

Approaching China

Towards A More Coherent EU/Member States and Associated Countries STI China Strategy

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Introduction

The Strategic Forum for International Science and Technology Cooperation (SFIC) endorsed in its meeting on 28 April 2010 a plan to develop a broader base for a strategic approach towards cooperation with China and to work towards a more coherent EU/Member State (MS) and Associated Country (AC) strategy vis-à-vis China. In addition to some analytical preparatory work, it was agreed to organise a workshop which aimed at:

- improving knowledge of the EU/MS/AC on science, technology and innovation (STI) cooperation with China, based on an analysis of strengths and weaknesses and an exchange of information about the policies, strategies and activities (including best practices and lessons learnt) of the EU and the MS;
- achieving a joint understanding and common knowledge base on how to approach cooperation in science and technology with China;
- identifying policy priorities for cooperating jointly vis-à-vis China;
- agreeing on the next steps for developing a coherent approach vis-à-vis China.

This report provides the main recommendations and a condensed summary of the presentations and discussions during a two-day workshop in Brussels in May 2011. The programme is enclosed in the annex.

Towards a Europe-China strategy: Summary of the main recommendations

Leveraging Europe's research and innovation strategies externally:

- STI cooperation should be based on mutual interests and mutual benefits.
- EU and MS bilateral cooperation with the targeted country must be seen as complementary. The EU strategy and national strategies should be coordinated, and any duplication of efforts at the EU and national level should be avoided.

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- The STI international strategy should have a clear added value, address the scale (for example, generating the critical mass that is necessary for solving differences of scale on an equal basis/ on a similar scale/ at a similar spending level) and the reciprocity issues, be flexible, and avoid any duplication of efforts.
- It should focus on research and innovation and on promoting Europe as a knowledge society.
- Such a strategy can no longer evolve on its own; rather, different policies should work together to strengthen each other: trade and STI, STI and industrial policy, higher education. An integrated approach including all dimensions of the knowledge triangle (research and training, including higher education), and all phases of the innovation chain, especially the participation of SMEs (public-private partnership), is needed.
- EU and Member States have to find a good level of articulation and synergies between national, EU and multilateral cooperation instruments (from bilateral to trilateral collaboration and from trilateral to multilateral schemes).
- EU and MSs have to improve the interoperability of STI systems, programmes, rules and procedures for participation, including Intellectual Property Rights (IPR) issues.
- Speaking with a coordinated European voice with regard to standards or IPR issues could improve Europe's position significantly – even more so if other international alliances can be found.

A European strategy towards China – call for clear objectives:

- The main goal of Europe as regards cooperation with China is access into new opportunities to strengthen European competitiveness by approaching new knowledge and markets, by tackling societal challenges that are global in nature and by attracting more Chinese talent to Europe.
- A European strategy should be put into place vis-à-vis China; it is important to clearly define a Member State/EU agenda.
- Asymmetries in the relations between China and Europe must be corrected, preferably in a centralised manner, to optimize the use of resources and avoid the duplication of efforts.
- In terms of priority setting, a combined top-down and bottom-up approach should guide choices.
- Flexible approaches will be necessary: strategic choices should be made by analyzing whether it would be better to choose research areas (global challenges) where China is already strong or those areas where it is just emerging. For example, EU/MS/ACs should also begin collaborating in areas that complement Europe's strengths and weaknesses, in areas where China is today less strong but invests a lot (e.g. life sciences), and make sure that Europe is part of future developments by taking into account the imminent health and ageing problems China will be facing.

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- Economic aspects and/or natural settings are also important drivers for choices, and so are excellent human resources (work with the best!).
- The EU-China S&T policy dialogue, as well as the bilateral S&T dialogues between the Member States, Associated Countries and China, should be strengthened and deepened; information about dialogues taking place in Europe should be exchanged.

A cooperation based on stability and reciprocity:

- Stability of the instruments used for collaboration is an important means to support trust building. Therefore, the European STF (Science and Technology Fellowship) programme towards China should be continued.
- Europe needs to promote international networking, similar to what France has done with its *Groupements de recherche internationaux* (GDRI) or Denmark with its *Initiatives* strategy.
- Joint European–Chinese research institutes would raise the visibility of Europe in China; the institutes could be located in either Europe or China; co-funding by China and Europe would be necessary as a way to involve all actors and respect reciprocity and equality.
- European infrastructures could be used as an opportunity to link Chinese research teams with European teams.

Decrease the information deficit and the asymmetry of information between China and Europe:

- Encourage the networking of Science Counsellors in Beijing to rationalise intelligence gathering and monitoring activities as regards China's STI performances as well its instruments for priority setting, industrial upgrading, etc.
- Broaden the scope of the EURAXESS network to include an STI 'monitoring activity' (e.g. collecting data and knowledge on Chinese STI activities).
- Explore possible cooperation or synergies with the Europe China Research and Advice Network (ECRAN) that are supported by the European External Action Service.
- In light of the developing network of think tanks on STI in China, organise a workshop of European think tanks working on China STI and innovation (develop an appropriate concept – objectives, terms of reference, tasks, benefits, criteria for network partners, target groups).
- Consider utilizing synergies with other networks, e.g. the BUSINESSEUROPE network.¹

¹ See: <http://www.business europe.eu/Content/Default.asp?PageId=603#international>

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- Perform studies that compare the STI strategies of China, the EU, the MSs (MS) and the Associated Countries (AC), but that also look at China's position and role vis-à-vis the US and other relevant countries.
- Consider raising the visibility of European research and innovation in China by providing a focal point as well as a space for the everyday exchange of information and interaction, e.g. a virtual *European research and innovation house in China*.

'Think big' to gain new cooperation opportunities with China:

- Explore where, through joining forces, real European added value could benefit both EU and MS cooperation vis-à-vis and with China, for example in areas of global challenges, such as green tech or energy, where there is a strong demand at the MS/EU level.
- Explore the appropriate links via the upcoming 'Urban Europe' Joint Programming Initiative (JPI) and other initiatives such as 'smart cities'.

Enlarge existing trilateral or multilateral cooperation patterns:

- Consider opening bilateral MS/AC-China collaboration with third partners and trilateral collaboration with fourth or fifth partners, as well as requesting feedback on the optimal number of partners for such collaborations.
- Move from programme-level to institutional-level forms of cooperation, e.g. connect existing intra-Europe activities with the National Science Foundation of China (NSFC) as a strong stimulus to cooperation.
- Join together the different MSs' and ACs' funding agencies as a new way of cooperating vis-à-vis and with China.

Reinforce mobility between EU/MS/AC and China:

- Update regularly a systematic overview of the different EU and MS/AC mobility schemes and make it available in a user-friendly way.
- Adapt the existing European mobility schemes or develop a grant scheme at the European level with special attention to *out-going* European researchers (at PhD or post-doc level).
- Link more efficiently the different alumni associations both in China and in Europe.

Improve cooperation framework conditions with China as a partner on equal terms:

- Organise a workshop to map IPR practices and share good practices with respect to different framework conditions and innovation activities.
- Encourage the group of counsellors to produce an informative brochure on IPR management for researchers.

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- Analyse further the reciprocity principle (access to programmes) as well as ethical issues.
- Organise cluster collaborations between Europe and China.
- Look into different ways to assist SMEs when cooperating with China or entering Chinese markets, for example by better promoting the existing IPR helpdesk.

NEXT STEPS

- 20 June 2011 – discussion and adoption of the proposed next steps at the SFIC meeting.
- SFIC Task Force should continue to work on China cooperation with a roadmap (with short-term and longer term milestones and expected outcomes) that provides details on the main recommendations.
- Short-term activities: autumn 2011
 - an awareness-raising campaign to strengthen the visibility of European STI at the joint EU/MS/AC level should be organised (following the example of India). Representatives from funding agencies should visit hot-spots in China together to disseminate information about European STI.
 - an EU/MS/AC workshop will be organised in Europe on the important issue of IPR, as well as other framework conditions deemed necessary for successful STI cooperation, with the participation of appropriate Commission services (e.g. DG Trade).

Outlook for 2012 – possible workshop in China focusing on jointly defined priority areas for a coordinated EU/MS/AC - China approach.

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1. Political context for a coherent EU/Member States approach vis-à-vis China

China is one of the major strategic partners for the EU and its Member States (MS). The European Council of September 2010 discussed the EU's external relations with its strategic partners and emphasized that, *'in accordance with the Lisbon Treaty the European Union and its MSs will act more strategically so as to bring Europe's true weight to bear internationally'*. Therefore, the European Council called for *'improved synergies between the European Union and national levels, consistent with the provisions of the Treaties, for enhanced coordination between institutional actors, for better integration of all relevant instruments and policies, and for summit meetings with third countries to be used more effectively'*.

Along the same lines, the Competitiveness Council of 2 December 2008 already stressed that, *'the pursuit of the European Union's general objectives can be strengthened through a strategic framework for the appropriate coordination of its various scientific and technological cooperation activities with third countries'*. The conclusions further outlined *'that such a strategy aims to develop better coherence and synergies between the various international scientific and technological cooperation activities carried out in Europe by MSs and the European Community'*.

The Competitiveness Council of 25-26 May 2010 acknowledged the progress made by the Strategic Forum for International S&T Cooperation in further developing the European Partnership for International S&T Cooperation. This included the pilot initiatives on enhanced cooperation with selected regions/countries and on specific themes, was being considered in 2010. MSs and the Commission were invited to consider building upon these initiatives *'when developing a future European strategy for international S&T cooperation'*.

Against this background, and along the lines of its Work Programme 2009/10 (see doc. CREST-SFIC 1356/09), China was identified as a relevant strategic partner country in SFIC. SFIC stressed the wish to focus on China in addition to the other 'pilot initiatives'.

On the basis of a mandate given by the SFIC on 18 December 2009, the SFIC Task Force on 'Priority Setting' prepared a proposal to the SFIC on how to develop a strategic approach towards China. The approach proposed by the SFIC Task Force aimed at ensuring a smooth and well founded 'phasing in' of different short-, medium- and long-term measures over time to build a knowledge base for future strategic decisions on how to 'approach China' in a more coherent manner. The SFIC discussed the proposal at its meeting on 28 April 2010 and finally endorsed the approach at its meeting on 17 September 2010.

To develop these measures further, the SFIC agreed to organise a workshop on 'Approaching China' to discuss lessons learnt from STI cooperation with China and to identify where a

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coherent EU/MS/ACs approach would create added value and be more effective in covering all the main aspects of cooperation, such as researcher mobility, collaborative research, joint institutes and research infrastructures.

2. Building a European common strategy towards and with China

Several MSs (Denmark, Finland, France and Sweden) have already defined their own national strategies towards China and their own goals for promoting cooperation. Indeed, successful strategies also need to be coordinated at the national level. France provides a good example through its system of national '*Alliances*' in the fields of energy, health, environment, ICT and social and human sciences. Denmark, too, provides a good example through its Sino-Danish Centre for Education and Research, which groups together all of the universities that are cooperating with the Chinese Academy of Sciences (CAS).

However, the overall landscape for European STI cooperation with China is fragmented. As an example, China's Scholarship Council has 70 agreements with Europe, in comparison to only three with the US. It remains to be seen if China will still be interested in a multitude of small bilateral agreements or if it would prefer to work at the European level to upgrade bilateral ties (multiplicity of interlocutors).

China has signed STI cooperation agreements with most of the Members States and with the EU. The agreements follow the same pattern: exchange of researchers, collaborative research, scientific events, etc.

The agreements are signed at the level of the Chinese Government (as part of general diplomacy) or with national research institutions (CAS,² CASS³) and research funding bodies (NSCF⁴), as well as with the best universities.

Many areas of STI (except for the military) are covered by MS/EU and China cooperation. For smaller MSs that cannot collaborate with China in all areas but that want to participate in more than just EU-level programmes, the challenge is to find 'niches' in bilateral STI cooperation with China or to find partners in China at the regional level.

MSs are cooperating through a wide range of instruments: mobility schemes; joint programmes; '2+2 schemes' – which link one research institution and one MS company to the same structure in China; joint research labs; the training of EU students in China; the training of Chinese engineers in Europe or in China; workshops; joint calls; research/industry promotion centres; innovation centres; and so forth. Several MSs are now taking into account the growing opportunities provided by China and have set up models for

² Chinese Academy of Sciences

³ Chinese Academy of Social Sciences

⁴ National Science Foundation China

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cooperation between enterprises, universities and R&D institutions, which are based on a public-private partnership approach.

Numerous initiatives exist at the EU level: FP7 Projects, Marie-Curie Actions (particularly for out-going researchers), ERA-NET schemes, Joint programming Initiatives (JPI), Research Infrastructures (ESFRI), etc. There are also many activities that favour a more coherent approach towards China, such as the INCO-Lab action (which aims to open up existing bilateral laboratories in China to other MSs), the EURAXESS network, etc.

Sometimes, bilateral technological cooperation, when linked to national industry interests, might appear exclusive; indeed, competition within Europe must be taken into consideration.

IPR issues in China are gradually improving and should continue to improve in the future. Presently, due to the unequal value granted to written contracts, research cooperation, such as trade, is only based on mutual trust.

When developing such a strategy, the following obstacles should be taken into consideration:

- There is an information deficit and an asymmetry of information between China and Europe; Europe needs to be up to date on the latest developments and have a sound basis for its strategic choices for collaboration as well as competition.
- An uneven playing field still exists in relation to China: this pertains to areas such as IPR, standardisation, 'indigenous' innovation, state-owned companies, closed markets, public procurement procedures and public support to companies patenting abroad. Ethics is always a concern with China.
- Excellent Chinese research is not well known in European countries and vice versa.
- There are differences between the main actors and the scientific cultures.
- Landscape for European STI cooperation with China is fragmented.

3. From a bilateral EU/MS/AC strategy of cooperation with China towards a European strategy

Europe must engage more strategically in bilateral cooperation with other parts of the world. The international R&I landscape is changing rapidly. It offers new opportunities to strengthen European competitiveness by accessing new knowledge and markets and the societal challenges are global in nature.

Different governance structures for partnerships already exist in Europe – their common ground is a core group consisting of an equal number of representatives from both sides that make the strategic decisions. It is important to have equal-level interlocutors on both sides; partnering not only at the research level is important, but so too is partnering at an organisational level (e.g. NASA is collaborating with China at the individual university level).

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A European strategy for international cooperation should have clear objectives that complement and do not replace the EU or MS bilateral strategy:

- The cooperation should be based on mutual interests and benefits and the principle of reciprocity.
- EU and MS bilateral cooperation with the targeted country must be seen as complementary. The EU strategy and national strategies should be coordinated, and any duplication of efforts at the EU and national level should be avoided.
- The strategy should have a clear added value, address scale (for example generating the critical mass that is necessary for solving differences of scale on an equal basis/ on a similar scale/ at a similar spending level) and reciprocity issues, be flexible, and avoid any duplication of efforts.
- It should make it easier and possible for smaller European countries to cooperate with China.
- The STI international strategy can no longer evolve on its own; rather, different policies should work together to strengthen each other: trade and STI, STI and industrial policy, higher education.
- There is a need to adopt an integrated approach that incorporates all dimensions of the knowledge triangle (research and training, including higher education), and all phases of the innovation chain, especially the participation of SMEs (public-private partnership).
- A clear focus has to be put on research and innovation and on promoting Europe as a knowledge society.
- The EU and MS have to find a good level of articulation and synergies between national, EU and multilateral cooperation instruments (from bilateral to trilateral collaboration and from trilateral to multilateral schemes).
- EU and MS have to improve the interoperability of STI systems, programmes, rules and procedures for participation, including IPR issues.
- Speaking with a coordinated European voice with regard to standards or IPR issues could improve Europe's position significantly – even more so if other international alliances can be found.

A European strategy towards China should aim at the following:

- The main goal of Europe as regards China is to access into new opportunities, to strengthen European competitiveness by approaching new knowledge and markets, and to tackle societal challenges that are global in nature. Furthermore, Europe should also aim to attract more Chinese talent to Europe.
- A European strategy should be put into place vis-à-vis China; it is important to clearly define a MS/EU agenda based on Europe's interest.

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- Asymmetries in the relations between China and Europe must be corrected.
- In terms of priority setting, a combined top-down and bottom-up approach should guide choices.
- Flexible approaches will be necessary: strategic choices should be made by analyzing whether it would be better to choose research areas (global challenges) where China is already strong or those areas where it is just emerging. For example, EU/MS/AC should also begin collaborating in areas that complement Europe's strengths and weaknesses, in areas where China is today less strong but invests a lot (e.g. life sciences), and make sure that Europe is part of future developments by taking into account the imminent health and ageing problems China will be facing. However, IPR issues should be clarified and agreement reached before engaging further.

MSs and the EU shared common points of view on the following practical issues:

- Stability of the instruments used for collaboration is an important means to support trust building. There is no need to invent new instruments. Therefore, for example, the European Science and Technology Fellowship (STF) programme towards China should be continued.
- Europe needs to promote international networking, similar to what France has done with its *Groupements de recherche internationaux* (GDRI) or Denmark with its *Initiatives* strategy.
- Joint European–Chinese research institutes would raise the visibility of Europe in China; the institutes could be located either in Europe or China; co-funding by China and Europe would be necessary as a way to involve all actors and respect reciprocity and equality.
- European infrastructures could be used as an opportunity to link Chinese research teams with European teams.
- The EU-China STI policy dialogue, as well as the bi-lateral STI dialogues between the MSs, Associated Countries and China, should be strengthened and deepened and the exchange of information about such dialogues in Europe should be intensified.
- There is a need to adopt an integrated approach for cooperation with China by including all dimensions of the knowledge triangle (research and training, including higher education) and all phases of the innovation chain, especially the participation of SMEs (public-private partnership).
- Collaboration with China must be relevant at the national level; many MSs have already defined their own national strategies towards China (Denmark, Finland, France and Sweden) and their own goals for promoting cooperation; coordinating also at a national level is an important precondition for a successful strategy. France provides a good example through its system of national '*Alliances*' in the fields of energy, health or environment. Denmark, too, provides a good example through its

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Sino-Danish Centre for Education and Research, which groups together all of the universities currently cooperating with the Chinese Academy of Science (CAS).

- The EU and MSs have to find a good level of articulation and synergies between national, EU-level and multilateral cooperation instruments. There are many ways to explore this. One of them, presented by Finland, is to move from bilateral to trilateral levels of collaboration. This could be the case when dealing with the NSFC (whose funds are going to increase by 150% during the next five years) and with trilateral to multilateral schemes. An important element in the successful cooperation between Finland and China has been a high-quality, open competition and a transparent evaluation system, which was accepted by both parties.
- The experience of joint centres in China shows that Europe ought to be more conscious of the fact that the cost of such initiatives might not be feasible for a single country; co-funding by China and the EU would be necessary. Another possibility would be to open bilateral joint training courses or labs for other EU members.

MSs and the EU shared common points of view on the following challenges:

- Various challenges (an uneven playing field) still exist in relations with China and should not be forgotten: this pertains to areas such as IPR, standardisation, 'indigenous' innovation, green technologies, state-owned companies, closed markets, public procurement procedures and public support to companies patenting abroad; only when speaking with one voice can Europe impose its views.
- IPR and ethics has always been a concern with China, which needs to be overcome. Europe needs to adapt and develop a mutual understanding with China if the two regions are to cooperate.
- The activities of the EU, the MSs and the Associated Countries in relation to China are uncoordinated and dispersed ('fragmented'). On the one hand, there are many small offices dealing with STI in China (in many cases they are understaffed). On the other hand, the Chinese STI system along with the initiatives and programmes are highly complex and developing at a dynamic pace. It would therefore be beneficial to develop a 'win-win' situation between Europe and China. A real or virtual European House of Research and Innovation might raise the visibility of European research and innovation in China by providing a focal point as well as a space for the everyday exchange of information and interaction ('cafeteria effect'), and also make it possible to coordinate and cooperate on research and innovation where appropriate and beneficial.
- There is general agreement that joint efforts are necessary to decrease the information deficit and the asymmetry of information between China and Europe. Europe needs to be up to date on the latest developments and have a sound basis for its strategic choices for collaboration as well as for competition. It will be important

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to find the right institutions that are working in this field and producing the results that are needed.

4. Recommendations for joint EU and Member States' actions vis-à-vis and with China

There were many suggestions for future cooperation with China: For example, the following activities were deemed necessary:

- Perform studies comparing the STI strategies of China, the EU, the MSs (MS) and Associated Countries (AC).
- Strengthen and deepen the EU-China STI policy dialogue and the bi-lateral STI dialogues between the MSs, Associated Countries and China and intensify the exchange of information within Europe
- Develop strategies for bi-lateral, variable geometry and EU-level cooperation with China.
- Improve the interoperability of STI systems, programmes, rules and procedures for participation, including IPR issues.
- Utilize the global system of knowledge production for addressing global challenges and accessing talent and markets.
- Leverage Europe's research and innovation strategies externally.

This leads to several prioritised recommendations stemming from the workshop:

Intelligence

Joint efforts are necessary to decrease the information deficit and the asymmetry of information between China and Europe.

A strategic intelligence base is needed to develop both national strategies and EU strategies. One possible EU-level action should involve getting together on a regular basis and analysing information, data and statistics on China with regard to the following items:

- The China STI situation
- European R&I activities in China
- China's activities in Europe and worldwide
- IPR implementation and changing regulations
- Standardisation processes
- Existing exchange schemes on both sides
- Synergies with other national and intentional bodies.

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The experiences and insights of European researchers active in Chinese labs could be better used and exploited (e.g. through the EURAXESS Link Network). The collected data and knowledge should be disseminated widely to different European actors, targeting their specific needs.

It will be important to monitor China's STI performances as well its instruments for priority setting and industrial upgrading, which are constantly developing and changing.

In addition to an active network of Science Counsellors in Beijing (who lack sufficient resources for continuous monitoring and analysis), a network of think tanks on STI in China (with strong participation by scientists and specialists in innovation) that are active in analysis and foresight activities has been proposed.

Proposed next steps:

- Explore possible cooperation or synergies with ECRAN (Europe China Research and Advice Network), which are supported by the European External Action Service.
- Consider utilizing synergies with other networks, e.g. the BUSINESSEUROPE network.⁵
- Organise a workshop of European think tanks working on China STI and innovation.
- Develop an appropriate concept (objectives, terms of reference, tasks, benefits, criteria for network partners, target groups).

Scale

Europe is in danger of missing opportunities in China. The major recommendation is to 'think big'.

Cooperation schemes on a larger scale are needed in order to achieve an appropriate critical mass and an attractive level of cooperation and visibility in China. This is the case not only for very expensive sectors, such as space research (e.g. the exploration of Mars will become a global programme), but also for issues concerning global challenges. For example, the Low Carbon City Initiative for seven Chinese cities may serve as a role model for future practices. The cities will be the most attractive investment magnets.

Urbanisation or smart cities is a challenge that both Chinese people and Europeans currently face. It is suggested that authorities focus on two important areas for cooperation, which are of interest to and which will benefit both Europe and China:

- Urban issues: Discussions have already begun at the European level on the 'Urban Europe' Joint Programming Initiative; the SFIC could encourage the JPI to explore international collaborations with China
- Energy: there is a strong demand at the European MS/EU level

⁵ See: <http://www.buinesseurope.eu/Content/Default.asp?PageId=603#international>

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- Green tech: several MSs are already in the field in China.

Furthermore, it is also important to underline that certain 'niche areas' (for example, in the area of new materials, biotechnology) are as important as large-scale initiatives. This is of particular relevance to smaller countries, e.g. Slovenia, Denmark or Austria.

In terms of priority setting, a combined top-down and bottom-up approach should guide choices. Strategic choices should be made by analyzing whether it would be better to choose research areas (global challenges) where China is already strong, or those where it is just emerging, such as life sciences, while taking into account the imminent health and ageing problems China will be facing. The economic aspects and/or natural settings are also important drivers for choices, and so are excellent human resources (work with the best!).

Proposed next steps:

- Explore where real European added value could bring benefits for both EU and MS cooperation through joining forces with China.
- Within this context, it would be important to establish the appropriate links with the 'Urban Europe' Joint Programming Initiative (JPI). There is the potential for common interest not only in internationalising the JPI but also in linking it with the work of the SFIC and its Chinese partners.
- Joining together different MSs' and Associated Countries' funding agencies could provide a new way of cooperation vis-à-vis and with China.

Instruments

From bilateral towards trilateral or multilateral cooperation patterns

Bilateral Austrian-Chinese cooperation on Traditional Chinese Medicine (TCM) was presented as a successful example of a research cluster with an equivalent network in China. It is hoped that the project could be extended to include multilateral cooperation. A number of European countries are currently working in this field, including Denmark, France, Italy and the UK, and have been invited to form part of this cluster.

A more recent trilateral project involves the DFG, the NSFC and the Academy of Finland, with a call in mathematics in 2010 and in immunology in 2011. The first call produced good results after much hard work and a flexible approach. The success rate was good, and it funded one Finnish-Chinese project and one German-Chinese project. It is expected that this trilateral approach will continue for the long term with NSFC.

With regard to policy priorities for joint collaboration, all partners must win. There are some fundamental values that cannot be compromised, including quality and objectivity in terms of the transparency of the evaluation process. The partners must operate in a similar way and share a common pot (virtual or real) and common interests. Joint calls rely on a joint understanding of how to approach China, which is not always the same. Simultaneous funding is very important.

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Proposed next steps:

- To consider opening other bilateral China collaboration to third partners and opening trilateral collaboration to fourth or fifth partners, and requesting feedback on the optimal number of partners for such collaboration.
- Existing intra-Europe activities could join with the NSFC as a strong stimulus to cooperation. This would mean moving from programme-level to institutional-level cooperation.

Mobility

Raising the attractiveness of Europe is a key point. If Europe needs one million new researchers by 2020, as stated in the Innovation Union Flagship Initiative, its ability to attract the best human resources and encourage them to stay in Europe is crucial.

Europe should not only focus on intra-EU mobility for all students and researchers, but also on its openness to the world!

The mobility of human capital is crucial. Mobility programmes can be considered as seed money to prepare for broader collaboration; they can provide information on which disciplines/themes are potential priority areas for collaboration. Outgoing mobility to China must be increased.

Furthermore, mobility needs to be addressed in a different way. It should go beyond small mobility programmes and focus more on attracting and retaining talent and on creating the conditions for stable careers for incoming researchers. For example, the France-China mobility schemes have the objective of making French science better known in China and Chinese science better known in France, and of fostering a better mutual knowledge and contributing to mutual trust. Such a structured exchange of PhD candidates will stimulate and promote French-Chinese research by creating joint labs and launching new joint cooperation programmes.

An increased focus on mobility with China should include support for researchers going to China and it should help them integrate them with the local culture, and, likewise, it should welcome Chinese researchers to Europe and enable them to stay longer here.

To overcome bottlenecks in Europe-China researcher mobility, it is suggested that a grant scheme be developed at the European level. Special attention should be put on outgoing European junior researchers (with clear incentives measures).

Proposed next steps:

- Update the systematic overview of the different EU and MS mobility schemes.
- Link more efficiently the different alumni associations both in China and in Europe.
- A paradigm shift: China has become a partner on equal terms.

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Framework conditions

A paradigm shift: China has become a partner on equal terms

It is important to look for win-win situations, with clear benefits also for Europe. However, effective cooperation needs careful consideration, clear regulations for IPR funding or participation in kind, etc. The key framework conditions are linked to, for example, asymmetries, information on programmes, hot spots, systems, actors, access to national programmes (reciprocity principle), size and influence. Rules for cooperation and public support for, e.g., covering the costs of patenting and resource allocation, are not always transparent.

An IPR helpdesk is being set up. Cluster collaborations could be helpful for SMEs; the French 'CooPool' scheme has some successful examples. Access to test sides and demonstration facilities would be clear benefits to SMEs.

It is important to monitor China's instruments for priority setting and industrial upgrading because these instruments are constantly developing and changing. For example, the US-China Clean Energy Research Center (CERC) will soon be up and running, and the partners will engage actively in IPR; this development should be closely monitored.

Proposed next steps:

- Organise a workshop to map IPR practices and share good practices with respect to different framework conditions and innovation activities.
- Further analyse the reciprocity principle (access to programmes).
- Look into different ways to assist SMEs when cooperating with China or entering Chinese markets.

Visibility

Europe must better promote what it has to offer to China and become more visible in China.

The creation of a European House of Research and Innovation was discussed. Two possible options were presented: the creation of a virtual and a physical house. A virtual house could be created more quickly, but it would be less visible and it might not generate a strong effect on MS representatives working in China. A suggestion was also made to build a house using advanced European technologies as a way of showcasing them.

The positive impact of the Sino-German Year of Research and Education was underlined, and it was suggested that similar initiatives be promoted, eventually jointly at the EU and MS

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level. Joint dissemination actions to raise the attractiveness of Europe and to promote its funding and cooperation opportunities should be undertaken. An awareness raising campaign, similar to the one currently being organised in India, could be organised before the end of 2011.

Such a campaign should bring together representatives from the EU and the MS (government representatives as well as funding and research organisations, and the private sector).

An STI summit as well as a political EU-China summit should be promoted as a powerful means for raising awareness.

Proposed next steps:

- Elaborate a concept paper for a possible (virtual) European House of Research and Innovation, which outlines in detail the objectives, target groups, possible benefits, problems, etc.
- Develop a joint EU/MS/AC – China website on STI activities.
- Work on awareness campaign (with the model of India as an example).

CONCLUSIONS:

To conclude, the lessons learnt from this workshop are a clear indication that the proposed approach would offer a valuable means of sharing information, learning from each others' experiences and jointly discussing the way forward. It is proposed that a similar approach should also be pursued with other countries (such as the US).

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1. Annex 1: Examples of good practice from AT, DK, FI, FR
2. Annex 2: China as a partner: Context and priorities
3. Annex 3: Workshop Agenda
4. Annex 4: List of Participants

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ANNEX 1 Examples of good practice from AT, DK, FI, FR

AUSTRIA

Sino-Austrian Research Programme on Traditional Chinese Medicine

From acupuncture to the many hundreds of different medical herbs, Traditional Chinese Medicine (TCM) is booming. And it is effective: TCM has been practiced successfully for more than 4000 years, and the Western demand for something to complement classical Western medicine has been increasing for years. In Austria, TCM has a high reputation as an alternative to Western medicine. The Universities of Vienna, Graz, Salzburg and Innsbruck have been doing successful research in the fields of acupuncture, Chinese herbal medicine, methodology and medical theory.

In 2005, Austrian scientists established a 'TCM Research Cluster Austria' to facilitate scientific co-operation with an equivalent network in China. Austria takes part at international networks such as the 'International Cooperation Program for Traditional Chinese Medicine', which was launched in July 2006 by the Ministry of Science and Technology (MOST), the Ministry of Health (MOH) and the State Administration of Traditional Chinese Medicine (SATCM). More than 20 countries, including Chile, France, Finland, Hungary, Italy and the US, as well as several international organisations, have joined this network.

Meanwhile, the 'TCM-Cluster Austria' has organized several workshops, seminars and conferences in Austria with the participation of Chinese experts. The Joint Research Programme 'TCM and Age Related Diseases', which was begun in the year 2008, represents a remarkable step forward in TCM research in Austria; it was launched in cooperation with the 'TCM Research Cluster Austria' and the 'Sino-Austrian Collaborating Centre for Chinese Medical Sciences'.

The Joint Research Programme comprises eight individual projects, with fifty Austrian and Chinese scientists involved, and will end in October 2011. The aim of the programme is the scientific evaluation of TCM in the fields of therapy and the prevention of age-related diseases, research on the quality, safety and efficacy of herbal medicine and the scientific investigation of the effects of acupuncture and research on TCM theory.

An annual monitoring system has been implemented as an accompanying measure for quality assurance. The final project and evaluation meeting took place in Beijing in May 2011.

The outstanding results of this Joint Research Programme include publications in refereed journals, supervised doctoral or master theses and presentations at Austrian/Chinese

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international conferences, such as the World Congress of Chinese Medicine in Den Haag, the Netherlands in October 2010. The JR Programme was also presented at the Austrian EXPO Pavilion in Shanghai last year. Discussion regarding TCM co-operation for the years 2011-2014 is on the agenda of the final evaluation meeting in Beijing. To strengthen this bilateral co-operation, the group of involved scientists should be enlarged by including scientists from other European countries.

DENMARK

Sino-Danish Centre for Education and Research (SDC)

In 2008, Denmark adopted a *Strategy for Knowledge-Based Collaboration between Denmark and China*. Denmark intends to become a close partner with China in the knowledge area. This strategy includes 19 initiatives, including a Sino-Danish Centre for Education and Research.

The objectives of the Sino-Danish Centre for Education and Research (SDC) are to:

- achieve excellence in graduate education and research by combining Danish and Chinese capacities and positions of strength;
- increase the mobility of students, researchers and scientific personnel between Denmark and China;
- support and enhance Sino-Danish scientific and technological collaboration by creating a platform for joint education and research activities;
- strengthen the links between universities, research institutions and private companies in Denmark and China.

The centre is a joint venture between eight Danish universities and the Graduate University of the Chinese Academy of Science (GUCAS). The GUCAS was selected because it has access to all of the research institutes and infrastructures of the CAS. The centre should employ 100 researchers and host 75 PhD candidates and 300 MA students.

The budget amounts to €15 million and is funded by the Danish government and the university consortium (the government reimburses to the universities the salaries of researchers who stay in Beijing). The centre will be funded by the Danish government and located in a building on the GUCAS campus 60 km from the Beijing city centre; the Chinese will provide the location for the building and access to Chinese research. The research activities began in 2010 and the teaching activities will begin in 2012. The research will focus on water and a sustainable environment, nanoscience, renewable energy, life sciences and the social sciences. The students and researchers will be both Danish (50%) and Chinese (50%). The centre will offer a safe environment for Danish students willing to live and study in China and complete master's courses in English leading to a Danish and Chinese diploma.

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In this project, Denmark has managed to gather together all of the Danish universities (each one is responsible for a master's programme) and coordinate the institutional and scientific parts of strategic collaboration to help construct a Danish building on foreign soil and to gain balanced governance of the centre. The centre will benefit both countries by collaborating closely with Danish industry in China. Denmark has secured the sensitive issues of academic freedom and students' rights and has tried to secure the protection of IPR, too. But Denmark needs now to develop a marketing strategy to target Danish students going to China. The centre should be the cornerstone of Danish-Chinese S&T cooperation in the next years.

FINLAND

Towards multilateral calls

The Academy of Finland's 2005-2009 Research Programme on Neuroscience (NEURO) made the transition from bilateral to trilateral collaboration. The timing of the Academy of Finland's NEURO Programme in part overlapped with the ERA-NET NEURON project; for this reason, the Academy of Finland's programme does not include other European partners. The partners in the programme are the NSFC from China and the Institute of Neurosciences, Mental Health and Addiction from Canada. All three partners contributed to the management of the programme. However, the joint proposals and the funded joint projects were either Finnish-Chinese or Finnish-Canadian. That was because of the lack of an agreement between the NSFC and the Canadian partner. After all, the NEURO Programme was a start-up for Chinese-Canadian collaboration.

Substantial trilateral collaboration between the Academy of Finland, the NSFC and the German Research Foundation (DFG) has just begun. Both the Academy of Finland and the DFG have had long-term bilateral collaboration with the NSFC. In 2010, the first real trilateral call was organised in the field of mathematics. All three partners were so pleased with the process in general and with its results that the next call has now been opened in the field of immunology.

There were a relevant number of applications in relation to the amount of the funding available in the mathematics call. It means that the theme of the call was successfully formulated: the applicants were satisfied because the success rate was high enough, and the other researchers were satisfied because the success rate was not too high. Most of the funded projects were trilateral projects, which included Finnish, Chinese and German partners. In addition, there was one Finnish-German project and one Chinese-German project.

What has been learned? What are the policy priorities for the joint collaboration?

First, in terms of collaboration, every partner must win! Every partner has to benefit from the joint efforts. In addition, there are some threshold criteria, some things that cannot be

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sacrificed. For example, the Academy of Finland needs to be assured of the high quality of the projects to be funded. The transparency, the integrity and objectivity of the evaluation are the threshold criteria for the Academy of Finland. Most probably, every partner has these kinds of criteria, and other partners will either accept them or they will not.

Every partner must be in balance concerning the costs and benefits offered by the collaboration.

Finland is not able to compete with large volumes of neither funds nor resources. The Academy of Finland can offer collaboration with high-quality researchers.

FRANCE

France's mobility schemes with China

Approximately 30 000 Chinese students study in France each year. Meanwhile, the flow of French students or researchers to China is much lower. France would like to increase this number to reinforce and improve its S&T cooperation with this emerging scientific power. Therefore, France has developed several mobility schemes with China that range from the master's students or PhD candidates to advanced researchers. The mobility schemes will stimulate and support French-Chinese research partnerships by fostering exchange of researchers, including PhD candidates.

Promoting better mutual knowledge

The *France Talents Innovation* programme grants young Chinese scientists a one-week customised trip to French labs. Since 2011, the Zhang Heng programme – in partnership with the Chinese Academy of Science – has made it possible for young French scientists coming for a short trip to China to meet potential partners.

The French Embassy in China also supports bilateral workshops or symposia where French and Chinese researchers meet in China to discuss a specific topic and cooperate on it (Xu Guangqi programme).

Eventually, the science network of the French Embassy in China organises conferences with well-known French scientists in so-called 'Cafés des sciences': French experts like Françoise Barré-Sinoussi, Nobel Prize in medicine, has given informal lectures.

Focussing on young researchers

The Cai Yuanpei programme is one of the most important mobility schemes with China. It was launched in 2009 and is co-funded by France (Ministry of Foreign and European Affairs, Ministry of higher education and research) and China (Ministry of Education via the China Scholarship Council). This programme targets French and Chinese PhD candidates and their respective supervisors and postdoctoral researchers. Its objective is to develop high

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standards for scientific and technological exchanges between the labs of the two countries and to facilitate co-supervised theses.

Reinforcing excellence

France targets and encourages excellent Chinese graduating students to pursue a PhD in France by promoting French doctoral schools once a year in many Chinese cities. The *Agence nationale de la recherche* (ANR), the national funding agency, also offers chairs of excellence for junior and senior researchers.

Mobility scheme for actors in the private sector

In connection with the French Ministry of Industry, the French Embassy in China fosters cooperation between French clusters and Chinese technology parks. It offers grants for a tandem SME/scientist looking for partners in Chinese labs.

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ANNEX 2 China as a partner: Context and priorities

Setting the scene: Globalisation of science - implications for Europe

Reinhilde Veugelers (BE)⁶

The shifting geographic landscape in science and technology does not imply a decline of the traditional powerhouses of the US and Europe, but demonstrates strong growth for some new players, most notably China. The growth in China is uneven: while it focuses on specific fields such as chemistry, physics and engineering, other areas, such as the life sciences, are still relatively weak. The expenditures on R&D are rapidly increasing, as is the human capital in science and technology. Still, the picture of Chinese S&T is uneven in terms of quality, geographical distribution and scientific areas.

The Chinese system is heavily influenced by foreign diasporas of students and networks. For a long time, there has been a steady flow of students to the US, with a clear tendency to stay, thereby enriching the US science system. With return mobility, there is a growing and sustainable network of scientists between the two countries. The US has benefitted tremendously from its open model, as has China, which may rely on the resulting viable networks and skills. Europe is more closed and is not taking part in the dynamic exchange of human capital; instead, it is focussed more internally on ERA dimensions. If Europe is to benefit more from international mobility, it needs to rethink its model and become more open. Excellence needs to be the driving force, and attracting and training human capital needs to be a key priority.

Why work with China: Key issues in Chinese Science and Technology

Svend Remøe (NO)

The science and technology policy agenda in China will be significantly influenced by ongoing, key transformations of the Chinese economy and society. The Chinese system of S&T is growing rapidly, and China is on its way to becoming the second largest producer of knowledge next to the US. Europe is also a significant player and is not losing ground in an

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See also Bruegel Policy Brief 2011/3: 'A G2 for science?'

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absolute sense, but it needs to ensure benefits and stimulus from this development. China is also already an economic superpower, with growth in R&D spending exceeding the growth rate in GDP. This is evident in the case of the National Natural Science Foundation of China (NSFC), which has dramatically increased its budget. It illustrates well that S&T is at the heart of the Chinese industrialization strategy, with a highly integrated link between science policy and industrial or economic policy. Investments in S&T are clearly policy driven, as is expressed in the new 12th five-year plan.

The ongoing challenges and transformations are the keys to developing an S&T agenda:

- The domestic market is growing, with a growing middle class, new business models and more push for indigenous innovation;
- There is a growing concern about the development model, with ambitious targets to reduce CO₂ emissions, to promote energy conservation, to develop renewable energy and to clean up environmental damage. China will become a superpower in green technologies;
- There is a growing challenge related to health and welfare, and China is ageing rapidly;
- Urbanization is changing China, bringing an integrated S&T agenda with it, including welfare, transport and green technologies. The urbanization rate will reach 70% by 2035, and by 2025 China will have 219 cities with more than one million inhabitants. This is mirroring a global development, where 600 centres globally represent some 60% of global GDP.

Europe should work with China on areas of common concern, in particular green technologies and urbanization, and take more advantage of the growth in the Chinese S&T system. China also represents enormous opportunities for European businesses and a global partner for cooperating on scientific infrastructures.

Technological trends in China: Future perspectives

Manfred Horvat (AT)

China's mid-and long-term policies are characterised by the high priority given to R&D and innovation and the close link between S&T policies and industrial policy. This has been the case since the mid 1980s and has become even stronger since then. At present, 8 out of 9 members of the Standing Committee of the Communist Party of China (CPC) are scientists and/or engineers. That might change, however, in the course of the political changes due to take place next year.

China's unquestionable success in R&D is based on systematic planning and the implementation of policies. Since 1985, the Chinese R&D and innovation system has been continuously developed, based on mid- and long-term plans and on five-year plans that define priority areas, instruments and measures as well as targets.

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In 1985, the National Natural Science Foundation of China (NSFC) was established, following the model of the US National Science Foundation. The Ministry of Science and Technology (MOST) runs long-term research and infrastructure programmes and plans to develop excellent universities; the Chinese Academy of Sciences has been radically reformed. However, it is a clear policy priority to push enterprises taking the lead in R&D and innovation.

At present, the National Medium- and Long-term Plan for STI (2006-2020) provides a framework that in principle is similar to Europe 2020, but which provides much more detail. The guiding principles are as follows:

- Indigenous innovation ('re-innovation' based on assimilation and the absorption of imported technologies)
- Leapfrogging in priority fields that are linked to the national economy and to people's livelihoods
- Enabling development via breakthroughs in key technologies for sustainable economic and societal progress
- Deploying frontier technologies and basic research for creating new market demands and new industries.

Priority is given to technological development (82.8%) compared to applied research (12.6 %) and basic research (4.6 %). The S&T areas are as follows:

- 11 major areas for economic and social development (68 topics): Agriculture (9), energy (5), the environment (4), IT (7), manufacturing (8), national defence, public health (5), public security (6), transportation (6), urbanisation (5) and water and mineral resources (7).
- 16 mega-projects in the areas of: Biotechnology, IT, major pressing issues concerning energy, resources and the environment, public health, dual-use technologies and defence technologies.
- Frontier technologies: Aerospace and aeronautics, biotechnology, energy, IT, lasers, manufacturing, advanced materials and marine technology.
- Basic research: Basic disciplines, frontier scientific issues, response to major national strategic needs and major scientific research programmes (developmental and reproductive biology, nanotechnology, protein research, quantum research).
- In terms of mega-projects, such as advanced machine tools and manufacturing technology, AIDS, hepatitis and other major diseases, core-electronic components, high-definition earth-observation systems, advanced nuclear reactor technology, large aircraft and manned space-flight, other ministries and agencies are also working together.

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A spectrum of measures need to be considered when implementing the plan: reform of the S&T system and the further development of the National Innovation System; major policies and support measures; S&T infrastructures and a focus on human resource development for research.

In October 2010, the State Council decided to accelerate the development of strategic emerging industries: energy conservation and environmental conservation, information technology, biotechnology, large-scale machines (civilian aircraft, space technology, railways, off-shore exploration, intelligent manufacturing), clean energy, new material and electric vehicles. China can be expected to take the lead in some areas of renewable energy, such as electric vehicles. In the area of genomics, the BGI (former Beijing Genomics Institute) is the strongest institute worldwide, with a branch in Denmark and the US. More branches are planned in the EU. The strongest super computer is in China, with another computer that is three times stronger coming later this year.

In March 2011, the 12th Five Year Plan for National Economic and Social Development 2011-2015 (FYP) was launched. It is the basis for the development of detailed plans in all policy sectors, including S&T, during the subsequent weeks and months.

The key general objectives of the FYP can be summarized as ‘greening China’ and developing an ‘enterprise-centred, market-oriented and integrated innovation system based on the knowledge triangle’.

The 985 Programme, launched in May 1998, aims to promote some 40 Chinese universities to be considered among the top league of universities worldwide. Among these universities, China’s C9 League includes universities⁷ that already excel in areas such as materials, plant and animal sciences, mathematics and geosciences.

Building on the past Knowledge Innovation Programme (KIP), the Chinese Academy of Sciences (CAS) follows ambitious plans for further institutional development. In February 2011, the CAS Innovation 2020 programme was launched, with ambitious plans to enhance breakthroughs in key areas, to establish new research centres (e.g. in the space sciences, geo-monitoring, clean coal) and to also establish research platforms with industry (stem cell research and regenerative medicine) and three major science parks. In 2011, several pilot projects will be initiated:

- Nuclear fusion
- Stem cells and regenerative medicine
- Calculating the carbon flux between land, oceans and the atmosphere

⁷ Fudan University, Harbin Institute of Technology, Nanjing University, Peking University, Shanghai Jiao Tong University, Tsinghua University, the University of S&T of China in Hefei, Xi’an Jiao Tong University and Zhejiang University.

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- Materials science
- Information technology
- Public health and the environment.

The CAS Roadmap 2050 addresses long-term perspectives. More than 300 researchers were involved in this forecasting exercise, which addressed 18 priority areas. Eight systems for socio-economic development were identified:

1. Sustainable energy and resources
2. Green systems of advanced materials and intelligent manufacturing
3. Ubiquitous information networking
4. Ecological and high-value agriculture and biological industry
5. Generally applicable health assurance systems
6. Ecological and environmental conservation
7. Expanded systems of space and ocean exploration capability
8. National and public security systems.

Furthermore, the CAS Roadmap comprises plans for six initiatives supporting China's competitiveness, seven initiatives for China's sustainability, two initiatives regarding China's national and public security, four initiatives for transformative breakthroughs and three initiatives for cross-disciplinary and cutting-edge research.

The CAS also developed detailed roadmaps and approaches for implementing the plans pertaining to the present development stage of the Chinese innovation systems and its strengths and weaknesses.

Barack Obama and Steven Chu compared China's initiatives towards green technologies and new energy sources to a 'new Sputnik moment'. Both emphasised the need to compete for technological leadership, but, at the same time, to look for areas of cooperation.

The rise of Chinese S&T has great potential for strengthening the global system of knowledge production. The last 25 years of China's development in the area of S&T are remarkable and probably unique in the history of research and technological development. That means that there are also lessons to be learned for Europe. Also, China faces problems of fragmentation or disconnectedness, e.g. due to the specific activities of individual provinces.

China is Europe's largest trading partner after the US and a growing export market. EU companies are becoming integrated into China's production chains; more than half of China's exports are produced by foreign companies. China is moving up the value chain, and there is a steep increase in income from knowledge/know-how and license fees.

China has moved from being a developing country receiving aid to an equal partner for STI collaboration. The evolution is moving from 'made in China' to 'designed in China'. The new Chinese strategies are about quality, increasing consumption and welfare. Today, it is not just a case of China learning from Europe, but also of Europe learning from China, e.g. in

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terms of strategic investments in areas such as green technology. Europe has to understand how quickly China has changed.

A change in the personalities of the Chinese government is expected in 2012. A younger, more technocratic and business-minded generation will move in and should strengthen the current national policies in STI to make China a 'country driven by innovation'.

Important contingents of Chinese students (PhDs) are being sent abroad to study at the best universities and institutes in the world. The percentage of those returning to China is growing. They often return to China as researchers at the top of their career, not right after their PhD studies. For the US, this does not crowd out their 'native' students; the Chinese in fact add in a disproportionate way to the top US science. Europe is working principally on the ERA and remains less positioned in terms of internationalisation. It is missing out on the flow of researchers and PhD candidates. As mobility increases, Europe is missing out on opportunities to build relationships and networks for further collaboration ranging from the purely scientific to industrial R&D.

The availability of thorough statistics on mobility related to junior and senior researchers is still lacking for Europe as a whole. In general, European students and researchers do not seem strongly attracted to China, and Europe seems to face difficulties in attracting the best Chinese young scientists, who seem to be more interested in going to the US.

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Agenda

APPROACHING CHINA: TOWARDS A MORE COHERENT EU/MEMBER STATES CHINA STRATEGY

3 May 2011

Venue: Finland's Permanent Representation to the European Union, Rue de Treves 100

09:00 – 09:30	Registration
09:30 – 09:40	Welcome and introduction: <i>Mr Isi Saragossi (European Commission) and Ms Tiina Vihma-Purovaara (on behalf of the Finnish SFIC-team)</i>
09:40 – 10:00	Globalisation of science - implications for Europe Ms Reinhilde Veugelers (BE)
SESSION I: Science, technology and innovation trends in China and Member States' cooperation experiences <i>Moderator: Ms Kati Shibutani (FI)</i>	
10:00 – 10:15	Why working with China? Key issues in Chinese S&T development Mr Svend Remoe (NO)
10:15 – 10:30	Technological trends in China: Future perspectives Mr Manfred Horvat (AT)
10:30 – 11:00	Coffee break
11:00 – 12:30	Member States' experiences in STI cooperation with China I Mr Peter Volasko (SI) <i>'The Experience of the Slovenian S&T Cooperation with China: A perspective from a small Member State'</i> Mr Ingolf Schaedler (AT) <i>'Austrian-Chinese cooperation on science and industry relations'</i> Followed by a discussion
12:30 – 13:30	Lunch break
13:30 – 14:30	Member States' experiences in STI cooperation with China II Mr Ignacio Atorrasagasti (ES) <i>'Spanish perspectives on the Research Cooperation with China'</i> Mr Richard Holdaway (UK) <i>'UK-China collaboration in Space Science & Technology'</i> Rapporteur: Ms Claudia Bernarding (DE) Followed by a discussion
SESSION II: What kind of strategy? <i>Moderator: Ms Tiina Vihma-Purovaara (FI)</i>	

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14:30 – 16:00	Member States' strategies for STI cooperation with China: long term concerns and perspectives Ms Florence Lelait (FR) ' <i>French views on S&T cooperation with China</i> ' Mr Lars Christensen (DK) ' <i>The Strategy for Knowledge-based Collaboration between Denmark and China</i> ' Rapporteur: Ms Angeles Macias (ES) Followed by a discussion
16:00 – 16:30	Coffee break
	SESSION III: How to set priorities? Moderator: Ms Sigi Gruber (European Commission)
16:30 – 18:00	Process and criteria to select the priorities for EU Member States-China STI cooperation Ms Sylvia Schwaag-Serger (SE) ' <i>Designing a strategy for science, technology and innovation cooperation with China - the Swedish experience</i> ' Mr Martin Barth (DE) ' <i>Process to identify fields of cooperation between Germany and China in S&T</i> ' Rapporteur: Mr Stijn Verleyen (BE) Followed by a discussion

4 May 2011

Venue: Hotel Renaissance, Brussels, Rue du Parnasse 19

	SESSION IV: Promising ways for STI cooperation with China – Part I Moderator: Ms Ana Cristina Neves (PT)
09:00 – 10:00	Collaborative research with China through mobility – bilateral exchange programmes with China Scholarship Council, Marie Curie schemes, etc. Mr Philippe Martineau (FR) ' <i>Programme Hubert Curien Cai Yuan Pei</i> ' Ms Alessandra Luchetti (European Commission) ' <i>Overcoming bottlenecks in European-China researchers mobility</i> ' Rapporteur: Mr Are Straume (DK) Followed by a discussion
10:00 – 11:00	Collaborative research with China through coordinated calls and joint programmes Ms Christine Buzeczki (AT) ' <i>Sino-Austrian Research Programme on Traditional Chinese Medicine</i> '

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	<p>Ms Ulla Ellmén (FI) '<i>From bilateral to trilateral collaboration: Experiences of the Academy of Finland</i>'</p> <p>Rapporteur: Ms Jessica Mitchell (EU Delegation Peking)</p> <p>Followed by a discussion</p>
11:00 – 11:30	Coffee break
11:30 – 12:30	<p>Developing joint labs, institutes and infrastructures</p> <p>Ms Christina Bording (DK) '<i>Sino-Danish University Centre in Beijing</i>'</p> <p>Mr Giuseppe Martini (IT) '<i>Bridging with China through European Research Infrastructures</i>'</p> <p>Rapporteur: Ms Florence Lelait (FR)</p> <p>Followed by a discussion</p>
12:30 – 13:30	Lunch break
	<p>SESSION V: Promising ways for S&T cooperation with China – Part II</p> <p>Moderator: Ms Ulla Mäkeläinen</p>
13:30 – 14:30	<p>Improving the level-playing field: framework conditions in cooperation with China</p> <p>Mr Niels Junker Jacobsen (European Commission): '<i>China's technological development and aspirations: Trade aspects</i>'</p> <p>Ms Sylvia Schwaag-Serger (SE): '<i>Science and Technology cooperation aspects</i>'</p> <p>Rapporteur: Mr Svend Remoe (NO)</p> <p>Followed by a discussion</p>
14:30 – 15:30	<p>Raising the visibility: a European House of Research and Innovation and a network of think tanks</p> <p>Mr Philippe Vialatte (EU Delegation Peking) and Mr. Carl Jeding (SE Embassy in Peking)</p> <p>Rapporteur: Mr Manfred Horvat (AT)</p> <p>Followed by a discussion</p>
15:30 – 16:00	<p>Final conclusions: Towards a coherent EU/Member States strategy vis-à-vis China</p> <p>Ms Ana Cristina Neves (PT) and Ms Sigi Gruber (COM)</p>

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Annex 4: Participants

APPROACHING CHINA: TOWARDS A MORE COHERENT EU/MEMBER STATES CHINA STRATEGY, BRUSSELS, 3-4 MAY 2011

Surname	First name	Position/title	Organization
Atorrasagasti	Ignacio	Deputy General Director	Ministry of Science and Innovation
Barth	Martin	Deputy Director	Federal Ministry of Research and Education (BMBF)
Bernarding	Claudia	Senior Scientific Officer	Federal Ministry of Education and Research
Bloquert	Charles	Trainee	Wallonie Bruxelles International
Boehmler	Christopher		Ministry of Science, Research and the Arts Baden-Wuerttemberg
Bording	Christina	Head of Section	Danish Ministry of Science, Technology and Innovation
Bruun	Christian Walther	Head of Section	Danish Ministry for Science, Technology and Innovation
Buriánek	Jiri	Director	General Secretariat of the Council of the European Union
Buzeczki	Christine	Deputy Director of Department II/6	Austrian Federal Ministry of Science and Research
Candela	Milagros	Head Counsellor for Science and Innovation	Permanent Representation of Spain to the EU
Catizzone	Mario	Policy Officer	European Commission
Chen	Maio	Program Manager, SSSTC	International Institutional Affairs (IIA) ETH Zürich
Christensen	Lars	Technology & Research Attaché	Innovation Center Denmark/ Shanghai
Decadt	Brigitte	Advisor	Belgian Federal Science Policy Office (BELSPO)
Dengel	Philipp	Managing Director	Bavarian University Centre for China (BayCHINA)
Ellmén	Ulla	Science Adviser	Academy of Finland
Gruber	Sigi	Head of Unit	European Commission

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Hansteen	Thomas	Special Adviser	The Research Council of Norway STFC Rutherford Appleton Laboratory
Holdaway	Richard	Director, RAL Space	
Horvat	Manfred	Professor Science and Innovation	Vienna University of Technology
Jeding	Carl	Counsellor	Embassy of Sweden in Beijing
Judak	Peter	Senior Counsellor International Relations Officer/ Trade Relations with China	National Innovation Office European Commission - DG Trade B2: Trade relations with the Far East
Junker Jacobsen	Niels		Slovenian Permanent Representation to the EU Ministry of Higher Education and Research
Kralj	Albin	Science Counsellor	
Lelait	Florence	Dr Deputy Head of Unit C3: People Programme; Marie Curie Actions	European Commission - Education and Culture
Luchetti	Alessandra		
Macias	Angeles	Technical Adviser	MICINN Finnish Environmental Cluster for China FECC
Makkonen	Ari	Executive Vice President	
Martineau	Philippe	Conseiller Adjoint	Ambassade de France en Chine Consiglio Nazionale delle Ricerche, Department of Life Sciences
Martini	Giuseppe	Director	
Mitchell	Jessica	Attaché S&T	EU Delegation Royal Netherlands Academy of Arts and Sciences
Montulet	Annemarie	Co-ordinator China Desk UK Counsellor (Science & Innovation), Beijing	
Myers	Sam		Foreign & Commonwealth Office
Mäkeläinen	Ulla	Counsellor of Education	Ministry of Education and Culture Knowledge Society Agency, Ministry of Science, Technology and Higher Education
Neves	Ana	Head International Affairs	
Norager	Sofie	Policy Officer	European Commission
Paasi	Marita	Development Manager	Tekes
Parkkulainen	Nina	Department Secretary	Ministry of education and culture

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Peippo	Kimmo	Administrator	EU Council - General Secretariat
Prange-Gstoehl	Heiko	Research Programme Officer	European Commission
Remoe	Svend Otto	Special Adviser	Research Council of Norway Ministry of Education and Research
Räim	Toivo	Adviser	
Saragossi	Isi	Director	European Commission Austrian Federal Ministry for Transport, Innovation and Technology
Schaedler	Ingolf	Deputy Director General Executive Director International Strategy and Networks	VINNOVA DLR / International Bureau of BMBF Ministry of Employment and the Economy Department for Business, innovation and Skills DLR / International Bureau of BMBF Danish Agency for Science, Technology and Innovation
Schwaag-Serger	Sylvia		
Shen	Xiaomeng		
Shibutani	Kati	Senior Adviser Head of Emerging Economies Team	
Spawls	Fran		
Stiller	Frank		
Straume	Are	Head of Section	
Thivolle	Jean-Claude	Policy Officer	European Commission
Thoen	Vincent	Senior Adviser/PhD Scientific Programs Assistant	Voka The Scientific and Technological Research Council of Turkey Ministry of Innovation of the German State of North Rhine-Westphalia TuR&Bo - ppp, Turkish Research & Business Organizations Research Foundation Flanders (FWO)
Tiltak	Nihan	Expert	
Wappelhorst	Michael H.	Head of Unit International Cooperation	
Wedekind	Gerben	European Advisor	
Verleyen	Stijn	Senior Science Administrator	
Veugelers	Reinhilde	Professor Head of Science and Technology	K.U.Leuven Delegation of European Union to China
Vialatte	Philippe	Section (First Counsellor)	
Vihma- Purovaara	Tiina	Counsellor of Education	Ministry of Education and Culture

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