities and PROs. The TTOs of universities are (partly) subsidies directly. PROs have 5 year performance agreements and KT is included in their mission. After every 5 years the program is evaluated. In RO the government supports the development of infrastructure for innovation and TT, at national, regional and local levels, through the creation of entities like TTOs, incubators, information centres and technological and scientific parks. HU has among others a funding programme ('Regional University Centres') which puts special emphasis on KT and establishing specialized KT units within HEIs. In TR the universities decide to establish TTOs. Most of these TTOs are established under teknoparcs which are university initiatives and the TTOs act as a department of the 9 (already established) teknoparc management. In ES the sub-programme 'Actions in science and technology parks' subsides the installation of private entities, universities and Research Results Transfer Offices in these parks. In FI the funding agency for Technology and Innovation (Tekes) has set up a program (TULI) to help researchers to evaluate the commercial potential of research based invention of ideas and aid the process of their commercialization. Tekes is prepared to fund the TULI programmes in HEIs with 12 mln EUR for 3 years, starting 2008.

The development/payment of capacity is left to the PROs.

Funding of TTOs	**Country**
• Support to implement a KT system or KTO- TTO	PL, MT, RO, LV, NO, EE,TR, NL,IE, HU
• KT capacity is part of research/innovation program	LT, NL, BE
• Funding of incubators	DK, FR, RO, LU, IE

3.3.3 Future activities for the development of KT capacity and skills

Future activities for developing KT capacity and skills aim at both improving training-networking and building TTO structures.

6 countries (EE, DK, NL, SL, RO, AL) will invest in further development of entrepreneurship. For example RO is preparing legislation in order to do so. A new law will encourage the development of facilities for KT and entrepreneurial skills. NL, NO and LV want to improve and increase education on KT. IT will establish chairs on IP studies in order to improve education. CY will provide TTOs with consultancy services on commercialisation. AL will establish incentives, promote an appropriate environment and undertake joined projects with businesses to enhance entrepreneurship on sustainability.

EE and SI plan to enhance mobility between academia and firms. SI will introduce a new instrument called 'centres of competence' which will support the connection between the academic and business sector.

In LU, the government will invest in the further development of the exploitation of public research results so that the PROs develop KT capacities and skills. The future activities of AT and NL on the development of KT capacity is part of a broad scheme:

In AT, KT capacity and skills are part of the IP-strategies presented by universities. New goals are developed accordingly. Also new performance contracts of PROs are incorporated. In the NL a new broad subsidy scheme is launched in spring 2010, with the aim to financially support PROs, universities and industry in their KT activities (including funding for KT offices, training, networking, and entrepreneurship).

3.4 Government measures to promote broad dissemination of knowledge created by public funds

The majority of countries require open access to publications of publicly funded research results –while at the same time enabling protection of related IP. The countries can be roughly classified into three groups: First of all the group of countries which promote open access proactively. Usually these countries have measures in place to ensure the dissemination of knowledge. Second a smaller group of countries which emphasise the importance of IP-protection within the context of dissemination of knowledge. The third category exists of countries which focus on the requirement of publicizing public funded knowledge.

3.4.1 Pro-active promotion of open access

The majority of countries (AT, BE, CY, DE, IT, FR, NL, NO, UK, SE, TR) promote open access pro-active and have measures in place to ensure dissemination of knowledge. Open access is required by law, policies or public institutions.
In BE, for instance, the publication rights of university personnel are guaranteed. It is one of the basic principles laid down in decrees. This does not prevent the appropriate protection of IP. Publications can be postponed for commercialisation purposes. At the same time PROs are encouraged to implement suitable IPR policy.
A similar situation exists in the UK. The UK research councils have a policy for open access which states that publicly funded research *must* be made available and published research outputs *must* be peer-reviewed. The UK encourages the exploitation of IP from funded research. The responsibility of carrying out the research rests with the organisation which does the research.

The measures of these 11 countries focus mostly on open access and at times include IP-protection. We can distinguish broadly three approaches to ensure open access and IP: funding, content and promotion measures:

a) funding measures

In quite a number of countries (AT, CY, DE, DK, FI, FR, NL, NO, SE, SI, UK) funding mechanism are used to guarantee open access and/or IP. In SI for instance a government program supports national scientific journals. There is a provision that all co-financed

journals have to be publicly available on line. In DE all grant recipients are required to make all projects, including final reports, available to the National Library to ensure open access. Furthermore, all other publications are permitted providing that the results of a project are secured by an application for IPR before they are published. In TR a funding program for cooperation networks and platforms[12] was designed to expedite the circulation of knowledge among the different sectors, such as university and the industry. It facilitates provision of an environment to help identify and match the knowledge demand.

Funding mechanism	**Country**
Open access	
• Criteria broad dissemination for grants or thematic funding programs	SE, AT
• Minimum budget allocation (2%) for dissemination activities	CY
• Funding of (small) national scientific journals	NO, SI
• Funding for "author pays" mechanism is accommodated in grants	UK
• Funding for cooperation networks and brokerage events program	TR
• Funding for national archive (Finnish Social Data Archive or FSD)	FI
IP	
• 50% of the IP results are distributed to inventors	FR
• PROs and universities have reward schemes for IP commercialisation	NL, DK, UK, IE

b) content measures

Open access is also promoted by measures which literally guarantee access to databases and journals. In NO, journals of institutions are free, digital accessible and not only to persons affiliated with that institution. The journals are available to all professional users. In FI a committee proposed recommendations for the promotion of open access in 2005. The rector of Helsinki took a decision on open access deposit mandate in 2008 which required all researchers of the University of Helsinki to deposit a copy of their articles published in academic journals, in the open repository of the university. In addition, FI has a national resource centre for social science and teaching (FSD), which archives, promotes and disseminates digital research data for research, teaching and learning purposes.

Content measures	**Country**
• University access to e-journals and databases	IT
• Free digital access to journals of an institution for all professional users	NO
• Specialized and national information facilities open to all fields of science	DE
• Public available national information system with information on researchers, institutions and projects with these institutions	SI

[12] ISBAP: Initiative to Establish Scientific and Technological Cooperation networks and Platforms

c) promotion measures
Several countries develop tools and conferences to promote open access.

Promotion measures	Country
• participation conferences, information days on open access	CY, SE
• guidelines on advantages & best practices	IT
• catalogue and white book (on national ideas, products and research)	RO

d) future measures
The UK Research Councils have indicated that they will extend support to publish in open access journals, which may include a pay-to-publish model and also mandate grant holders to deposit publications in suitable repositories within an agreed timeframe. TR will finalize an impact assessment of the funding programmes and provide new incentives for broad dissemination of research results, which will also increase the applicability of the project results. FI has set up a committee to work out a plan concerning storage, reuse and long term preservation of the digital research data and- material. The committee is expected to deliver its report by the end of 2010.

Other activities which are planned for the future include developing research projects (CY), the promotion of a register of R&D results -in which each PRO registers their results (RO), the evaluation and further development of an open access policy to publicly funded research data (SI) and a plan to examine a possible national strategy for access (SE).

3.4.2 IP-protection and open access

A somewhat smaller group of countries (AL, DK, IE, HU, IS, LU) underline the importance of IP-protection within the context of dissemination of knowledge) in their response:

DK has an 'Invention Act' which balances considerations for publication and IP protection. It also has extra measures in place to ensure this (among others a model contract tool kit).

IE states that the prime objective of the government agency is to enable commercialisation of IP of public funded research. There are no specific promotion activities on open access, though other funders do require dissemination of research results.

In HU the focus is more on IP protection than on open access in order to improve patenting figures of PROs. The open access paradigm is mentioned as an alternative. The majority of the research community in HU is rather productive; the number of publications per researcher reaches 85% of EU average. Most researchers have little knowledge about IP and prefer rapid publication of the research results. The objective of the government is to support and motivate the exploitation of research results created at PROs. In future the call of proposals of publicly funded R&D projects should emphasize the necessity of IPR more and allocate resources for the acquisition of IPR.

IS refers to the fact that a large part of the national R&D (80%) is privately funded. In order to maximize commercial potential these results are subject to strict confidentiality and IP rules (this includes some of the public funded research results). Research done in government institutions on the other hand, is performed with full transparency and express purpose of putting the results within the public domain and follows normal excepted practice.

AL states that the process is in the primary phase and refers to the Law on Copyright as well as the regular publication of the official Bulletin of IP on the official website. In future Albania plans to expand actions to bring entrepreneurs into research groups to assist start-ups, support creation of IPR strategies and promote eLibrary.

LU states that the prime objective of the government is to enable commercialisation of public funded research. There are no specific activities on open access, though funders (like the National Research Fund) require dissemination of research results.

3.4.3 Focus on publication of research results

When addressing the topic of open access, several countries (CZ, CH, EE, LT, LV, MT, PL) refer to the requirement that publicly funded knowledge shall be published. LT and CZ add specifically that publications must be consistent with IP-protection, commercial or state secrets. EE explains that the national strategy requires dissemination. At the same time, regulations do not require this specifically from the rather autonomous PROs. EE has no specific regulation which requires open access, but is planning to develop clear rules and learn from good practices from other countries.

Activities which are planned for the future in this category include the enhancement of a system which facilitates firms in their search for information (CZ).

3.5 Extent to which IPR ownership regimes in countries allow for/facilitate cross border collaboration and KT

The vast majority of countries (AL, AT, BE, CY, DE, EE, FI, FR, HU, IE, IS, LU, NL, NO, PO, TR, UK, ES) mention that the IPR regimes allow for cross boarder collaboration. There are in principle no impediments to this. Foreign partners are allowed.

For two countries the situation is slightly different: the current national IPR ownership regimes may create some difficulty with regards to cross border collaboration. LV refers to the fact that the state owns all the IP. In IT the current regime complicates collaboration and KT especially due to difficulty to manage background knowledge. A possible solution may arise in IT when the revision IP code will partake in 2010.

Several countries elaborate on how the national IPR ownership regimes facilitate cross border collaboration and KT: LT states that National law requires discussions on the management of IP in cooperation agreements. IS and CY, add that the focus has been on IP guidelines: clear guidance and a level of certainty about IP will prevent barriers to collaboration. PL relates that IP ownership rules are not subject to much detailed rules, but are based on a contractual basis. In TR numerous bilateral science & technology cooperation agreements take IPR ownership into consideration through joint research projects which are funded and monitored by the government. In ES, depending on the matter and the country, bilateral science and technology cooperation work programs set IPR ownerships among stakeholders in projects.

In addition, CS and DK point specifically to the fact that there is no professors' privilege (or not anymore). Consequently, IP-contracts must be negotiated by the institutions and not individual researchers. This allows for IP to be an integrated part of the R&D collaboration-agreements.

The UK states that research funding is predicated on the principle that rules regarding IP are best determined by the originator of the research. In this respect, PROs are positioned to be flexible in cross-border collaboration. In FI the 'Act of inventions' clarified that contracts must be negotiated by the institutions and not the individual researcher. This allows for IP-issues to be an integrated part of R&D collaboration agreements with national as well as international partners. In SI national funding instruments for cross border collaboration activities are at this time more focused on bilateral mobility cooperation. There are no specific restrictions for international collaboration; in general the IPR issues are subject of systems established by PROs.

DE uses the term of "reciprocity of location" to enable utilization outside of Europe within the framework of the contract management with recipients of funds. It is an utilization which ensures added value at the location. The type of utilization will depend on each individual case. In this respect, even the cross-border use of funds is conceivable and has already been practiced successfully.

Future activities

8 countries are planning activities with regards to IPR ownership regimes (EE, FR, IS, LV, NO, PO, SI, UK). The activities are of a diverse nature: These encompass new legislation on IPR ownership (1 countries; PO), develop new codes/principles (2 countries; IL, EE) and evaluate existing ones (NO). SI will enhance bilateral cooperation with several countries (not just mobility support). SI will therefore establish an appropriate IPR protection system.

3.6 Extent of use of principles of the Code of Practice as a basis for:

i) National guidelines and legislation

The Code of Practice has been used by the various countries in different ways. Depending on the national situation the Code of Practice played a smaller or bigger role in the development of national guidelines and legislation. The contributions indicate that there is some relationship between the level existing national IP legislation/ guidelines and how much the Code of Practice is used as a basis/ building block. Three groups can be discerned:

- **Countries which have not yet established a Code of Practice**. These countries expect to use the principles or harmonise the existing practices with the Commission Code in national guidelines and legislation (CZ, EE, LU, LV, LT, PL, SI, RO): Currently several countries have various schemes in place which resemble some of the IP rules of the Commission Code (CZ, EE, ES, LV, PL, SI). There is a shift towards establishing their own rules (RO) or harmonising their own rules with Commission Code in future (Al, CZ, EE, LV, SI). SI for instance, has not yet a national code, but a working group will start to work on harmonization of rules of practice. In this respect the Code will be transposed into the national system. SI will develop a new National Research and Development plan which will look for a new position for KT and the IP protection system. This system will be closer to the Commission Recommendation. LU intends to establish a national strategy document on knowledge and technology transfer and IP issued based on the Code of Practice. PL and MT mention they have planned legislation and IP policy to include provisions of the Recommendation (See also Q. 7: LT and ES also refer to this). Also AL will take primarily steps on the framework of the harmonisation of Albanian to EU legislation.

- **Countries with a more recently established a national Code of Practice.** This group of countries reports they have used the Commission Code as a(n important) basis for national (or PRO) guidelines and legislation (CY, DE, IS, MT, NO, SE): In MT the national agreement is based on and fully reflects the Commission Code. NO reports that several PROs have used the Commission Code in their deliberations. NO expects that PROs will use the Recommendation in future –while at the same time the government is considering whether to introduce national guidelines on

management of IP. SE mentions that a recent amendment in national legislation is -to a certain extent- based on the Commission Code. In DE the Recommendation and the Code of Practice are already common practice in many fields. Some progress has been made with higher education and research institutions, though there is room for further development.

- **Countries which already have a national code and/ or policies in place which pre-date the Commission Code**. These countries explain that the national guidelines and policies are (highly) compatible with the Commission Code and that therefore no (major) changes are expected (AT, BE, DK, IE, HU, FI, FR, NL, TR). In 2004 TR established a National Science and Technology Strategy for 2005-2010. TR has since invested in capacity building and gradually improved its scientific activities both in academia and industry. HU adopted new legislation on innovation in 2004, after which a guide and a model policy was written in order to facilitate the elaboration of individual IP policies. The universities used the guide in order to set up their own IP policy. The Hungarian Patent Office cooperated with all players and kept pace with changing regulations and up-dated the policies with due regard to the Commission Code. BE relates that much of the principles are incorporated in the system, further fine-tuning will be made throughout the policy cycle. At respective moments the Code of Practice will be called upon. In NL the Recommendation and principles in the Code of Practice have inspired to and have become part of the broader national agenda on KT of stakeholders. UK informs that virtually all PROs have developed IP management policies and that the government has a work stream for KT and funding. The UK has developed a tool-kit for IP negotiations in collaborative research (the Lambert tool-kit), which comprises model agreements and educational resources to help newcomers to understand TT and facilitate contracts involving IP. These model contracts embody the principle of clause 8 of the Code of Practice.

ii) agreements on research cooperation with third countries

The principles of the Code of Practice have in some countries served a basis for agreements on research cooperation with third countries. The contributions of the countries altogether are diverse. Some countries point to national practices, others to EU legislation and finally a couple of countries draw a direct link to the Code of Practice:

NO and CY explicitly mention the Code: NO just started to use the principles of the Code –to a limited degree- for agreements with third countries. CY states that most Code-principles regarding "collaborative and contract research" are used as a basis –also the research with 3rd countries.

LV mentions that it has many international cooperation agreements in place. In addition, BE ads that the responsibility is with industry and PRO themselves, the role of the government is limited to making the stakeholders aware of the existence of the Code of Practice. In SI, IPR questions are solved in contracts between participating parties. In ES participating parties in bilateral projects usually solve IPRs matters according to their national legislations and in the general frame of the specific bilateral agreements. MT and

IT refer to research done within the Framework Program. Consequently they take the EU-principles and legislation in consideration.

TR refers in this context to 116 government level bilateral S&T agreements with 95 countries. Joint programmes are funded within the context of 24 bilateral Science & Technology agreements with 95 countries. Furthermore, many universities have signed bilateral cooperation agreements with universities from third countries. In future, TR plans to increase the number of agreements with third countries and will continue to discuss new opportunities for universities, PROs and industry.

iii) other measure to promote KT

The Code of Practice has in several countries been linked (to some extent) to measures which promote KT (CY, IT, MT, NO, TR). IT states specifically that there is a connection to a national patent valuation project and training activities. CY observes that national measures seem to act as motivators of principles on KT by PROs. MT relates that the collective agreement is based on and fully complies with the Code. TR has 34 Enterprise Europe Networks, which have the duty to promote KT (inter)nationally. These networks are located at among others universities, technology development centres and chambers of commerce.

iv) creating new related policies

A relative high number of countries seem to have a somewhat similar experience on how the Code of Practice from the Commission Recommendation can provide a basis for national guidelines in practice (see also i.). Concerning the -closely linked- creation of new related policies and funding schemes specifically, a number of countries point to a rather diverse set of policies.

The policies include:

- **national programmes**: LT describes a national Innovation Program which includes instruments to popularize IP protection and offers support to persons who seek patents for innovation. Also, the evaluation of scientific production includes criteria from licences. LV refers to a large State Research program and CZ points to the fact that various operational schemes aimed at supporting research and development, also focus on KT and IP-issues. In ES the Patent Office and other organizations manage open calls which grant subsidies and loans for different phases (international, regional and national) of the procedures to obtain patents
- **agreement with stakeholders**: In IT the government is planning to sign an action plan with industry on TTOs. In the NL the new national KT subsidy-scheme is based on a national agenda on KT, which is signed by all stakeholders. The agenda and report are partly based on the Recommendations and Code of Practice.
- **funding scheme:** With regards to funding schemes specifically, IL points to a recent established framework, aimed at attracting major multinational corporations to invest in start-ups.

3.7 Steps taken to ensure the implementation of the Code of Practice

Significant steps have been taken by the majority of countries to ensure the widest implementation of the Code of Practice and several more activities are planned for the future. Steps taken by the countries range from distribution (i.e. publishing) to active engagement of stakeholders and incorporation of the Commission Code principles in national policies or legislation:

Steps taken to diffuse the Code

Countries have taken different measures in order to diffuse the Code of Practice. For instance, SI and PL published the Code on government websites and LU has introduced the Code of Practice in internal documents.

In addition, several countries have taken *steps to inform and engage stakeholders* (AT, DE, DK, CY, ES, FI, HU, MT, NL, NO). The activities of these countries include:

- Translating and presenting a short version of the Code of Practice to stakeholders in a national debate on commercialisation of results (DK).
- Contacting the universities and PROs (AT, CY, ES, FI, MT, NL) or professional KT organisations (DK, NO, UK) to inform them about de Code of Practice and encourage them to implement the Code or at least recognise its principles to determine whether they embody existing practices. Consequently, the PROs agreed to comply with and adjust IP policies in line with the principles of the Code of Practice (MT, CY).
- Organising workshops together with science and industry and introduction of the topic in a conference of Federal and Länder goverment (DE). In DE, the responsibility for institutions of higher education rest with the Länder. All in all the higher education institutions indicate a strong interest in implementation.
- Organising events in which the Code of Practice was reviewed (HU).

Steps that *will* be taken in future to diffuse the Code

3 countries are planning to publish (a summary of the) of the *Code on ministry/ agency websites* (AT, EE, LV).

10 countries (AL, DE, EE, FR, LU, LV, PL, RO, SI, TR) are *planning to diffuse the Code of Practice* in the PROs in future: the activities involve meetings with academics, disseminating best practices, contacting PROs and universities, launching a national strategy to improve KT and monitoring the use of the Code (i.e. a survey on university implementation). In SI another (bottom-up) process exists, in which the stakeholders play an active role in dissemination activities.

Steps taken to incorporate the Code in policies, legislation

In addition, many countries (AT, BE, CY, CZ, DK, EE, ES, HU, IE, IL, LV, NL, NO, RO, UK) have *incorporated the main principles of the Code of Practice in policies*. Several countries (BE, CY, DK, ES, IE, IL, LV, NL, NO) mention that IP management has to be carried out according to policy rules which are in line with the Code. The degree, of which the main principles of the Code have been incorporated, varies:

- In DK the national strategy on research commercialisation include -in line with the Commission Recommendation- recommendations on such issues as KT incentives, professionalization and IP issues. The national strategy also includes a specific recommendation for Danish authorities and PRO's to discuss and monitor the practical implementation of the Commissions' Code of Practice.
- ES mentions that some institutions have published IP documents to clarify rules for protection of research results. Some of these institutions have established policies and procedures in line with the Code.
- IS adds that in all universities the Code of Practice is highly developed and implemented successfully. In addition: each PRO has an entity which is responsible for all aspects mentioned in the Code.
- In HU the Code of Practice was considered when drafting and amending IPR policy of the Hungarian Academy of Science. In addition, the Code of Practice has been referred to in one of the Hungarian Patent Office studies, dealing with the topic of adoption and implementation of IP policies.
- In NL the most important step was the use of the principles of the Recommendation and the Code of Practice when drafting the national KT-agenda. Besides this, there were several rounds of communication from government to industry and PROs.

Finally the Code has been incorporated in legislation. LT reports it has used the Code of Practice when drafting a new law (see also 3.6: SE mentions that a recent amendment in national legislation is based on the Commission Code).

Steps that *will* be taken in future to incorporate the Code in policies, legislation

Several countries are planning to incorporate the main principles of the Code of Practice in future policies (CZ, LU, LT, SI) or continue to monitor/fine tune current policies (AT, BE, DE, DK, IE, NL). These activities include:

- 4 countries (CZ, LU, LT, SI) are planning to develop the policy measures which include a national recommendation on IP, aligning PRO policies with the Code and an obligation to prove the existence of IP management. In SI and LU the basic principles of the Code will be incorporated into national strategic documents in the field of research and technology.

- 4 countries (BE, DK, IE, NO) refer in this context to their national code and/or policy which is (highly) compatible with the Commission Code (See 3.6): NO reports that no activities are planned since the current policies include most of the content of

the Code, while IE remarks that future activity will depend on the outcome of a national review. BE remarks that since much of the (principles of) the Code of Practice are already applied, the main challenge lies in some fine-tuning (i.e. handbook concerning working methods) and in the improvements of the programs put in place. The UK has a similar approach: the IP office and partners are planning to develop a handbook on IP which will include a section on the IP-Recommendation.

A number of countries (ES, PL, MT) have planned to include provisions of the Recommendation in legislation and IP policy. For instance, ES indicates that the draft of a law may incorporate some actions of interest in the process of implementation of the Code of Practice. (See also 3.6: PL and MT are also planning to do so. In addition, AL will take primarily steps on the framework of the harmonisation of Albanian to EU legislation).

3.8 Steps taken to ensure the fair and equitable treatment in international projects

With regards to treatment of participants from countries and third countries in international projects, there is broad consensus among countries that the treatment of all participants is fair and equitable (CZ, HU, TR, DE, EE, FI, CY, LU, NO, PL, IL, DK, IE, IT, LV, NL, ES, UK, RO, AT, SI, AL). In general distribution between various partners is made according to their contribution to the particular knowledge created.

Many countries refer to guidelines, activities of government agencies, international cooperation agreements and model contracts which do not distinguish between national and non-national partners regarding ownership and access to IP (CY, FI, LV, NO, NL, TR, DE, UK). In DE provisions of special funding regulations provide an answer to globalization and to the urgent need for companies and science to be able to use the generated knowledge worldwide. The term 'reciprocity of location' is used to enable utilization outside Europe within the framework of the contract management with recipients of funds. The type of utilization depends on each individual case. In this respect, even the cross border use of funds is conceivable and has already been practiced successfully.

A number of countries (DK, EE, ES, FR, HU, IE, IT, RO) add further that (inter) national law assures equal treatment: State aid rules prevent discrimination in favour of national actors. In IE a review is undertaken when a (publicly funded) research group seeks national funding as part of an international project, to ensure there is fair and open access to IP, which at the same time is in line with State aid regulations (also to avoid indirect State aid). A couple of countries refer specifically to conditions concerning ownership and access to IP of the Framework Program. The UK adds that it supports TT policy with respect to developing countries as obligated by TRIPS (article 66.2).

With regards to future activities:

LV and AL will develop national principles on IP and LT plans to offer the same contractual conditions on IP to non-national institutions. SI will further strategic international cooperation which will include the question of IPR and equal and fair treatment of participants as an integral part of the strategy. The solution will be prepared in line with the latest Recommendation and best practices in the field. In the UK the IP office will develop model agreements between countries outside Europe and the UK. This will take into principles of the clauses on 'coherence in trans-national cooperation' of the Code of Practice in account (clauses 13 and 14).

3.9 Extent of use of best practices in Annex II of the Recommendation

Most countries have used the best practices which are outlined in Annex II of the Commission Recommendation. The extent of the use varies from 'some use' to subscribing to almost each best practice of the Annex II.

To illustrate this: SE points out that it is too early to advice on how use is made of the best practices, PL states that the best practice will be a subject to the debate within the country and yet CZ states a need for more detailed focus and implementation of its provisions. As mentioned before, the NL states that the Code was used while drafting a national agenda on KT (an initiative in which all stakeholders join actions in the field of KT. The agenda will be implemented by all parties). The UK reflects that many of the best practices are exhibited by government, HEI and TTOs. Besides anecdotal evidence there is not a complete overview on how stakeholders are using the best-practices.

The extent of the use made of Annex II by the countries is illustrated with examples:

- **Knowledge transfer as a strategic mission of public research organisations**

The majority of the countries made (or is in the process of making) KT a strategic mission of the public research organisations (AT, BE, CY, CZ, DK, IE, IL, FR, LU, NO, SI, UK). KT is made a permanent political and national operational policy –often by law. NO adds that is has done a recent evaluation and that policy development will adopt new insights. DK underlines it maintains a firm practice of consulting with various stakeholders on new policy initiatives.

With regard to the responsibility on the subject of KT: IE states that the subject clearly falls within the responsibility of a ministry which also has a coordination role for strategy. CZ is planning to set up a central point, as it is now operated by various ministries. Finally, a couple of countries mention that KT activities are monitored and a government body carries out the responsibility for monitoring the impact (for example in IE and FR).

In ES the Ministry of Science and Innovation is responsible for the government policy in R&D and innovation in all matters which mainly include KT. Nevertheless, the Spanish Patent and Trademark Office autonomous organization hangs on the Ministry of Industry.

- **Policies for managing Intellectual Property**

The majority of countries (MT, IE, DK, IL, FR, CZ, EE, IT, CY, EE, MT, BE, UK, ES) use the best practice of promoting proper management of IP resulting from public funding, requiring that it be carried out according to established principles while taking into account the legitimate interests of industry. These countries (IE, CY, DK, FR, IL, BE) refer to numerous practices, like:

- a well recognized central role of IP
- the management of IP is embodied in a National Code, guidelines and policies
- a consistent legal framework on IP and supporting scheme for KT.

Countries are in different phases of establishing IP management policies. Several plan activities to make more use of the best practices on IP or develop established practices even further:

RO plans to develop guidelines which adapt and include some recommendations and the Code of Practice. EE will disseminate the Code and MT refers in this context to the signing of a collective agreement of the IP policy as a first step of using the best practices of Annex II. IL refers to employee rights which are well defined, but have an impediment in some PROs where civil servants are involved. In SI IPR and management rights including institutional IPR policies are legally well defined, but are for the time being not seen as a part of public sector activities

Finally, with regards to research policy which 'promotes reliance on the private sector to help identify technological needs and foster private investment in research', IE points out that much of the applied research support is driven directly by industry needs. (See also 3.6).

- **Knowledge transfer capacities and skills**

Several countries describe various practices concerning KT transfer capacities and skills (CY, IE, NO, NL, LV, DK, ES, UK, DE). On the different aspects of KT transfer capacities and skills:

There is a need for sufficient resources, incentives and measures to ensure availability of trained staff, model contracts and decision making tools. Examples of practices in countries:

Measures to stimulate KT capacity and skills	**Countries**
• a law for university training programs	ES
• universities incorporate training programs in their curriculum	ES, UK, NL
• funding for strengthening TTOs	UK, NL,DE
• universities or government allocate resources to TT	LV, CY, UK
• a national network for TT which operates training activities	DK, NL, UK
• a project or (a set of) model contracts	DK, CY, IE, UK,DE

A new IP management handbook (UK), seminars, workshops and a review of the TTO structure (NO), are mentioned as future planned activities. SI lacks sufficient systematic funding for strengthening TTOs or KTTs, resulting mainly in bottom-up activities.

The Code of Practice also put forward best practices on KT capacities and skills concerning:

a) relevance of consulting stakeholders. 4 countries subscribe specifically to this (DK, IE, NL, NO).

b) the pooling of resources of institutes in order to reach critical mass for a TTO (IE, LV, ES, UK, NL). IE mentions that this approach has been taken with institutes that have a relatively low research base and LV refers to an increasing amount of collaboration agreements. ES points in this context to a national project, involving 9 universities, which aims at setting up a common external unit for management of their patent portfolio. The pooling of TT resources is a subject for consideration of the UK government. The government will be facilitating discussion among a group of universities to explore options for collaborative research. SI is planning to pool resources in order to reach critical mass for a TTO as the number of institutions is small.

c) support of research spin offs: 6 countries mention programmes for this purpose (IE, NO, DK, NL,DE, SI).

A final element of the best practices on training and skills concerns **government funding** to support KT. 4 countries mention specifically that funding is available (IE, DK, CY, DE) and 2 countries are planning to develop KT capacities and skills through new resources (FR, NL).

- **Coherence in trans-national cooperation**

A couple of countries (IE, CY) mention that IP ownership is clearly defined and that coherence exists in trans-national cooperation. (See question 8 for a more complete overview).

- **Dissemination of knowledge**

A number of countries consider the dissemination of knowledge current practice (such as IE, CY). LV mentions specifically that it considers a data base for open access (See question 4 for a more complete overview).

- **Monitoring implementation**

With regards to the necessary mechanism which are put in place to monitor and review progress made by national public research organisations in KT activity: Several countries mention annual statements and surveys (like IE, DK, LU, CZ, FR, UK, SI). One country (FR) specifically states that it is planning better consolidation of KT indicators through PROs and universities (especially universities). SI will strengthen the system of monitoring and put a system of indicators fully into practice in order to assess performance and implement related policies. (See 3.10 for a more complete overview).

3.10 Steps to monitor and report on measures based on the Recommendation

More than half of the countries which responded to this question have monitoring measures or a monitoring system in place. Annually a number of these countries measure relevant knowledge transfer figures –mainly through surveys. The countries which have not yet established such measures or system, express interest in assessing the state of play of KT and the impact of measures. Most of them plan to set up a system in the future.

More specific, several countries (EE, PL, HU, LT, IT, MT, RO, AL) do not yet have a monitoring system in place. LV reports that some PROs have systems in place and others PROs still focus more on IP management. EE states that monitoring and reporting is usually done at the instrument level. AL is a primary phase on implementation of international indicators. Most countries refer to annual reports about general research activity of universities and PROs.

Future activities of these countries include	**Countries**
• promote the Commission Recommendation and Code	AL, LV, IT, LT, SI
• establish a working group to promote the Recommendation	IT, SI, AL
• develop a monitoring system or survey	EE, LT, PL, MT, RO, SI, AL, ES

A couple of countries add that the use and impact of the Recommendation will be measured. For example, EE will use this questionnaire as part of the national monitoring system.

Several of countries (UK, CZ, CS, DK, FI, IE, LU, NO, SE, FR, NL, AT, SI) have monitoring measures or a monitoring system in place. Some of these countries perform an annual survey on performance in technology transfer which includes key figures like public research inventions, patenting, licensing, spin outs and commercial revenues.

LU has put a monitoring system in place with an annual survey on performance in knowledge and technology transfer which includes key indicators like patenting, licensing, spin offs and commercial/contract revenues. SE refers to a system 'universities regarding collaboration for growth' which was first developed by the ERAC group and has been adapted to Swedish context. IL, for instance, refers to the activities of the TTO and reporting activities at the National Parliament. UK has long established a monitoring system. NL mentions the monitoring of KT activities as part of the national agenda on KT (an initiative in which all stakeholders join actions). This includes measuring KT activity on both a national and institutional level.

Several countries (DK, NO, NL, SI, FI, HU) are planning to develop the monitoring process and Kt indicators further. FI will commission an external evaluation of RDI in polytechnics by the end of 2011.This will be used to develop RDI activities as well as relevant indicators and monitoring. HU will establish a self-organising standing forum of the Hungarian TTOs. The set-up of a monitoring system was considered when negotiating the governmental support of this forum in 2010.

The NL will combine the monitoring system with a new KT-subsidy scheme. This scheme will include the obligation for the recipients of the subsidy (industry and PROs/universities) to measure their KT-activities. DK, on its side, illustrates the method that will be used: a KT expert group will serve as consultants on the annual survey, in order to develop a broader scope of KT indicators in dialogue (like collaboration agreements). Before the end 2010, ES expects to create a steady working group with representatives of PROs, universities, ministries and other stakeholder to monitor measures taken on the basis of the Recommendations.

4. INTERNATIONAL COOPERATION

The issue of KT and IP management in international research cooperation was recognised as one of the key areas demanding attention when the ERAC Working Group on knowledge transfer was established. As a result, this issue was selected by the group as one of four priority areas of action.

International issues are already covered by the Strategic Forum on International Cooperation (SFIC). It was recognised by the group that any work undertaken on this issue would have to be coordinated with SFIC in order to ensure coherence and to avoid duplication.

To support the ERAC working group on knowledge transfer in this area, a sub-group on international knowledge transfer was created. The sub-group selected Liisa Ewarts (FI) as Chair and identified as its key tasks drafting guidelines covering two key areas:

- IP management for universities and PROs in research cooperation activities with non-EU partners.
- The development of IP management sections in International S&T collaboration agreements supporting the stakeholders in their knowledge transfer activities in the international research cooperation.

Shalini Saxena (DE) and Yngve Foss (NO) began work on a first draft of these guidelines. Based on feedback provided by the subgroup, the guidelines are being further developed. The estimated timeframe for completion of the guidelines foresees the sub-group finalising the draft guidelines for discussion at the working group and with stakeholders in autumn 2010. Based on the feedback received, the guidelines could then be finalised for presentation to SFIC and ERAC in 2011.

The group has taken the opportunity to build on its work using a variety of sources. Peter Ganea, an IP expert from the University of Frankfurt, presented the results of a study he undertook on behalf of DG Research into knowledge transfer between EU and emerging economies, focusing on BRIC countries. Klaus Uckel (Director, German Federal Ministry of Research) reported back to the group on experiences in Korea, where he had been invited as Chair of the group to present the Commission's Recommendation on the management of intellectual property in knowledge transfer activities and Code of Practice for universities and other public research organisations on the occasion of the first

EUREKA DAY 2010 in Seoul. This has had a significant impact on the cooperation with Korea with EUREKA as Korea has agreed to dispense EUREKA members from a number of critical provisions of their national legislation (ITLPPL). This should ensure equitable and fair treatment of particpants from Member States and Korea regarding ownership of and access to IPR. The cooperation with EUREKA is important and the first association of EUREKA with a third country, Korea was signed under the Portuguese Chairmanship and has to be implemented now by the following ones (DE, IL).

The group also involved itself in broader discussions on IP in international cooperation. At the ERA Conference organised by the Commission in October 2009, Klaus Uckel chaired a discussion in a specific session which looked at the issues affecting knowledge transfer between European public research institutions and non-European partners. EU research institutions are increasingly engaging in cooperation activities with partners outside Europe, and there is a need to address some of the complex issues which can arise in such activities.

The following main issues were identified in the session as being critical to research cooperation with non-European partners:

- Building trust between partners.
- Adopting a strategic approach to planning and preparation for all cooperation activities.
- Being clear about goals.
- Recognising regional diversity.

To address these, it was considered necessary that policy makers could work together with stakeholders to develop appropriate guidelines. These guidelines could help public research institutions to develop strategies for cooperation with non-European public/private partners. Such guidelines could be also used to complement the Code of Practice, and could address in particular the following aspects:

- Differences in IPR systems which may affect knowledge transfer, such as
- Issues arising from different legal systems and cultures
- Building trust between partners

These guidelines should be promoted at national and European level, and ensure that adequate support measures are put in place for their implementation. A dialogue could be developed and maintained with non-European partners as part of the process of promoting and implementing the guidelines.

It was also suggested that existing intellectual property provisions in international research cooperation agreements should be evaluated, in order to identify good practices.

5. INDICATORS ON KNOWLEDGE TRANSFER

The ERAC Working Group on knowledge transfer has in its mandate a task to develop and exploit indicators on knowledge transfer. A coherent set of indicators would make it possible to measure the different dimensions of knowledge transfer and to facilitate countries benchmarking their performance and to combine results so as to offer a global view of the European situation and its evolution. Countries as well as PROs will be able to monitor and compare their achievements against others and themselves over time. This will enable public authorities and PROs to measure the effect of their policies and others and learn form the experience.

The value of monitoring of knowledge transfer activities is emphasized in Recommendation and Code of Practice and is even more important concerning the development of ERA and the implementation of Europe 2020 Strategy.

The ERAC working group established a subgroup on monitoring and indicators which will focus on the development of indicators, in particular the validation and use of headline indicators and options for a composite indicator. The subgroup also supports the working group in the review of draft reports to ERAC.

The focus on headline indicators arose as a result of activity by a Commission expert group which prepared a proposal for a set of headline indicators to characterise ERA in its various dimensions. Where this proposal included a headline indicator[13] on knowledge transfer, the share of public research financed by the private sector, the ERAC working group on knowledge transfer considered that this draft proposal might not be the most appropriate or best available headline indicator and proposed an alternative one based on payments related to trans- boundary cash flows related to technology transfer. The ERAC working group considered the merits and demerits of these alternatives and made a recommendation to the Commission to utilise the latter one. The group continues its work on this proposal to perform a validity and quality check.

To support this work of the group on indicators, the Commission has recently established an expert group dedicated to knowledge transfer indicators. This group will carry out the above mentioned validity and quality check on the two proposals KT headline indicator. The expert group will in addition and based on the earlier work of the KT metrics expert group elaborate a proposal for a composite indicator on KT. The aim of this indicator is to facilitate a broader comparison of performance which would allow for the reality that different Member States for policy reasons place different priority on the various dimension of KT

More generally and in order to support the ERAC working group in the monitoring of progress, the Commission has commissioned a series of questionnaires and data collection from PROs and Universities performing research, interviews with these

[13] However it is acknowledged that a headline indicator, at best, can only provide a rough approximation of activity or trends for a complex system such as KT. For a substantive picture it is therefore necessary to consider a fully developed basket of indicators.

institutions and firms in research intensive sectors and a series of workshops to promote knowledge transfer and identify barriers. Whereas the aim of the questionnaires, surveys and data collection is to gather information on the type, level and trend of knowledge transfer, comprising both qualitative and quantitative data, the aim of the interviews and workshops is to gather more in-depth information on barriers and bottlenecks as well as to promote knowledge transfer. This 3-year study will also support questionnaires of country activity and build on the first exercise of the ERAC working group.

All of these activities will be carried out in close coordination with the ERAC working group and the results of these surveys and data collection will be presented in 2011 and 2012. The first workshops should be held in the first half of 2011.

6. CONCLUSIONS AND NEXT STEPS

The ERAC KT working group decided to address four topics for the first two years:

- *monitoring the implementation,*
- *identifying international KT issues,*
- *identification of indicators and*
- *review on how the IP-Recommendation can be promoted in relevant EU –initiatives.*

Since the first working group meeting in May 2009 a large number of initiatives and complementary actions were set up to ensure progress and results on three of the four themes. The meetings of the working group have provided a valuable platform to exchange information and a mutual learning experience.

Monitoring

The working group assessed the current state of play on the implementation of the IP-Recommendation by the Member States and Associated Countries using a *questionnaire* to its members. The synthesis of these replies is described in chapter 3. Countries have taken (or are planning) measures to implement the IP-Recommendation in three categories:

Legislation: several countries used the IP-Recommendation while drafting (amendments) in national legislation or plan legislation on IP policy using the Recommendation. In some instances the Recommendation triggered an assessment process to review legislation.

Policy measures: A number of countries took policy measures, in some cases the Recommendation inspired and became an integrated broader national KT scheme. A number of countries have scheduled to develop new guidelines for IP management in future.

Dissemination measures: The majority of countries disseminated the IP-Recommendation and many countries took steps to actively engage stakeholders in various activities which include national debates with stakeholders, dedicated workshops and seminars. A large number of countries indicated that the Code of Practice will be further promoted and integrated in future. For example some countries will establish specific working groups while others are in the process of developing handbooks for stakeholders.

Complementary to the assessment of the current play on the implementation, the ERAC KT working group found the identification and exchange of interesting and promising practices for improving knowledge transfer and IP-management a very useful and an important topic. National administrations have developed several incentives and instruments to tackle KT issues and in some instances good practices have been adopted or countries are planning to do so (e.g. the Dutch Innovation voucher scheme). The ERAC KT working group has engaged and continues to engage in investigating and sharing promising practices in coming meetings and activities. In line with these activities, starting from autumn 2010, a number of national workshops will also be organized with the support of the Commission, in order to share good practices of PRO's.

In addition, with support of the Commission, a *KT stakeholders forum* was organized in 2009 and a Commission supported expert group undertook a number of studies on KT issues. This included a study which provided an overall estimation of the actual implementation of new knowledge transfer policies by countries and stakeholders which information complemented that of the questionnaire.

In 2010 (and thereafter) the working group will continue to monitor the implementation of the IP-Recommendation for which a more detailed *template* has been developed by the group. This will facilitate up-dating and comparing information in the future. In order to support the monitoring work of the working group, the Commission commissioned a *3-year study* on the implementation of IP-Recommendation by Member States and PROs.

Indicators

The ERAC KT working group prioritised the identification of indicators to measure the different dimensions of knowledge transfer and their evolution. In order to identify knowledge transfer indicators the working group established a subgroup on monitoring and indicators.

In 2009 the subgroup considered the (de)merits of a proposal of an *ERA headline indicators* on knowledge transfer. The focus arose as a result of by a Commission expert group on indicators, which prepared a proposal for headline indicator to characterise ERA in her various dimensions. One of these dimensions concerned KT. The draft headline indicator is based on the share of public research financed by the private sector.

The ERAC working group considered that this draft headline indicator on KT may not be the most appropriate and identified a possible *alternative headline indicator* which was recommended to the Commission. The alternative headline indicator is based on payments related to trans-boundary cash flows related to technology transfer.

In 2010 the proposals for these headline indicators will be evaluated for their strength and weaknesses, with support of an external expert group. In addition a proposal will be developed for a *composite indicator*. The group will focus the coming year on developing a set of indicators on knowledge transfer which will facilitate a broader comparison of performance. The work will be based on the earlier work done by *KT metrics expert group report 2008* and aligned with work of European-level stakeholder organisations such as *Proton and ASTP.*

International knowledge transfer

The sub-group identified as its key tasks drafting guidelines covering two key areas:

- IP management for universities and PROs in research cooperation activities with non-EU partners.
- The development of IP management sections in International S&T collaboration agreements to support stakeholders in their knowledge transfer activities in international research cooperation.

The group also involved itself in broader discussions on IP in international cooperation. At the ERA Conference organised by the Commission in October 2009, Klaus Uckel chaired a session which looked at the issues which affect KT between European public research institutions and non-European partners. A number of issues critical to international cooperation were identified: building trust between partners, adopting a strategic approach to planning and preparation for all cooperation activities, clarity about goals and recognition of regional diversity. In order to address these issues the session concluded that guidelines could be developed to help PROs to develop strategies for international cooperation. These guidelines could be used to complement the Code of Practice and address the following aspects: differences in IPR systems which may affect KT issues arising from different legal systems/cultures and building trust between partners. Further more, measures could be taken to ensure adequate implementation of these guidelines and exiting IP provisions in international research cooperation agreements should be evaluated in order to identify good practices.

KT in relevant EU initiatives

The working group will engage in reviewing how the Recommendation and Code of Practice are promoted in relevant EU initiatives. In the coming year the working group will provide advice for the development of framework conditions on IP-management for Joint Programming and on the IPR rules of participation for the Community Framework programme.

ANNEX 1

COMPOSITION OF ERAC WORKING GROUP ON KT

Country	Name	
Albania	Edmond Agolli	
Austria	Georg Buchtela	Chair, subgroup on monitoring and indicators
Belgium	Stijn Eeckhaut	
	Jan Cornelis	
Bulgaria	George Todorov	
Croatia	Dalibor Marijanovic	
Cyprus	Evgenios Epaminondou	
Czech Republic	Karel Klusácek	
Denmark	Kaare Jarl	
Estonia	Taivo Raud	
France	Antoine Masson	
Finland	Petteri Kauppinen	
	Liisa Ewart	Chair, subgroup on international knowledge transfer
FYRoM	Saso Georgievski	
Germany	Klaus Uckel	Chair, ERAC working group on KT
	Shalini Saxena	Rapporteur, subgroup on international knowledge transfer
Greece	George Migiros	
Hungary	Agnes Gulyas	
Iceland	Hellen Gunnarsdottir	
Ireland	Conor Sheehan	
Israel	Shaul Freireich	
Italy	Daniela Carosi	
Latvia	Janis Stabulnieks	
Lithuania	Kristina Babelyte	
Luxembourg	Léon Diederich	
Malta	Anton Bartolo	
The Netherlands	Jeffry Matakupan	
Norway	Erik Øverland	Rapporteur, ERAC working group on KT
	Yngve Foss	
Poland	Marta Pytlarczyk	
Portugal	Luís Serina	
Romania	George Bala	
Slovenia	Tomaz Boh	
Spain	Francisco Larios	
	Severino Falcón Morales	Rapporteur, subgroup on monitoring and indicators
Sweden	Stina Bishop	
	Monica Hjertman	
Switzerland	Carine Galli Marxer	
Turkey	Oguz Yapar	
United Kingdom	Jim Houlihan	

ANNEX 2

LIST OF COUNTRIES RESPONDED

1. Albania	AL
2. Austria	AT
3. Belgium	BE
4. Cyprus	CY
5. Czech Republic	CZ
6. Denmark	DK
7. Estonia	EE
8. Spain	ES
9. Finland	FI
10. France	FR
11. Germany	DE
12. Hungary	HU
13. Ireland	IE
14. Israel	IL
15. Italy	IT
16. Latvia	LV
17. Lithuania	LT
18. Luxemburg	LU
19. Malta	MT
20. Netherlands	NL
21. Norway	NO
22. Poland	PL
23. Romania	RO
24. Slovenia	SI
25. Sweden	SE
26. Switzerland	CH
27. Turkey	TR
28. United Kingdom	UK

ANNEX 3

QUESTIONNAIRE

This questionnaire has been prepared and adopted by the CREST KT WG as part of the reporting on the implementation of the Council Resolution on the Commission Recommendation on the management of knowledge transfer activities and Code of Practice for universities and other public research organisations.

The format of the questionnaire follows the structure of the Recommendation:

Question 1. Please advise on how your administration promotes the inclusion of knowledge transfer in the strategic missions of public research organisations and universities performing research. (These could include incentives, voucher systems or other forms of funding.)
In doing so please distinguish between existing and planned activities and please describe the nature, form and scope of this promotion.

Existing activities: …..

Planned activities: …..

Question 2. Please advise on the steps your administration has taken to encourage public research organisations to establish and publicise policies and procedures for the management of intellectual property in line with [the principles of] the Commission's Code of Practice.
In doing so please distinguish between existing and planned activities and please describe the nature, form and scope of this encouragement.

Existing activities: …..

Planned activities: …..

Question 3. Please advise on how your administration supports the development of knowledge transfer capacity and skills in public research organisations in the area of science and technology regarding transfer of IP and entrepreneurship.
In doing so please distinguish between existing and planned activities and please indicate whether the support addresses either or both knowledge transfer capacity or measures to raise awareness and skills of students as well as the form of this support and the extent to which it comprises financial support or other incentives.

Existing activities: …..

Planned activities: …..

Question 4. Please advise on how your administration promotes the broad dissemination of knowledge created by public funds by taking steps to promote open access to research results while enabling, where appropriate the related IP to be protected.
In doing so please distinguish between existing and planned activities and please indicate whether the promotion addresses either or both Open Access and / or Protection of IP as well as the form of this promotion and the extent to which it comprises financial support and incentives.

Existing activities: …..

Planned activities: …..

Question 5. Please advise of your opinion on the extent to which IPR ownership regimes in your country allow for and facilitate cross-border collaboration and knowledge transfer.
In doing so please distinguish between existing and planned activities and please describe the features of these regimes.

Existing activities: …..

Planned activities: …..

Question 6. Please advise, as is appropriate, on whether and how the principles outlined in the Code of Practice attached to the Commission Recommendation are used as a basis for:

(i) national guidelines and legislation on management of IP and knowledge transfer by public research organisations:
(ii) agreements on research cooperation with third countries:
(iii) other measures to promote knowledge transfer:
(iv) creating new related policies of funding schemes:
In doing so please distinguish between existing and planned activities and please describe the key principles used to underpin these measures.

Existing activities: …..

Planned activities: …..

Question 7. Please advise on which steps have been taken to ensure the [widest possible] implementation of [the principles of] the Code of Practice:
In doing so please distinguish between existing and planned activities and please describe and please describe the steps taken.

Existing activities: …..

Planned activities: …..

Question 8. Please advise on steps taken to ensure the fair and equitable treatment of participants from Member States and third countries in international research projects regarding ownership of and access to IPR to the mutual benefit of all partners involved:
In doing so please distinguish between existing and planned activities and please describe the steps taken.

Existing activities: …..

Planned activities: …..

Question 9. Please advise on the extent use is made of the best practices outlined in Annex II of the Commission Recommendation.
In doing so please distinguish between existing and planned activities and please indicate the practices used.

Existing activities: …..

Planned activities: …..

Question 10 Please advise of steps taken to establish systems of monitoring at national or institutional level in order to report on measures taken on the basis of the Recommendation and their impact
In doing so please distinguish between existing and planned activities and the steps taken.

Existing activities: …..

Planned activities: …..