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THE EUROPEAN AND CHINESE COOPERATION IN THE FIELD OF TECHNOLOGY TRANSFER

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The increase in the emission of greenhouse gases (GHG) currently represents an upward trend. As a result, due to the obvious link between rapid economic growth and GHG emissions, it is necessary to examine the role that developing countries, especially the most prominent ones – such as the People’s Republic of China (PRC) – play in this instance. Many scholars claim that these countries will soon exceed current Western levels of emissions. GHG represents one of the main causes behind climate change (CC), which in itself constitutes a global challenge.

There are different approaches to tackling CC, with one option being the optimal use of technology. In effect, with the emergence of more efficient, sustainable and respectful new technologies, solutions can adequately be found to reverse this upward trend. However, economic, scientific and human resources are needed to develop adequate technology – all of which are often lacking in developing countries. As a basic means by which to transmit human and scientific expertise through education, academic literature or direct exchanges, the utility of the concept of technology transfer (TT) becomes apparent. Moreover, this utility is enhanced by the fact that TT is as much able to cross borders as the threat of CC is. This mobility is caused by the interaction between TT providers and recipients, such as the EU and the PRC respectively. The EU promotes and leads the fight against CC as well as promoting the use of sustainable and renewable technologies. Currently, one of the Chinese government’s top priorities is to reduce the use of coal, carbon and high-intensity energy sources.

EU-China cooperation on technology transfer

The EU supports China in its domestic reform, eco-friendly economic growth and market-oriented modernisation. As a result of China’s rapid economic growth, incomes have increased in conjunction with the rates of urbanisation, which have led to sharp increases in energy demands. The EU is China’s top supplier of technologies and services as well as China’s second most important source of high-tech products. Cooperation in the field of science and technology (S&T) between China and Europe dates back to 1981. Thanks to the 5th Framework Programme for Research and Technological (R&T) Development (1994-2002), cooperation between the EU and China in this sector was significantly enhanced. Within this timeframe, the S&T Cooperation Agreement was signed in 1998. This agreement improved the scope and depth of research carried out between the two partners. Later on, in mid-2001, the joint EU-China S&T Cooperation Promotion Office (CECO) was created in Beijing by the Chinese Ministry of Science and Technology. CECO

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assisted Chinese institutions and researchers seeking to participate in the Framework Programme. At that time, several programmes generated new possibilities in the field of S&T, such as the Galileo satellite system, the International Thermonuclear Experimental Reactor (ITER), and the National High R&T.

At the S&T Policy Forum in 2005, the main issues on the agenda included the deployment of low carbon technologies, the enhancement of energy efficiency, clean coal technologies, power generation and renewable energy. In the following year, the China-EU Year of S&T took place. In a speech given by Commissioner Potočnik, he listed technological developments in the fields of energy, water resources and environmental protection as the main priorities to be tackled, whilst stressing the need for the implementation of R&D projects in the field of renewable energies, such as wind power, solar energy or biomass energy. In November 2009, in Nanjing, the S&T Cooperation Agreement was renewed for another five-year period. One of the latest initiatives was the EU-China S&T Week. It took place during the World Expo, in June 2010, in Shanghai. The main topics discussed were CC, energy, the exchange of know-how and transport.

As aforementioned, China's energy demands are constantly increasing: its industry sector consumes 70% of its energy resources, whilst 70% of China's total energy consumption is dependent on coal. For this reason, the Eleventh Five-Year Plan (2006-2010) set targets to reduce energy intensity by 20% per unit of GDP, by 2010. In parallel, the latest R&T issues are all listed as priority objectives in the 7th Framework Programme (2007-2013), which is the EU’s main instrument for funding research. The Chinese government is aware that in order to upgrade the country’s technology base, it will need to obtain European technological advances for sectors in which it suffers from a deficit, especially if it expects to export its own products in a globally competitive market over the long-term. This explains the reasons behind the Chinese strategy of collaborating with foreign partners on large joint-ventures in order to benefit from their technology, such as the 3G standard for Mobile telecommunications agreement signed between Datang in China and Siemens in Germany.

The areas for cooperation are vast. At first, the priorities were focused on energy, biology, biomass energy, telecommunications, aeronautics and space. Of late, TT has taken a step further by embracing high-tech products and energy efficiency. Nowadays, the priority has shifted to clean energy, renewable energy and low carbon markets. All these issues require cooperation on R&D, in both the public and private sectors, in terms of innovation, legislation and international norms. Therefore, cooperation regarding TT covers a wide range of different aspects.

**Opportunities and obstacles for bilateral cooperation**

The main purpose of the partnership is to improve ties so as to obtain more successful outcomes. Thus, in order to put forward a better conceptualisation of this cooperation, it is necessary to outline both the opportunities and obstacles to this cooperation.
On the one hand, there are obstacles due to the domestic contexts of these two respective partners, such as: insufficient legislation; low-levels of investment in R&D; lack of sufficient incentives for innovators or investors; slow diffusion processes; poorly protected intellectual property rights (IPR); European concerns over potential economic losses; the obligation for European companies to establish joint-ventures with Chinese firms; protectionism in the Chinese market; barriers to European foreign direct investment; and the quasi-absence of Chinese investments in Europe. Furthermore, bilateral cooperation is threatened by fragmented and poorly defined technology markets; the slow adoption and implementation of IPRs; the high cost of producing technologies (patents); the lack of public support (job losses); the need for suitable equipment in the recipient country; the lack of fixed national and international objectives and measures; costly and risky capacity-building; the lack of competition (premature technology selection); and the mismanagement of time and resources.

On the other hand, there exist many opportunities for this cooperation, for instance: the amelioration of R&D; flexible mechanisms for public and private sector financing; company incentives (fiscal incentives, subsidised credit and better market access); the upgrading of industrial structures; and the improvement of academic exchange programmes (working groups) between the EU and China. Moreover, there exists a multitude of possibilities for cooperation in this field, for example: via the creation of innovation centres for research; the creation of regional TT centres as a one-stop-shop; public-private partnership projects; international trade and investment on climate-friendly technologies; new cost-efficient models of technological cooperation; the stimulation of innovation via the introduction of prizes; the establishment of a TT fund to assist rewarding innovations; the creation of a micro-credit system; cost-effective portfolios to meet stabilisation targets; financial increases targeted at local capacity enhancing activities (LDCs); the restructuring of the current IPR regime (by limiting the duration of the patent protection, by a relaxation of standards or by the establishment of an overarching IPR mechanism).

In short, EU-China cooperation in the field of TT presents more opportunities than obstacles. However, the threats identified need to be rapidly addressed.

The impact of cooperation on the bilateral fight against climate change

CC plays an important role in both the PRC and the EU’s respective environmental security strategies. Both partners are active in multilateral processes and international forums. They have also equally signed international agreements and protocols in the United Nations Framework Convention on Climate Change. In 2005, they established a bilateral framework for cooperation on CC matters, entitled the EU-China Partnership on CC, which is supported by a Rolling Work Programme of collaborative projects.

TT is one of the most effective and well-known approaches for dealing with CC. Two methods, mitigation and adaptation, can be used to alleviate the impacts of CC. TT has been identified as one of the essential processes
used for mitigating the threat of CC and the resulting environmental damage. This is especially important when considering the fact that GHG mitigation and adaptation are heavily dependent on TT and the dissemination of knowledge. This is the reason why TT has been included in all CC policies, as it cannot be made separate from any policy response to GHG mitigation and adaptation.

GHG emissions and the effects of CC can be mitigated and adapted to present needs via the application of new and sustainable technology. The EU, as a leader in environmental issues, is well aware that China is one of the most important partners in the fight against CC, due to its commercial weight, its rapidly growing economy and its dependency on coal. In fact, cooperation on TT offers a real opportunity to develop clean energy technologies as well as innovation in the field of S&T.

The scope for bilateral cooperation is very large within this framework and it has been directly influenced by the increasing environmental awareness of policymakers on both sides, who have moved rapidly to include CC risk management in their national development strategies. Nowadays, the use of efficient energy technologies constitutes a matter of national security and survival in China as much as in the EU. Furthermore, as TT is interlinked with energy and CC, sectoral approaches have broadened participation in emission reductions.

In this partnership, the need for rapid diffusion of new energy and climate technologies is stated as a crucial objective. The EU aims to assist China in its realisation of the targets set out in the Kyoto Protocol by purchasing 77% of carbon credits generated in China by 2012. In order to do so, the EU has outlined three main goals: the capture and storage of CO₂ emissions from coal-fired power plants; the reduction in costs of key technologies; and the promotion of their deployment. Thus, this bilateral cooperation aims to develop better and cheaper technologies, and to research on carbon capture and storage technology through the expanded usage of close-to-zero energy technology (for instance on low-carbon and sustainable liquid transport fuels, such as biofuels). At the same time, the Chinese government has also focused on energy efficiency and conservation, by emphasising the importance of developing its own renewable technologies in the energy sector.

China’s industrial policy actively encourages the transfer of foreign technology. For this reason, the EU and the PRC have created and implemented several projects. The most positive results have emanated from the following projects and programmes: the EU-China Clean Development Mechanism (CDM) Facilitation Project, the EU-China Energy and Environment Programme (EEP), the EU-China Cooperation on Carbon Capture and Storage (CCS) and the Switch-Asia Programme. In all these projects, transfer mediums for knowledge and innovation are fundamental in order to develop Clean Development Mechanism (CDM) tools, to improve efficient energy technologies and to develop technologies for low-carbon capture. These points are crucial because currently, the technology used to reduce GHG emissions and low-carbon capture is inefficient.

Yet, despite the consensus on the need for increased TT to tackle CC,
there is still no coordinated policy on TT mechanisms with China, within the Copenhagen framework. In order to obtain more specific outcomes from this cooperation, the EU is looking for TT mechanisms that are effective in dealing with the specifics of China’s features. However, these obstacles subsist, due to the fact that European companies only export secondary standard environmental technology. This obstacle is caused by the fear that these companies hold towards their Chinese counterparts, whom they suspect may attempt to copy their product without paying the cost, thus reducing their profits. In order to prevent this, European companies have acted rapidly in protecting their creations via patents, to be potentially used against fraudulent Chinese counterparts before a court of arbitration. Yet, this protection has direct implications with regards to the price of European environmental technology – the application of the patent causing the inflation of the price of environmental technology. In addition, two further obstacles remain in the energy sector: high import duties on finished energy systems and reluctance to cooperate with Chinese partners on access to energy resources.

In short, the main goal of CC policies is to reduce GHG emissions. The reduction of these emissions will affect not just a region but the entire planet. TT has a vital role to play in making CC adaptation and mitigation possible. TT cannot be made separate from energy, CC or sustainable development policies or projects, because without sharing expertise, capabilities and green technology, it is impossible to reduce CO² emissions. The industry sector has a crucial role to play with regards to these emissions, as do governments in terms of promoting the use of green technology and disseminating wider information and better access of green products to consumers. Therefore, implementing TT creates a win-win outcome for both providers and recipients.

**Conclusion**

The joint effort of these two partners presents, on the one hand, many strengths and opportunities, due to TT’s underdeveloped nature. Despite its huge market potential, China depends on the EU’s determination in matters such as the CDM, TT and capabilities reinforcement. On the other hand, there are obstacles and divergences between the PRC and the EU. On the Chinese side, the EU is expected to provide funding, investment, and cheap access to energy and technologies to reduce GHG emissions. Chinese companies have also denounced European protectionism as preventing them from learning how to use and promote these technologies. On the European side, there is an obvious fear, because of China’s incredibly rapid absorption of foreign technology that IPRs are not always respected thus culminating in job losses – a fact which is not well received by Europeans in the midst of a severe economic crisis. For this reason, companies are demanding an equivalent economic compensation for the diffusion of their technology.

Finally, both regions have started to work on their domestic legislation, whilst collaborating on S&T and R&D projects. The steps taken over the last ten years demonstrate the mutual willingness to pursue this complex target. Moreover, the programmes and projects already in place – to improve the development and deployment of renewable technologies or carbon capture...
and storage – have been very effective. Therefore, it is ascertained that the EU and China will proceed towards a deeper and stronger collaboration in a common effort to adapt and mitigate CC. They have moved one step closer to accomplishing this goal by applying one of the most useful strategies possible, technology transfer.
MODELS OF GLOBAL COMMUNICATION IN COMPARISON AND CONTRAST: CHINA, THE EU AND THE US

Wenshan Jia & Xuanzi Jia*

The first decade of the 21st century has witnessed the emergence of a multipolar world consisting of three global powers – China, the EU and the US (listed in alphabetic order). Based on the analyses of large relevant bodies of available discourse broadly defined with reference to China, the EU and the US, to expand a paper published at an earlier date,1 the present paper argues that while China and the US tend to brand themselves as fulfilling their prophecies, the EU tends to brand itself in line with its ideal of “unity in diversity.” While the US tries to present itself as an individual (national) self, strong in appearance, likable (soft power) and intelligent (smart power), China tries to present itself as a communal and moral self whose ideal self-image consists of a civilised, aesthetically appealing, peace-loving nation, who upholds the vision of building a harmonious society, harmonious Asia and a harmonious world (thus applying the Confucian ideal of datong that signifies global unity or harmony).2 The EU, however, seems to be in-between the Chinese communal model and the American individualistic model, whilst searching for the balance between unity and diversity among its 27 member states. In effect, it appears that with the Chinese model rooted in tradition and the American model is stuck in modernity, the EU’s model is trying to go beyond modernity so as to construct itself into a supranational entity founded on post-modernity.3

Through the branding of its style, the US is trying to prevent the decline of its superpower status. China, however, is caught between promoting itself as a dragon aggressively seeking peaceful rise4 and presenting the gentler image of a panda seeking peace and development.5 While China is obsessed with the concept of image, the US is obsessed with the concept of power. The EU, on the other hand, has been painstakingly juggling and

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seeking the ideal balance between externally-directed unity and internally-directed diversity – or “unity in diversity” – since 2000, which sets the benchmark for the new “European identity.”

**Different philosophies and theories**

While image/harmony is rooted in the Confucian/Daoist concept of junzi (manhood) and shengren (wisdom), thus implying practising moral cultivation, valuing selflessness, co-humanity or interest sharing (liyi gongxiang) and harmony, the concept of power, to which the modern West is obsessed both in theory and practice, does the job of persuasion, influence, or coercion by applying hard, soft, or smart power. Therefore, by its very nature, the concept of power is self-centred, self-motivated, and self-serving. The concept and vision of unity in diversity adopted by the EU is a result of the creative postmodern fusion of universalism and relativism. These concepts were previously viewed as polar opposites by Europe, which used to identify with modernism and its analytical philosophy over relativism. However, today, the EU has fused both concepts into an overarching value system which shapes the EU’s domestic and global policies.

These three different global branding models reflect the three different value orientations of three separate civilisations. Each of these civilisations may very well be in competition with one another. It seems that while the Chinese model seeks to cultivate global harmony, the American model seeks to maintain global leadership/dominance and the EU’s model seeks the ideal balance between individualism and collectivism. Due to their different cultural and intellectual traditions, these different global branding strategies inevitably generate different foreign policies, different diplomatic styles, different sets of diplomatic behaviour, and different consequences in their dealings with the rest of the world.

Having analysed three separate streams of elite discourse, we have tentatively substantiated these theoretical claims. From our findings, we were able to draw the following conclusions regarding the three different models of global communication: first, due to the fact that the three global powers have different models of global communication, relations among them remain complex yet discernible. While there is a significant divergence between the Chinese and American models, the EU’s model is partially consisting of both the Chinese and American models. Since the EU’s model is trying to transform modernism whilst incorporating the communal values found in the Chinese model, the EU is thus finding it easier in making new friends with countries such as China, than preserving its old friendship with its

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transatlantic ally. Second, based on this analysis, if neither China nor the US tries to transform their respective models of global communication or adapt to each other, there is a stronger probability that tensions will increase between China and the US than between the EU and China or the EU and the US. As a result, there is also a stronger chance that both China and the US will turn to the EU as the inevitable mediator in case of an escalation in tension between the two actors. Unsurprisingly, the EU would then be the most likely candidate to emerge as the potential leader between the three global powers, thus emerging as the dominant global power, outdoing the US and China.

Furthermore, there is an aesthetic dimension to the image model whose effect cannot be ignored. Embedded in China's image model is the more holistic model of indirect persuasion, or rather, subconscious cultivation, an indirect, long-term and contextual model fostering changes of perception, attitude, behaviour, personality, and ultimately identity by applying either mythology or culture. On the contrary, the power model, whether it be hard, soft, or smart, appeals to direct and short-term shock models of persuasion/coercion, using either hardware of destruction, the software of information, communication, arts and culture, or a fusion of both hard and soft instruments. The power model, which is rooted in the West's missionary tradition, is programmed to conquest mind or body, or often both. Unfortunately, it does not carry with it an aesthetic dimension. As a result, Meiguo, which in Chinese means "beautiful state," would not appear beautiful anymore in the eyes of Europeans, Asians or Latin Americans. This is mainly due to the fact that the power model is perceived by the global audience, China included, as sheer imperialism, simply because it is exclusively adopted by the US and because it focuses on the concept of power and the effect of power in communication. Paradoxically, the power model itself, for its very self-centred nature, inherently lacks the attractiveness that Joseph Nye had originally hoped for American power (be it hard, soft, or smart). In contrast, the EU's unity in diversity model seems to focally "realise the potential to be ‘for itself’" with a secondary concern in exerting its power beyond “what is ‘in itself.’” If one regards the EU as a power, it could be regarded as “a neutral and ‘in-itself’" power which has been trying to construct its own integral identity as a supranational entity. In other words, the EU as we know it, unlike the US, is not seeking global dominance, but seeking global harmony.

**Different strategies and consequences**

China's image model and the US' power model are in stark contrast. For example, China's image model can easily be illustrated when making reference to the four mega-events of global public relations and public diplomacy that took place in the first decade of the 21st century. The first is the Beijing 2008 Olympic Games; the second is the 2010 Shanghai World Expo; the third is the 2010 Guangzhou Asian Games; the final one is the International Horticultural Exposition in Xi’an, which has been taking place since late April 2011. In addition, in January 2011, China globally aired its
“National Image Publicity Film.”\(^9\) All these events demonstrate the common characteristics shared by the image model – in other words, highlighting visual aesthetics to attract the attention of the international audience, facilitating intercultural/global communication and mutual understanding, and enhancing China’s charisma around the world. China has also created a few influential forums in partnership with a handful of Asian countries, aiming at cultivating economic, political and cultural relationships with Asian countries, Euro-Asia countries, ASEAN member states, and other countries around the world, thus expanding China’s regional and global scope and influence. The Boao Forum for Asia, founded with the Hainan Island as the permanent forum site in 2001, was created with the intention of being viewed externally as an Asian version of the Davos Forum (also known as “The World Economic Forum”). The Euro-Asia Economic Forum, a platform run by the Shanghai Cooperation Organisation, founded in 2001 in Shanghai, has also been held biannually since 2005.

The China-ASEAN Expo, founded in Nanning, has been held annually since in 2004. In early September 2011, the China Euro-Asia Expo will be launched in Urumqi, Xinjiang.\(^10\) This event will constitute a new platform for Euro-Asia economic integration, thus advancing China’s image in the Euro-Asia region. The initial aim behind this idea was to revitalise the Ancient Silk Road between China, Central Asia, Western Asia, South Asia, Eastern and Western Europe. The Silk Road is said to have helped build the most prosperous and powerful dynasty in Chinese history – the Tang Dynasty (618-907 A.D.) – when China was considered to be the centre of the world.

In contrast, in the first decade of the 21st century, the US has engaged in three consecutive wars – the war in Afghanistan, the war in Iraq and now the war against Libya – while simultaneously fighting the financial crisis. These wars have significantly undermined the international audience’s respect for the US, despite the fact that the US has made the greatest contribution to global security and economic prosperity over the past two decades. Though the election of Barak Obama as the first Black President of the US is as globally impactful as, if not more than, China’s Olympic Games, the success of Obama’s effort to maintain and reinvigorate the US’ soft power remains to be seen.

The EU, on the other hand, has been more active in furthering its integration process by constructing a unique political civilisation – a supranational political structure based on laws that maximise both unity and diversity, which represents a system unprecedented in the history of humanity. If the EU has not garnered as much global attention and global impact as intended, it certainly has created bountiful potential and resources to be deployed for sustained global attention and long-term impact. Thus, the EU has taken a greater step ahead of both the US and China, who sometimes seem to be paralysed within the restrictive modernist paradigm of bordered nation-states.


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The dynamics of the triangular relationship between China, the EU and the US

China, the EU and the US are not only global rivals, but also globally interdependent. Firstly, the trio are economically interdependent. While the EU (in conjunction with all its member states) is China’s first trading partner, the US is China’s second trading partner. Politically, however, it is a different story. While the US has been fighting terrorism since 9/11, the EU has been growing leaps and bounds despite its multilateral approach sometimes clashing with the US’ unilateralist approach to global conflicts. While this has enlarged the transatlantic divide, China’s identification with the EU’s multilateral approach has strengthened the EU-China relationship to the level of a strategic partnership. Nevertheless, thanks to the Obama Administration’s soft and smart power strategy, the transatlantic alliance has been rekindled, in part through the form of a joint military operation against Libya – run by NATO, the US, France and Britain – and also by the subsequent visit of President Obama to the UK on 25 May 2011. Though Obama stated that this operation has bolstered “the shared values” within the transatlantic relationship, this statement does smack of an appeal for a racial identity largely shared between the US and the EU. The fact is that Japan, regarded as a post World War II ally by the US, should have warranted a state visit from President Obama following the tsunami that led to the nuclear disaster, instead of the President’s visit to the UK. Alternatively, the Chinese Premier Wen Jiabao took the opportunity to visit Japan. Unfortunately, the global map of this triangular relationship is being redrawn along the lines of racial, cultural and geopolitical conformity.

Conclusion

Throughout this paper, the different global communication models of the three most powerful forces in the present world – China, the US and the EU – have been tentatively identified and described. While China has worked on improving its world image at the cost of paying inadequate attention to social and economic reform, the US has been investing on maintaining its global leadership/dominance at the sacrifice of domestic economic woes. Whereas China’s global communication model centres around the concept of image, the American global communication model is built around the concept of power, whilst the EU’s global communication model focuses on the concept of unity in diversity. The EU has been the most serious in terms of experimenting, preparing and planning for the long-term future. There is a Chinese saying which asks: “Which of the hunters will catch the ultimate prey?” Incidentally, there is an English saying which seems to answer it: “The one who laughs last, laughs best.” So, who will laugh the best or get the ultimate prey: China, the US, or the EU? While some say that it will still be the US due to the fact that it has been and still is the most powerful nation on earth, others say: it will be China, because China is the largest emerging global power. We argue that the EU, for the fact that it has succeeded in

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creating a respectable supranational entity, is most likely to be the one who
laughs last and thus laughs best.