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The Current State of European Union–China High-Tech Cooperation

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Summary

In line with the European policy of supporting China's economic reform and development, research institutes and companies in the European Union (EU) have been the major sources for high-technology exports to the People's Republic of China in the past thirty years. Dual-use technologies ranging from aerospace to semiconductors play a central role for economic development as well as for modern military development, including network-centric warfare. Yet a comprehensive EU paradigm on China's military rise and the impact of these technology transfers has not evolved. The EU–China “strategic partnership” is still dominated by economic considerations. Lack of coordination between the national and the European level contribute to the risks accompanying EU–China collaboration in this field. The differences between EU and U.S. perceptions of China's military rise provide potential for further Transatlantic discord, as happened during the acrimonious debate on the intended lifting of the EU arms embargo on China in 2004–2005.

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DEVELOPMENT OF EU-CHINA SCIENCE & TECHNOLOGY (S&T) COOPERATION

A core element of the European Union's global economic policy in support of China's opening up and reform over the past three decades is ever-expanding S&T cooperation. Europeans engage with China at both the supranational EU level and at the national level with bilateral agreements between China and individual EU member states. In addition, there is extensive collaboration between the EU and China in academia, with Chinese students representing the largest group of foreign students at European universities and in the private sector. China has become the EU's second biggest trade partner with total trade volume of \$US424.7 billion in 2009, with the EU selling mainly machinery and transport equipment, including aviation and nuclear technology.

Due to the geographic distance and the lack of strategic interests in each other's region, technology transfers to China from the EU have been primarily economically motivated and have been regarded as win-win situations. For China, the EU is a major source of sought-after technology that is not available elsewhere. For the Europeans, S&T cooperation combines access to China's growing domestic market, additional revenues for R&D investments, and a source of low-cost production. The ongoing global economic and financial crisis has made it even more difficult to acquire funding for much-needed R&D investments. Average EU R&D investment amounts to 1.8 percent of GDP as compared to 2.6 percent of U.S. GDP and 3.3 percent of Japan's GDP.

Since a cash-rich China has recently started to buy and invest abroad at an ever-greater pace, further opportunities for revenues and R&D investment sources have arisen. In 2009, new Chinese projects in Europe surged by 30 percent. During Wen Jiabao's January 2009 "tour of confidence" through Europe, the delegation spent \$US14 billion (EUR 11 billion) on technologies from small and medium-sized technology companies (SMEs) in Germany alone. In the near future, EU companies hope to benefit from the enormous investments China is making in its own R&D sector,

particularly as China seems to have come out of the crisis better than the EU.

EXPORT CONTROL SYSTEMS

With information communication technology playing a central role in modern warfare, a substantial part of cutting-edge European technology is dual-use in nature. On the security side, the EU has a multilevel export control system in place, aimed at managing the risks of the unintended spread of certain technologies.

The EU's export control system comprises three levels: 1) international; 2) supranational (the EU level); and 3) national. EU-level regulations on dual-use technology and arms exports include the EU Dual-use Regulation and the EU Common Position on exports of military technology and equipment. In addition, national and international regimes (such as the Wassenaar Arrangement, the Nuclear Suppliers Group, the Missile Technology Control Regime, Australia Group, and the Chemical Weapons Convention) play a role. In contrast to the legally mandated U.S. arms embargo on China, the EU embargo of 1989 is a politically binding declaration that has legal effects on the national level only through the individual translations, interpretations, and implementation into national law of EU member states.

RISK FACTORS

Risk factors in the control of technology transfers encompass a lack of coordination of S&T collaboration at the national level, differing interpretation and implementation of EU law by member states, as well as a lack of oversight of activities outside of the government realm. Mainly due to a lack of national strategies regarding international S&T cooperation, bilateral S&T activities are barely coordinated among EU member states or between the national and the EU levels.

Additionally, the risk of involuntary technology transfers due to re-engineering or espionage have long been underestimated, often due to a lack of general risk awareness and the predominance of short-term economic considerations. Yet, as increasingly acrimonious debates between the Euro-

pean Union and China about intellectual property rights show, this awareness has been growing in the past few years. Security considerations, however, play a much smaller role and are primarily driven by concerns about hurting EU companies' access to U.S. markets because of technology transfers to China.

The varying national interpretations and execution of EU export control regulations lead to national deviations, loopholes, and member states potentially undercutting one another. EU member states report denials of licenses, but they do not report the volume and types of licenses granted, often because of industrial policy considerations. Accordingly, there is no official amalgamated overview at the EU level of the volume, nature, and generation of dual-use technology exports to China that could serve as an assessment on whether a "critical mass" has been achieved in a certain technology.

THREAT PERCEPTIONS

With regard to the impact of the EU's S&T relationship with China on Transatlantic relations, a major source for Transatlantic discord stems from differing assessments of China's military rise. Uneasiness about potential dual-use transfers to China derives from the key role high technology plays in China's ongoing technology-driven military modernization. Beijing aims to transform its military from "a mass army designed for protracted wars of attrition on its territory to one capable of fighting and winning short-duration, high-intensity conflicts against high-tech adversaries." In order to accomplish this, China is trying to promote civil-military integration (*Junmin Yitihua*) in order to make use of the technological and industrial capabilities of the civilian economy to strengthen its defense capabilities. The importance of dual-use technology transfers for China's military modernization has therefore grown rapidly.

While both the EU and the United States have concerns about China's rapidly rising defense budget and lack of transparency regarding its military modernization efforts and intentions, differences in threat perceptions exist between the two. The United States perceives China as its only potential peer competitor. In the Asia-Pacific,

China's growing influence competes directly with the established U.S. influence. The EU and most of its member states, however, share a predominantly regional security outlook that does not extend to China. The EU will continue to focus on its nearby neighbor Russia or on conflicts in its neighborhood, especially on the African continent or in the formerly war-torn Balkans. Neither Europe nor China sees its immediate strategic interests being impinged by the other. For Europe, anxiety towards China stems primarily from the fear of economic, not military, competition. The Transatlantic clash over the proposed lifting of the EU arms embargo on China in 2004 and 2005 painfully revealed these differences, yet it did not trigger a lasting change in perceptions.

OUTLOOK

Continuing the traditional EU policy on China, EU-China high-tech cooperation will most likely continue at a high level. The Europeans' awareness of risks is growing, yet economic concerns dominate. EU security considerations are motivated more by concerns about the reactions of the EU's most important ally, the United States, rather than a fear of China's rise. On the civilian side of dual-use technologies, European companies (like their counterparts in other Western countries) will try to make best use of opening opportunities.

The level of technology transferred to and produced in China is increasing in its sophistication, such as, for example, in the aviation sector, despite a growing risk awareness. Yet, incoming technology transfers are still seen as crucial to technological progress in China, even as Chinese policies on indigenous innovation appear to be bearing fruit. Technology transfers remain a central part of the EU's China policy. Recent trade frictions on issues such as intellectual property rights and Chinese policy initiatives in favor of indigenous technology development, however, have caused increasing concern on the EU side.

Europeans lack oversight of European dual-use technology transferred to China as well as general expertise about China's military transformation. A debate about its impact on EU policies is in order. The core challenge remains a lack of a common European paradigm on China's rise

that would underpin common European dual-use technology policies and export controls as well as Sino-European collaboration in S&T. These issues have proven to be too politically sensitive to be addressed in a public debate among European policymakers.

RECOMMENDATIONS

1. Preliminary steps should be made on a Track 2 level with access to officials to gather opinions and expertise with the goal of defining a common European paradigm on China's development.
2. A steady exchange of views with the European Union will be beneficial in the long run for the effectiveness of the United States' policies in this area. In order to find common,

Transatlantic approaches, a better understanding of each other's rationales will be essential for the success of a dual-use technology policy from either side. The United States may lead in technology, but Europe leads in technology transfers to China; both facts are not likely to change in the near future.

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