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Assessing Europe-China Collaboration in Higher Education and Research

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Executive Summary

The global balance of power is shifting and China's rise on the global stage is indisputable. These developments are reflected in the field of higher education and research. From the 1980s onwards, following its policy of reform and opening up, China has invested heavily in its domestic institutions and it is now reaping the benefits. Today, China has the second-largest research and development budget in the world after the US and the second-largest pool of researchers in the world after the EU, and it recently bypassed the US in the number of published articles in the sciences.

Seizing the opportunity of China's opening, many European governments and institutions have been open to student and staff exchanges, recruitment of Chinese students, joint education or research projects and programs, and the establishment of Confucius Institutes and even joint institutions. European institutions accrue many benefits from these collaborations, such as a supply of much-needed PhD students, a large influx of fee-paying students, as well as access to cutting-edge Chinese facilities and data.

However, Europe-China cooperation in higher education and research comes with risks and challenges too. In the last couple of years, as changing global power dynamics are increasingly palpable, these risks and challenges have come to dominate the western discourse about collaboration with China. Indeed, the pioneering days of China's opening up, building connections and the promise of more liberal changes, are gone, and more realistic and better-informed assessments of the opportunities and risks of collaboration with an emboldened illiberal China are necessary.

This report aims to strengthen the basis for cooperation between Europe and China by helping European institutions to define their best interests, identify opportunities and risks, and develop their own strategy. Our ultimate goal is to strengthen the basis for further cooperation between European and Chinese institutions and individuals. We hope to contribute to a level playing field so that cooperation between Europe and China can continue to develop and prosper in a way where it is not encumbered by stereotypes or unfounded expectations.

We find that Chinese strategizing and the risks of collaboration should not be grounds for a blanket rejection of collaboration out of fear that higher education and research have become a battlefield in the conflict between Chinese authoritarianism and the values of a liberal education. Rather, the European side should base its cooperation on a clear strategy and an assessment of the risks and challenges balanced against the benefits. It should then also be open to the conclusion that certain things are not – or are no longer – possible. For instance, considering targeted measures such as the exclusion of certain foreign nationals from specific study programs or research projects on national security grounds (including the protection of critical infrastructure) should no longer be a taboo.

Besides barriers of language and culture, among the most important challenges for European institutions is a lack of strategic vision, giving China a significant advantage in setting the agenda. The European side is often insufficiently informed about China and its academic system. Furthermore, European higher education institutes often lack an understanding of the relationships and collaboration goals of their Chinese partners. Our interviewees mentioned a shortage of strategically allocated funding on the Euro-

pean side (particularly on the national level) as another area of concern. Equal funding is considered a condition for reciprocal and mutually beneficial cooperation.

It is also important to note that, in recent years, higher education and research within China have been subject to increased control by the political center with resulting effects on academic freedom. There are signs that this trend is also being extended to Chinese nationals including scholars and students who are abroad. Our European interviewees' experiences of censorship and infringement of academic freedom mostly took place in the social sciences and humanities, and primarily in China and not in Europe. Moreover, self-censorship in Europe-China collaborations is seen as a very widespread phenomenon. Dependence on Chinese (government) funding can potentially limit the academic freedom of non-Chinese partners.

Despite widespread concern about the Chinese presence in higher education and research in Europe, we found no evidence of large-scale and concerted political influencing activities. Furthermore, this study cannot categorically substantiate claims of Chinese data or intellectual property (IP) theft in this field. This does not mean, however, that data or IP theft are not taking place, as organizations and scholars will not easily share such sensitive information. In general, our interviewees had clear opinions that much was afoot and that science in China had become more aligned with the state's security needs and strategic vision. Furthermore, well-attested problems for research cooperation emanate from the fact that China itself has insufficient safeguards with regard to personal data protection and research ethics.

Recommendations

1. Our advice is to continue to engage with China, while being mindful of the dangers of both naivety as well as paranoia. A situation where both the European and the Chinese sides take a strategic approach is the best way to guarantee long-term, stable, and mutually beneficial cooperation.
2. We recommend that European governments and higher education institutions (HEIs) match Chinese planning and management of international cooperation at the EU, national, and institutional levels. Planning and management should aim at identifying European partners' interests and red lines, realizing a more unified approach, and optimizing the outcomes of cooperation with Chinese partners. To maximize benefits, the European side should invest in developing triple helix cooperation with China. The pooling of knowledge and funding from business, government, and HEIs, will strengthen the position of European institutions vis-a-vis their Chinese counterparts.
3. European institutions should develop a deeper understanding of their Chinese partners' backgrounds and an appreciation of what they seek to gain from collaboration. In order to achieve long-term, stable, and mutually beneficial cooperation with China, European governments and HEIs should have a clear strategy for cooperation with China based on: (1) Their own well-defined interests; (2) An assessment of risks and challenges; (3) Equal funding from both sides; and (4) A deep understanding of China's academic system and the role of the government in this system. In case the benefits do not clearly outweigh the risks, European HEIs should, as a final measure, consider abandoning plans and shutting down programs.
4. European governments and HEIs should openly discuss and raise awareness of the risks of Europe-China cooperation. European HEIs should pool knowledge and resources and develop national and/or European multi-partner joint approaches or programs for cooperation with Chinese partners. European HEIs and governments should also develop risk assessment guidelines and IP protocols for use in higher education and research as well as research-intensive industries. Governments should encourage HEIs to use these guidelines or protocols before entering into cooperation. European HEIs should adhere to their own ethical codes of conduct and require that an adequate equivalent is in place and adhered to in China before collaborating in ethically sensitive fields (e.g. gene editing, animal-testing) or when dealing with personal (big) data.
5. European students should be encouraged to study in China so as to complement existing forms of cooperation and to mitigate the next generation's knowledge deficit with regard to China. European governments and HEIs should continue to invest in the recruitment of high-quality Chinese students to ensure the influx of foreign talent. They should incentivize these Chinese students to stay in Europe and sustain European research and innovation. However, European HEIs should avoid financial dependence on China through tuition fees or government funding for educational or research programs.

1. Introduction: scope of project

Since the turn of the century, the Chinese government has aimed for China to transition from being the world's manufacturing powerhouse to being a leading country in terms of innovation. Investment in higher education, innovation, and technology have risen steadily over the past few decades and these investments clearly lead to results. China is currently the largest producer of scientific articles and the second-largest source of international patent applications filed with the World Intellectual Property Organization.¹ Although the quality of these outputs is still generally lower than the quality of outputs from leading western nations, China is expected to catch up in the future. China now has the second-largest research and development budget in the world, after the US. It also has the second-largest pool of researchers in the world, after the EU.² Furthermore, based on the average score of its top three universities in the QS World University Rankings, China now places fifth position in the world "university rankings".³ Meanwhile, in many global assessments of advancements in science, China is seen to be one of the leading countries in areas such as computer science, AI, and engineering.⁴ However, some question these assessments and emphasize that there is still a large gap in science and technology between China and leading Western nations.⁵ According to the European Innovation Scoreboard, "the EU maintains a performance lead over China, but this lead is decreasing rapidly with China having improved more than seven times faster than the EU."⁶

Together with this domestic growth, China is increasingly investing in international scientific cooperation. Realizing the potential offered by China, many countries and institutions have been open to student and staff exchanges and the recruitment of Chinese students. They have also been open to the establishment of joint education or research projects and programs and the establishment of Confucius Institutes and even joint institutions (including "branch campuses"). However, this increased cooperation not only comes with benefits but also with risks and challenges. The engagement of Chinese research and higher education with foreign partners is tied to a government strategy to develop world-class research and education that serves China's broader goal

1) Jeff Tollefson, "China declared world's largest producer of scientific articles," *Nature*, January 18, 2018, <https://www.nature.com/articles/d41586-018-00927-4>; "China Drives International Patent Applications to Record Heights: Demand Rising for Trademark and Industrial Design Protection," World Intellectual Property Organization, March 21, 2018, http://www.wipo.int/pressroom/en/articles/2018/article_0002.html.

2) Yojana Sharma, "Can Silk Road HE partnerships fill 'vacuum' left by the US?," *University World News*, October 4, 2018, <http://www.universityworldnews.com/article.php?story=20181004184538317>; Marijk van der Wende, "The New Silk Road," Utrecht University, accessed November 1, 2018, <https://www.uu.nl/en/organisation/centre-for-global-challenges/projects/the-new-silk-road>.

3) "The Global Innovation Index 2018: Energizing the World with Innovation," Cornell University, INSEAD, and WIPO, 2018, 241, <https://www.globalinnovationindex.org/gii-2018-report>.

4) See e.g.: "Science and Engineering Indicators 2018," National Science Board, NSB-2018-1. Alexandria, VA: National Science Foundation, 2018, <https://www.nsf.gov/statistics/indicators/>; Reinhilde Veugelers, "The challenge of China's rise as a science and technology powerhouse," *Bruegel Policy Contribution*, Issue no. 19 (July 2017), <http://bruegel.org/wp-content/uploads/2017/07/PC-19-2017.pdf>; "China ties the US as the most influential nation in science," *Nikkei Asian Review*, July 6, 2017, <https://asia.nikkei.com/Business/China-ties-the-US-as-the-most-influential-nation-in-science>.

5) Leng, Sydney, "China must stop fooling itself it is a world leader in science and technology, magazine editor says," *South China Morning Post*, June 26, 2018, <https://www.scmp.com/news/china/society/article/2152617/china-must-stop-fooling-itself-it-world-leader-science-and>.

6) "European Innovation Scoreboard 2017," European Commission, 2017, https://www.rvo.nl/sites/default/files/2017/06/European_Innovation_Scoreboard_2017.pdf.

of achieving sustained and innovative growth. As this strategy unfolds, Chinese priorities, objectives, and sensitivities in education and research increasingly impact upon collaboration with other countries. This raises the question of whether European higher education institutions (HEIs) are sufficiently aware of the significance of China's strategic approach to foreign collaboration and whether they are able to match China's proactive strategy with adequate strategic thinking of their own.

Chinese strategic efforts in research and education are currently focused primarily on the United States (US) and the United Kingdom (UK). In addition, they are also strongly felt in Australia and New Zealand. European countries, although not a priority in most cases, are also an integral part of the Chinese strategy for higher education and research, as exemplified by government scholarship flows and rapidly growing collaboration. There are even signs that Europe is becoming more important, both as a part of China's more general outward reach through the Belt and Road Initiative (BRI) and as an alternative to collaboration with the US, with whom the overall relationship is currently tense.

Especially in the US, Australia, and New Zealand, but also increasingly in Europe, concerns about Chinese strategizing in areas like research and education are tied to deeper suspicions about China's rise and the country's "political influencing" or, as some even argue, "hybrid warfare" efforts.⁷ Chinese political influencing aims to insert Chinese interests, opinions, and priorities into public opinion and decision-making processes in other countries and may involve multiple tactics to target foreign media, academia, opinion leaders, (former) politicians, political parties, and business. Hybrid warfare entails employing a mixture of military force and intelligence, propaganda, and diplomatic means. Some foreign observers stretch the argument made about Chinese influencing or hybrid warfare to say that the Chinese Communist Party and government are out to undermine the western world and to establish their own global hegemony. Although this narrative is less prevalent in Europe, it further underlines the urgency and importance of gathering reliable information on the extent and impact of Chinese strategizing in higher education collaboration and to assess the opportunities and risks involved in this kind of collaboration.

This report looks at China's efforts to engage with Europe and collaborate in research and higher education. It seeks to map and assess the influence of China's strategic approach on the content, funding, and implementation of education and research collaboration between European and Chinese knowledge institutes. We ask the following questions:

- What are the main objectives of the Chinese strategy for research and higher education, and how do these translate into the behavior of Chinese partner institutions?
- What are the main benefits for Europe of Europe-China cooperation in higher education and research?
- What are the main risks and challenges for Europe of Europe-China cooperation in higher education and research?
- How can European institutions better benefit from cooperation with Chinese partners?

7) Danny Pronk, "Hybrid Conflict and the Future European Security Environment," *Clingendael Strategic Alert*, September 2018, https://www.clingendael.org/sites/default/files/2018-09/Strategic_Alert_Hybrid_Conflict_Sept2018.pdf.

- How can European institutions overcome challenges and manage the risks of cooperation with China?

Our research asks these questions from a European perspective and aims to help European institutions to define their best interests, identify opportunities and risks, and develop their own strategy. Our ultimate goal is to strengthen the basis for further cooperation between European and Chinese institutions and individuals. We hope to contribute to a level playing field so that cooperation between Europe and China can continue to develop and prosper in a way where it is not encumbered by stereotypes or unfounded expectations.

Methodology

The project mainly draws on data from five Northern and Central European countries which have rich and different experiences in cooperation with Chinese partners. These five countries are: the Netherlands, the UK, Denmark, Germany and Poland. However, we have also included data from other European countries, including France, Italy, Finland, and Switzerland. We are aware that the choice of countries leaves out much of Southern Europe. However, despite our geographical bias, we are confident that the countries that we have focused on reasonably cover the current range of European experiences with China. When referring to “Europe” in this report, we refer to the aggregate of countries that comprises the European continent, mostly represented by the above mentioned countries. When we refer to the European Union, we use the abbreviation EU.

We have taken a qualitative approach, conducting desk research of Chinese strategy and policy documents in Chinese and English and of relevant papers, reports, and other documents by think-tanks, academics, and government institutions from Europe, the US, and Australia. The policy documents from the EU and European countries that we studied were largely descriptive and contained little information on specific experiences, and the benefits and challenges, of academic cooperation with China. This research’s most important source of information is therefore the 65 in-depth interviews which we carried out between February and July of 2018. The persons we interviewed are officials from government and institutional research funding agencies; education, science and technology attachés at European embassies in China; European and Chinese scholars; and China policy officers at European universities. Most of the interviews were held in person in Europe or China, while a small number were also conducted over Skype or by telephone.

In our work we have cooperated closely with two other projects based in the Netherlands that are also looking at aspects of China’s impact on research and education. The Hague Centre for Strategic Studies (HCSS) carried out a project commissioned by the Dutch government to compile a checklist for collaborations with Chinese academic institutes. We also worked with the long-term project of Prof. Marijk van der Wende, from Utrecht University on “The New Silk Road: Implications for higher education and research cooperation between China and Europe.”⁸ We are very grateful to the researchers on both projects for the opportunities that our collaboration has given us, but the responsibility for the content of this report remains exclusively ours.

8) Marijk van der Wende, “The New Silk Road,” Utrecht University, accessed November 1, 2018, <https://www.uu.nl/en/organisation/centre-for-global-challenges/projects/the-new-silk-road>.

2. China's strategy for higher education and research

2.1 Background

The rebuilding and opening up of higher education and research has been a core component of the reforms that started in 1978. The process started with the reopening of universities and research institutions, the restoring or establishing of academic disciplines, and the reinstating of the national college entrance examinations. Very soon afterwards, Chinese graduate students and scholars were allowed to study abroad or visit foreign countries, while the number of foreign students in China also rose rapidly.

In the 1990s and early 2000s the pace of these changes sped up. The Chinese government invested in a massive expansion of its higher education system and introduced the principles of marketization and decentralization in education. By 2017, 35.3 million students were enrolled in tertiary education in China (full-time and part-time, adult education included) and another 7.4 million are enrolled in web-based tertiary studies and courses.⁹ Moreover, Chinese students were allowed to fund their studies abroad themselves and their number started to grow quickly, a process that still continues today.

Student mobility

For some time now, China has been the world's largest source of international students. According to the Chinese Ministry of Education, in 2017 a total of 608,400 students left China to study abroad, an 11 per cent increase over 2016; 1,454,100 students are currently enrolled in higher education institutions outside of China. For the EU, China (including Hong Kong) is the largest country of origin for students in higher education. In 2015, China accounted for 11 per cent of the total number of students from abroad who were in the EU. In many European countries, including the UK, Germany, and France, Chinese students are the largest group among students from abroad.¹⁰ Chinese people go overseas not only for postgraduate research positions, but also to study for bachelor's or master's degrees. In recent years Chinese students have increasingly been going abroad at an even earlier stage. Chinese students will go overseas for college entrance preparatory programs, or for secondary or primary education, often at expensive boarding schools in the Anglo-Saxon world. In 2016, the US alone received 33,275 Chinese high school students.¹¹

While the Chinese government has several scholarship programs to support Chinese students studying abroad (see chapter four), the overwhelming majority of those that pursue a degree overseas are self-funded or funded by the institution where they are enrolled. The majority of Chinese students return to China. In the forty years since the start of the reforms,

9) "Number of Students of Formal Education by Type and Level," Ministry of Education, accessed November 1, 2018, http://en.moe.gov.cn/Resources/Statistics/edu_stat2017/national/201808/t20180808_344698.html.

10) "Learning mobility statistics," Eurostat, accessed September 16, 2018, https://ec.europa.eu/eurostat/statistics-explained/index.php/Learning_mobility_statistics.

11) "CCG Annual Report: Number of Chinese Studying Abroad Reaches Record High in 2016; More International Students in China Come from Countries along B&R," Centre for China and Globalization, January 2, 2018, <http://en.ccg.org.cn/ccg-annual-report-number-of-chinese-studying-abroad-reaches-record-high-in-2016-more-international-students-in-china-come-from-countries-along-br/>.

out of a total of 5,194,900 Chinese students who have studied or are still studying abroad, 3,132,000 students (or 84 per cent) of all graduates returned to China after graduation. The number of students returning to China has been especially high in recent years, with 2,313,600 students having returned home since 2012.¹²

Many Chinese universities and research institutions have also become much better-funded since the start of the reforms, particularly those that were selected for special funding streams within the ‘211 Project’ and ‘985 Project’. The ‘211 Project’, which was launched in 1995, aimed to raise education and research standards and cultivate strategies for socio-economic development by constructing a hundred high-level universities and a number of key disciplines. The goal of the ‘985 Project’, launched in 1998, was to promote the development of a few dozen top Chinese universities as world-class universities in the 21st century. Despite official suspicions of western liberal values, the aim at the time was to emulate the success of higher education and research in the western world. As a result, these policies produced an enormous increase in the scope of academic freedom and international cooperation in research and teaching.

In the mid-2000s, these efforts were gradually stepped up. Higher education and research had always been part of a national developmental strategy, but now this became much more explicit and specific. China had to escape the “middle income trap” by moving away from an economic growth strategy based on cheap labor and the export of manufactured goods with relatively low added value. The “Outline of the National Medium and Long-term Plan for the Development of Science and Technology (2006–2020)”, published in 2006, stated that China wanted to join the ranks of innovative countries, become less dependent on foreign technology, and become a world science and technology power by the middle of the 21st century. The plan identified eleven priority areas: energy resources; water and mineral resources; environment; agriculture production; technology; transportation; IT and services; health care; urban development; public securities; national defense. Progress was to be achieved by increasing research and development expenditure, including the establishment of a number of world-class research institutes, universities, and industrial research and development centers.¹³

2.2 Becoming a leading power in science, technology and innovation

Since his appointment as CCP General Party Secretary in 2012, Xi Jinping has built on existing ambitions and has taken them even further. China has become more explicit in its efforts to become a world-leader in science and technology, particularly in those fields deemed central to national strength, prestige, and development. There are two key supporting policy documents here, both of which were published in 2015. The first is the “Overall plan to coordinate the promotion of world-class universities and the construction of first-class disciplines,” or in short, the Double First-class University Plan. The second is

12) “2017 sees increase in number of Chinese students studying abroad and returning after overseas studies,” Ministry of Education, April 4, 2018, http://en.moe.gov.cn/News/Top_News/201804/t20180404_332354.html.

13) “Guojia zhongchangqi kexue he jishu fazhan guihua gangyao 国家中长期科学和技术发展规划纲要 (2006-2020年)” [Outline of the national medium and long-term plan for the development of science and technology (2006–2020)], State Council 国务院, February 9, 2006, http://www.gov.cn/jrzq/2006-02/09/content_183787.htm. See also: Sylvia Schwaag Serger and Magnus Breidne, “China’s fifteen-year plan for science and technology: a critical assessment,” *Asia Policy*, no. 4 (July 2007): 135–164, <https://lup.lub.lu.se/search/ws/files/5663330/1388869.pdf>.

the “Made in China 2025” plan.¹⁴ In these documents, the Chinese government explicitly lays out the objectives of what some analysts have called its “techno-nationalism”. This is a vision that goes much further than the science or industrial policy of countries like Germany which originally served as a model for some of China’s plans.¹⁵ The ‘Made in China 2025’ plan aims to transform China into a global high-tech manufacturing leader, especially in sectors such as the automotive industry, aviation and space exploration, robotics, machinery, transportation equipment, medical equipment and IT.

Although old-fashioned Communist language that speaks of confrontation and struggle has again come into vogue, we do not see China’s higher education and research policies to be, as one particular hawkish observer put it, “embedded [...] in strategies for waging war”¹⁶ in order to impose China’s own values and system on other countries. Rather, the Chinese authorities seek development and security and want to shape an international order that is no longer predicated on Western, liberal ideas and where its own, authoritarian system of governance is as legitimate as any other. Furthermore, we feel that shaping the debate in terms of a “war of the worlds” is not conducive to working towards fair, balanced, higher education and research cooperation with China. However, we must also face the fact that there is indeed a natural synergy between higher education and research, chauvinism, international relations (including the BRI), the leadership of the Chinese Communist Party and the personal leadership of President Xi Jinping. This means that where and when the Chinese authorities push for acceptance of China’s authoritarian system of governance, seek to impose illiberal ideas, or revert to unfair play, we must not hesitate to take a stand against it.

Double First-class University Plan

The ‘Double First-class University Plan’ aims to make China the leading nation in many academic disciplines and to have 42 Chinese universities ranked as “world-class” universities before the centennial of the People’s Republic of China in 2050. These goals are to be achieved in three stages: by 2020, China should have developed “a number of” world-class universities and disciplines; by 2030, more universities and disciplines should be at world-class level with a number of them being among the best in the world; then by 2050 the number and quality of China’s world-class universities should be among the best in the world and China should be a “higher education power.” The plan describes how selected universities at the central level are to be financially supported by the central government. Meanwhile provincial-level universities will be supported by provincial governments, who in turn may engage local industries to also provide support. The selected universities will be regularly assessed and, if they do not perform well, will be removed from the plan. In order to consolidate education resources and increase competitiveness, Chinese universities will be encouraged to classify themselves into groups

14) “Tongchou tuijin shijie yiliu daxue he yiliu xueke jianshe zongti fang’an 统筹推进世界一流大学和一流学科建设总体方案” [Overall plan to coordinate the promotion of world-class universities and the construction of first-class disciplines], State Council 国务院, October 24, 2015, http://www.gov.cn/zhengce/content/2015-11/05/content_10269.htm; “Zhongguo zhizao 2025 中国制造2025” [Made in China 2025], State Council 国务院, May 8, 2015, http://www.gov.cn/zhengce/content/2015-05/19/content_9784.htm.

15) Jost Wübbeke et al., “Made in China 2025: The making of a high-tech superpower and consequences for industrial countries,” *MERICs Papers on China*, no. 2 (December 2016): 12, https://www.merics.org/sites/default/files/2017-09/MPOC_No.2_MadeinChina2025.pdf.

16) John Fitzgerald, “Intellectual freedoms challenged by universities uncritical embrace of China,” *Australian Financial Review*, September 7, 2017, <https://amp.afr.com/news/policy/education/intellectual-freedoms-challenged-by-universities-uncritical-embrace-of-china-20170903-gya1pk>.

based on their characteristics and functions and to reorganize or even merge. The plans also explicitly call for international exchange and cooperation with world-class universities abroad, for mutual credit recognition, for joint educational programs, as well as for China's participation in large international scientific projects. They also call for China to actively participate in the development of international norms and rules in education.¹⁷ The latter call to influence international norms and rules is seen often in contemporary Chinese policy documents.¹⁸

Overseas expansion

Although China has long welcomed foreign HEIs to establish branches, labs, and institutions in China, the Chinese government has recently become more selective in importing higher education expertise. In 2015, China suspended approval of independent Chinese-foreign joint-venture universities in China. The last approval for a joint venture university (which are sometimes presented as foreign universities' branch campuses) was for a collaboration between the Dutch University of Groningen and the China Agricultural University in Yantai, a project that has since been abandoned (see chapter six). In July 2018, the Chinese authorities decided to close five joint institutions and more than 200 joint academic programs with foreign partners in China citing their poor quality, insufficient student enrolment, or financial mismanagement.¹⁹ One of our Chinese interviews noted that foreign partners often see Chinese-foreign joint-venture universities as a means to make money. They do not intend to establish a world-class institute and their focus is not on excellent research, but on teaching. China, on the other hand, rather sees cutting-edge research activities.

At the same time, Chinese universities are increasingly expanding overseas. The first partnerships abroad were established in Asia – in Laos, Malaysia, Thailand, and Japan. However, since 2016, Chinese HEIs have made their way to Europe and the US as well. In 2016, Beijing Normal University and Cardiff University in Wales established a joint college. In 2017 Peking University announced that it will open a branch of its HSBC Business School in Oxford. The most prestigious and ambitious Chinese HEI project abroad, however, has been the launch in 2017 of the Global Innovation Exchange. This is a graduate school in technology located in Washington State that has been jointly established by China's Tsinghua University and the US's University of Washington. The school, to which Microsoft donated USD 40 million, aims to nurture entrepreneurship, technology, and international cooperation. Students at the school will be working in interdisciplinary teams to tackle “some of the big problems faced by industry and society as a whole.” This expansion overseas not only illustrates a growing international

17) “Tongchou tuijin shijie yiliu daxue he yiliu xueke jianshe shishi banfa (zanxing) 统筹推进世界一流大学和一流学科建设实施办法 (暂行) ” [Implementation measures to coordinate the building of world-class universities and first-class disciplines (provisional)], Ministry of Education 教育部, Ministry of Finance 财政部, and National Development and Reform Commission 国家发展改革委, January 24, 2017, http://www.gov.cn/xinwen/2017-01/27/content_5163903.htm#1.

18) See e.g.: “Gaodeng xuexiao rengong zhineng chuangxin xingdong jihua 高等学校人工智能创新行动计划” [Innovation action plan for artificial intelligence at institutes of higher education], Ministry of Education 教育部, April 2, 2018, http://www.moe.gov.cn/srcsite/A16/s7062/201804/t20180410_332722.html.

19) “Jiaoyu bu bangong ting guanyu pizhun bufen zhongwai hezuo banxue jigou he xiangmu zhongzhi de tongzhi 教育部办公厅关于批准部分中外合作办学机构和项目终止的通知” [Notice of the General Office of the Ministry of Education on approving the termination of some Chinese-foreign cooperative schools and projects], Ministry of Education 教育部, June 19, 2018, http://www.gov.cn/xinwen/2018-07/05/content_5303720.htm.

recognition of China's top universities, but also allows Chinese institutions to integrate into the US higher education system and to explore new higher education markets.

Made in China 2025 and the Belt and Road Initiative

There is a strong connection between the higher education and research development strategy in the 'Double First-class University Plan' and the industrial policies of 'Made in China 2025.' This is illustrated by the 'Double First-class University Plan's disciplines development list. Arranged by discipline, this list reveals a focus on natural sciences, IT, and engineering and related technologies.²⁰ Another example of the connection between the two plans is the 2017 launch of the "Next-Generation Artificial Intelligence Development Plan." This plan prescribes the construction of artificial intelligence (AI) as an academic discipline and encourages domestic AI enterprises to cooperate with leading international AI schools and scientific research institutes.²¹ Furthermore, this focus of education and research development on strategic areas is heavily reflected in funding for international collaboration, as is discussed in section 3.2 below.

China's higher education and research strategy is also tied to its Belt and Road Initiative (BRI). The BRI is a long-term strategy that seeks to develop stronger economic connections between Asia and Europe, Asia and the Middle East, and Asia and Africa by building infrastructure, facilitating trade and investments, and strengthening overall ties between BRI countries. The way the BRI has been implemented so far strongly serves China's strategic goals of economic growth, export of overcapacity, further integration into the world economy and the strengthening of China's overall position in the world. Being a loose concept, the BRI label is also applied to education and science and technology projects. Many Chinese HEIs actively push their own BRI projects. One example is the 'University Alliance of the Silk Road,' a project which is coordinated by Xi'an Jiaotong University and has been joined by 150 Chinese and international universities. Another example is the "Belt and Road Platform to Promote Innovation," which was launched in 2016 by the Chinese Academy of Sciences.²²

At the Chinese Ministry of Education, the Department of International Cooperation has been given responsibility for the implementation of the technological Innovation cooperation programs of the BRI.²³ In 2016, the Chinese Ministry of Education published a document on educational cooperation in support of BRI. The plan focuses on improving cooperation in the field of education and deepening cooperation in the development and training of talent.²⁴

20) "'Double First-Class' initiative disciplines development list (Sorted by discipline)," Department of Education and Training, Australian Government, accessed September 20, 2018, [https://internationaleducation.gov.au/International-network/china/PolicyUpdates-China/Documents/DFC%20initiative%20disciplines%20development%20list%20\(Sorted%20by%20discipline\).pdf](https://internationaleducation.gov.au/International-network/china/PolicyUpdates-China/Documents/DFC%20initiative%20disciplines%20development%20list%20(Sorted%20by%20discipline).pdf).

21) "Xin yi dai rengong zhineng fazhan guihua 新一代人工智能发展规划" [Next generation artificial intelligence development plan], State Council 国务院, July 8, 2017, http://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm.

22) J. Liu, "China Launches Belt and Road Platform to Promote Innovation," *Chinese Academy of Sciences*, December 6, 2016, http://english.cas.cn/Special_Reports/CAS_in_the_Belt_and_Road_Initiative/News/201612/t20161206_171653.shtml.

23) "'Chengguo zhuanhua yu quyue chuangxin si' jiang chengli '成果转化与区域创新司'将成立" [A department for scientific and technological achievements' transfer into commercial use and regional innovation will be established], *Feng Media* 大风号, September 13, 2018, <http://wemedia.ifeng.com/78060165/wemedia.shtml>.

24) "Tuijin gongjian 'yidai yilu' jiaoyu xingdong 推进共'建一带一路'教育行动" [Educational action to promote the construction of One Belt One Road], Ministry of Education 教育部, July 13, 2016, http://www.moe.edu.cn/srcsite/A20/s7068/201608/t20160811_274679.html.

A year later, in 2017, President Xi Jinping announced the launch of the “Belt and Road Science, Technology and Innovation Cooperation Action Plan”. This plan consists of a “Science and Technology People-to-People Exchange Initiative,” a “Joint Laboratory Initiative,” a “Science Park Cooperation Initiative” and a “Technology Transfer Initiative.” Under the framework set out in this plan, China will offer 2,500 short-term research visits to China for young foreign scientists. It will train 5,000 foreign scientists, engineers and managers, and set up fifty joint laboratories.²⁵ This national plan was soon followed by similar plans at more local levels. One such plan is Tianjin Municipality’s “Belt and Road Science, Technology, and Innovation Cooperation Action Plan”. This promotes “Science Park Cooperation” and “International Technology Transfer”, as well as “Scientific, Technological and Personnel Exchanges” and the joint construction of research facilities.²⁶ Interestingly, these BRI-related plans also present China as a technology exporting country, providing technology, training and aid to other (developing) countries in Central Asia and the ASEAN region. It is unclear the extent to which these plans are being financed by newly earmarked funds rather than funds that were already available but are now just labelled as part of BRI.

Higher education and the BRI in Kazakhstan

Kazakhstan is an important partner to China, given its strategic location and role in the Belt and Road Initiative (BRI). However, China’s appeal in Kazakhstan is limited, as the general population holds unfavorable views towards the country and its grand initiative. This shortage of soft power is the result of fears that exist about a Chinese ‘invasion’ of workers, products, and land-grabbing practices. To some extent, such fears are fueled by wrong information and a lack of familiarity with China. This could explain why Beijing has invested in Chinese higher education initiatives in Kazakhstan.

From a study of official Chinese documents and reports by state-controlled media outlets it emerges that the motives for setting up these initiatives are actually twofold. On the one hand, Beijing hopes that educational cooperation and exchange can provide the technical talent required to construct the infrastructural and economic interconnectivity that is central to the BRI. On the other hand, such initiatives are used to introduce and attract Kazakh citizens to China’s cultural traditions and political ideas. Chinese government scholarships serve partly to allow Kazakh students to experience China’s economic development, political stability, and ancient culture. Chinese ‘experience centers’ at Kazakh universities, which are co-funded by the Chinese Embassy, similarly disseminate China’s soft power resources.

Beijing is consciously attempting to attract Kazakh citizens to China through its education initiatives. These initiatives should therefore be understood as tools in a soft power strategy. Remarkably, the Chinese Party-state appears to be primarily interested in educating the population of

25) “Xi Jinping: China Launches Belt & Road STI Cooperation Action Plan,” Ministry of Science and Technology, July 2017, http://www.most.gov.cn/eng/pressroom/201707/t20170713_134067.htm.

26) “Tianjin Publishes Belt and Road Science, Technology and Innovation Co-operation Action Plan,” HKTDC Research, November 2, 2017, <http://china-trade-research.hktdc.com/business-news/article/The-Belt-and-Road-Initiative/Tianjin-Publishes-Belt-and-Road-Science-Technology-and-Innovation-Co-operation-Action-Plan/obor/en/1/1X000000/1X0ACR9I.htm>.

Kazakhstan about its domestic values and policies. Even though the BRI has been regarded by many as an attempt to construct an international political order under Beijing's guidance, the global governance principles that underlie the project are not actively promoted within this soft power strategy.²⁷

Civil-military integration

In China's internationalization of higher education, knowledge transfer and, to a lesser extent, public diplomacy goals (improving China's image abroad) seem to play prominent roles.²⁸ Knowledge transfer should contribute to China's self-reliance, including by strengthening China's military capacity. For instance, China's continued commitment to developing "core technologies" (thought to include among others cryptography, certain types of advanced semiconductors, cybersecurity software, cloud systems, and both hardware and algorithms that power advanced artificial intelligence systems), is unequivocally aimed at reducing the country's dependency on foreign science and innovation.²⁹

In May 2018, the competitive thrust of China's science and technology strategy was thrown into especially sharp relief. China's current dependence on the world's advanced economies for high-tech products was exposed when the US government threatened to pull the plug on the export of semiconductors to China in a direct attack on China's telecommunications company ZTE, which depends on foreign-produced chips for its products. In response, President Xi Jinping stated that "the initiatives of innovation and development must be securely kept in our own hands (...) only by mastering core technologies can we guarantee national economic security, defense security and other securities."³⁰ The explicit connection made by President Xi between economic and defense security is especially revealing and also immediately relevant to foreign partners.

Some of our interviewees also expressed concerns regarding the August 2017 State Council plan furthering integration of civil and military technologies. Many interviewees raised issues linked to a lack of information and/or transparency regarding plans, policies, and project goals on the Chinese side. For instance, it was difficult to get information about the military links of Chinese universities.

That the civilian-military dual use of technology is part and parcel of China's strategy for global science and technology leadership has recently been substantiated by a report by Alex Joske on the Chinese military's collaboration with foreign universities that shows how China's People's Liberation Army (PLA) "has sponsored more than 2,500 military scientists and engineers to study abroad and has developed relationships with researchers and institutions across the globe." Joske calls on governments to take the lead in developing clear policies to limit the security risks associated with PLA collaboration.³¹

27) Jonas Lammertink, "Learning to admire. Education as a Chinese political soft power tool within the Belt and Road Initiative," master's thesis, Leiden University, 2018, Leiden Repository.

28) See e.g.: Xiaoci Deng, "Bigger Chinese scholarships attract foreign students to boost soft power," *Global Times*, June 6, 2018, <http://www.globaltimes.cn/content/1105829.shtml>.

29) Paul Triolo, Lorand Laskai, Graham Webster, and Katharin Tai, "Xi Jinping Puts 'Indigenous Innovation' and 'Core Technologies' at the Center of Development Priorities," *New America*, May 1, 2018, <https://www.newamerica.org/cybersecurity-initiative/digichina/blog/xi-jinping-puts-indigenous-innovation-and-core-technologies-center-development-priorities/>.

30) Weida Li, "Xi Jinping calls for China to become a science and technology world leader," *Global Times*, May 29, 2018, <https://gbtimes.com/xi-jinping-calls-for-china-to-become-a-science-and-tech-world-leader>.

31) Alex Joske, "Picking flowers, making honey. The Chinese military's collaboration with foreign universities,"

2.3 Domestic political context

Partners of Chinese institutions should not only be aware of the explicitly stated goals in the above policy documents. They also need to take heed of the underlying ambition and assumption that prowess in science and technology in the end serves the ultimate goal of strengthening the Chinese Party-state. It does this in part by proving the efficacy of its developmental model and the absence of western democracy and human rights. Educational policies also explicitly mention the importance of promoting the CCP's ideology. According to the 2015 State Council guidelines for higher education, for example, lecturers should work towards "consolidating a common ideological basis for the united struggle of the entire Party, the entire country and all the people."³²

In August 2016, the Ministry of Education issued guidelines on the performance appraisal of academic personnel that can be seen as illustrative of the tightening of the political space in China. They include measuring staff compliance with "the basic line of the Party" and further specify that academics who tolerate "the illegal spread of harmful ideas and expressions in the classroom will be dealt with severely according to regulation and law".³³

What is understood as "harmful ideas and expressions" is widely held to correspond with the "Seven Prohibitions" that were listed in a leaked secret Party communiqué popularly known as "Document 9." These prohibitions concern: promoting Western constitutional democracy, promoting universal values, promoting Western conceptions of media independence and civil society, promoting pro-market neoliberalism, promoting "nihilist" criticisms of past errors of the Party, and questioning China's political course.³⁴

Testimony to this tightening of the Party's grip, a (Chinese) lecturer at a university in Wuhan was recently reported to have been fired and stripped of Party membership after her students told authorities that she had been making ideologically "incorrect" comments in her class about the abolishing of presidential term limits, a clear criticism of President Xi Jinping's lifting of precisely such a limit at the National People's Congress in March 2018.³⁵ Alongside this older mechanism, where students report on their teachers, various interviewees mentioned that there also appeared to be camera surveillance in Chinese classrooms. The authorities themselves have reported that they have experimented with the use of camera surveillance for evaluating student and teacher performance. These cameras could of course also be used for ideological surveillance purposes.³⁶

Corresponding to these reports, the majority of our interviewees mentioned that in recent years academic freedom in China has been reined in. One interviewee pointed out that liberal Chinese scholars also tended to be quite negative about the current political climate. These observations by Chinese scholars are usually made in private settings, but some Chinese intellectuals dare to speak out publicly. Xu Youyu, a former

Australian Strategic Policy Institute, *Policy Brief*, October, 2018, 3, <https://www.aspi.org.au/report/picking-flowers-making-honey>. <https://www.aspi.org.au/report/picking-flowers-making-honey>.

32) Fitzgerald, "Intellectual freedoms."

33) Ibid.

34) "Document 9: A ChinaFile Translation," *ChinaFile*, November 8, 2013, <http://www.chinafile.com/document-9-chinafilehttps://ssrn.com/abstract=3243059-translation>.

35) "Chinese Lecturer Fired For Raising Presidential Term-Limit in Class," *Radio Free Asia*, May 21, 2018, <https://www.rfa.org/english/news/china/lecturer-05212018105710.html>.

36) "High School Students in Eastern China to Get Facial Monitoring in Class," *Radio Free Asia*, May 18, 2018, <https://www.rfa.org/english/news/china/high-school-students-in-eastern-china-to-get-facial-monitoring-in-class-05182018113315.html>.

researcher at the Chinese Academy of Social Sciences (CASS), has said that the state of academic freedom in China is at its worst since the Cultural Revolution.³⁷

Academic freedom in China is primarily an issue in the humanities and social sciences. This is logical as the humanities and social sciences are more likely to involve the Party's ideological and political red lines, therefore incurring extra scrutiny. An example of this extra scrutiny is the way that, in 2017, the Ministry of Education established a "leading small group" of high officials with the task of safeguarding the "correct" ideological course of the philosophy and social sciences disciplines in higher education.³⁸ However, ideological control covers all disciplines. In December 2016, President Xi Jinping declared that all teachers "must be 'staunch supporters' of Party governance."³⁹ Similarly, the Double First-class Universities Plan stipulates that, alongside Chinese traditional culture, socialist values and characteristics should be strengthened at Chinese universities.⁴⁰

Our interviewees pointed to the strong role of Party Secretaries in HEIs. One interviewee also spoke of Party Secretaries' influence on the allocation of research funding. Party officials may instruct university staff on what topics are off-limits. Some interviewees mentioned the importance of Party membership for Chinese scholars to maintain their position or to achieve promotion. Two interviewees, both researchers, mentioned Chinese fellow scholars receiving Party memos and having to attend staff meetings on Party guidelines.

37) Bing Fang, "Xu Youyu: Zhongguo xueshu ziyou shi wenge yilai zui zao de 徐友渔：中国学术自由是文革以来最糟的" [Xu Youyu: state of academic freedom in China worst since Cultural Revolution], *Voice of America*, November 22, 2016, <https://www.voachinese.com/a/xu-youyu-20161121/3606071.html>.

38) "Jiaoyu bu bangong ting guanyu chengli jiaoyu bu zhexue shehui kexue gongzuo lingdao xiaozu de tongzhi 教育部办公厅关于成立教育部哲学社会科学工作领导小组的通知" [Ministry of Education notice on the establishment of a Ministry of Education philosophy and social sciences leading small group], Ministry of Education 教育部, November 17, 2017, http://www.moe.gov.cn/srcsite/A13/moe_2557/moe_2558/201712/t20171213_321192.html.

39) Tom Phillips, "China universities must become Communist party 'strongholds', says Xi Jinping," *The Guardian*, December 9, 2016, <https://www.theguardian.com/world/2016/dec/09/china-universities-must-become-communist-party-strongholds-says-xi-jinping>.

40) "Guowuyuan guanyu yinfa tongchou tuijin shijie yiliu daxue he yiliu xueke jianshe zongti fang'an de tongzhi 国务院关于印发统筹推进世界一流大学和一流学科建设总体方案的通知" [Overall plan for coordinately advancing the construction of world first-class universities and first-class disciplines], State Council 国务院.

3. Features of Europe-China cooperation in higher education and research

3.1 European approaches to China

Research and innovation collaboration constitute a vital part of the EU-China “comprehensive strategic partnership.” At the 2013 EU-China Summit, the EU and China jointly adopted the “EU-China 2020 Agenda for Strategic Cooperation”. Building on that document, EU policy on science and technology cooperation is further specified in “The Roadmap for EU-China Science and Technology cooperation,” which sets the following main policy goals: (a) improving framework conditions (for Chinese scientists to participate in EU programs), (b) improving reciprocal access to Chinese science and technology and innovation resources (for European researchers), and (c) promoting open access.⁴¹

EU science policy with regard to China is mainly executed through funding programs, especially the ‘Horizon 2020’ program. Whereas in the earlier ‘Framework Program 7’ Chinese participants were still funded by the EU, in Horizon 2020 this is no longer the case. The Chinese Ministry of Science and Technology (MOST) has agreed to finance Chinese participation in Horizon 2020 through a co-funding mechanism. Furthermore, the EU actively seeks Chinese participation in its Joint Programming Initiatives, notably regarding urbanization and sustainability. The European Research Council also has cooperation programs in place with the Natural Science Foundation of China.

On the European side, multiple individual scholars and policymakers whom we interviewed called for more coordination and a joint strategy that went beyond funding from the EU side. They also called for more research into, and monitoring of, the Chinese science and technology sector. The EU has addressed issues in the Chinese context, such as the need for researchers to understand intellectual property rights (IPR). The Delegation of the European Union to China and Euraxess have jointly published a brochure entitled *IPR in China: Guidance for Researchers*, which “aims to provide European researchers with an introduction to the basic aspects of intellectual property in the Chinese context.”⁴²

However, when it comes to the capacity to develop an EU strategic higher education and research approach towards China, the EU is no match for China. A salient fact about current EU capacity in this regard was shared by one of our interviewees:

The Chinese Academy of Sciences has an institute with eighty people doing bibliometric studies in order to be aware who is most successful in doing what and where. At the EU level we have one and a half full time employees who are involved in science cooperation with China and they do project management too.

In many European countries, China is one of several priority countries for international research and higher education cooperation. Their collaboration with China covers a broad range of research fields. A 2014 overview of the cooperation of 25 EU member

41) “Roadmap for EU-China S&T cooperation,” European Commission, October, 2017, https://ec.europa.eu/research/iscp/pdf/policy/cn_roadmap_2017.pdf.

42) “IPR in China: Guidance for Researchers,” Delegation of the European Union to China, accessed October 25, 2018, https://ec.europa.eu/research/iscp/pdf/sfic/ipr-in-china-guidelines_en.pdf.

states (and two associated countries of Norway and Switzerland) with China showed that collaboration in the fields of food, biotech, and agriculture is most common with 23 out of these 27 countries having cooperation projects in this field. The numbers for other fields are: energy (20/27); environment/health (19/27); ICT (18/27); social sciences (13/27); materials (12/27); transport (8/27); and space sciences (7/27).⁴³

Yet, many of the policy-makers, embassy attachés, and representatives of funding agencies that we interviewed said that we should not overemphasize China's importance. Other European countries and the US are considered more significant. Indeed, research shows that, for the EU, international collaboration is first and foremost intra-European collaboration. At least 70 per cent of papers in EU countries that are internationally co-authored involve researchers from other EU countries. When looking at co-authored papers produced in the world's leading science economies, the EU is the most inclined to collaborate internationally, while China is the least inclined to collaborate in this way.⁴⁴

Some European governments and/or funding agencies see things differently. According to United Kingdom Research and Innovation (UKRI), which has an office in China, China is a first-tier partner in its efforts to generate economic growth for *Britain* through research and innovation. In 2014, the UK government committed GBP 200 million (USD 256 million) to a five-year program for joint research projects financed through UKRI.⁴⁵

Germany focuses explicitly on China as well. Its Federal Ministry of Education and Research (BMBF) states that in light of the rapid development of Chinese higher education and research, it is “no longer a question of whether German science and industry should cooperate with China. Rather, it is a question of identifying appropriate objectives, thematic areas, actors and collaboration mechanisms so that such cooperation benefits Germany.”⁴⁶ Germany believes cooperation with China is necessary to develop knowledge and technology, strengthen Germany as a center for research and innovation, open up the Chinese market for German companies, and find solutions to the great social and environmental challenges of our time.⁴⁷ The BMBF has developed an extensive strategy that seeks to work with China on innovation in areas that support the “German Industry 4.0 Plan.” The German Academic Exchange Service (DAAD), which has an office in China, reported in 2017 that cooperation between German and Chinese universities is increasing and that there are now 1,240 official partnership agreements. Between 2012 and 2016, the number of Chinese students in Germany increased from 25,000 to almost 35,000.⁴⁸

Cooperation in science and technology between *Denmark* and China was significantly strengthened in 2007 when Denmark signed several memoranda of under-

43) “Research, innovation and science: Cooperation between EU member states, associated countries, the European Union and China,” Delegation of the European Union to China, July 14, 2014, http://eeas.europa.eu/archives/delegations/china/documents/eu_china/research_innovation/6_eumembers_states/140714_eu_ms_and_china_cooperation_brochure_final.pdf.

44) Veugelers, “The challenge of China.”

45) Cecily Liu, “UK and Chinese universities establish research network,” *China Daily*, May 25, 2017, http://www.chinadaily.com.cn/world/2017-05/25/content_29500366.htm.

46) “China Strategy 2015-2020,” Federal Ministry of Education and Research, December 7, 2015. https://www.bmbf.de/pub/China_Strategy_Longversion.pdf.

47) Ibid.

48) “China: Kurze Einführung in das Hochschulsystem und die DAAD-Aktivitäten” [China: Brief introduction to the higher education system and the DAAD activities 2018], Deutscher Akademischer Austauschdienst (DAAD), accessed October 29, 2018, https://www.daad.de/medien/der-daad/analysen-studien/laendersachstand/china_daad_sachstand.pdf.

standing (MoU) with the Chinese Ministry of Education and the Ministry of Science and Technology. This was followed by the opening of the “Innovation Centre Denmark” in Shanghai in 2007. The following year, the Danish government published a strategy for science and technology cooperation with China. In 2010, all eight Danish universities jointly teamed up with the Graduate University of the Chinese Academy of Sciences to establish a joint higher educational institute in Beijing: The Sino-Danish Centre. The center runs Master’s and PhD programs and develops research cooperation in selected focus areas: water and environment, sustainable energy, nanoscience, social sciences, life sciences, and food and health. Furthermore, the Danish government has an overall Joint Working Program with the Chinese government, in which innovation, as well as education and science cooperation, take a central place.

The Netherlands and China have cooperated in science since the 1980s. One early program that provided seed money for individual exchanges and small projects was the China Exchange Program, supported by the Netherlands Ministry of Education, Culture, and Science and executed by the Royal Netherlands Academy of Arts and Sciences. This enabled several decades of broad cooperation and hundreds of cooperative projects, covering all fields of science. In 2009, the Netherlands Ministry, together with the Netherlands Organisation for Scientific Research (NWO) and the Royal Netherlands Academy of Arts and Sciences (KNAW), agreed on a joint China research strategy. This strategy has evolved into coordination with a leading role for NWO since the Ministry stopped financing China programs in 2014. The KNAW decided to stop its China programs in 2016. Currently, NWO carries out bilateral research programs with several Chinese partners such as the National Natural Science Foundation of China and the Chinese Academy of Sciences. Furthermore, the NWO has agreements with the Chinese Academy of Social Sciences and Guangdong Province.

At the same time, Netherlands Ministries are reassessing their policies regarding economic and innovation cooperation with China and other areas of foreign policy. A triple helix approach towards China is in its initial phase, focusing on strengthening the links between business, research, education, and government. Regarding cooperation in the field of higher education and research, vocational education is gaining importance.

Although *Poland* used to have a strong political relationship with China in the communist past, relations dwindled after Poland had its first democratic elections and Polish media took a more critical stance towards China. In the field of higher education and research, the ties are now beginning to take a more strategic direction. Whereas, for instance, the Polish Academy of Sciences supports bottom-up individual research cooperation, the Polish government is keen to push Polish-Chinese research cooperation forward with a new basic science program executed by the Polish National Research Centre. However, overall it remains difficult for Polish universities to attract high quality Chinese students and researchers.

Across Europe, national strategic objectives are often neglected at the university or institutional level when these objectives are not supported by financing from the government. Conversely, European government officials only have a rather general overview of the cooperation of their country’s HEIs with China. University-level cooperation with China revolves around talent recruitment, student and staff mobility, and research project expansion and improvement. For a number of European universities and schools, fee-paying Chinese students contribute a significant part of their income. However, generally European (research) universities do not have specific policies in place

for the recruitment of Chinese students. Several institutions worry about having too many Chinese students and are looking at ways to strike a balance between recruiting excellent Chinese students, while maintaining a certain degree of diversity in their student population. From earlier LeidenAsiaCentre research in the Netherlands we know that Chinese students come to Europe not only to study sciences or technology. Many choose applied social science subjects, such as business studies or management.⁴⁹ The latter in particular attracts self-funded graduate students who hope to limit their expenditure, but still to get a beneficial degree for their future career back in China. According to our interviewees, the proportion of undergraduate students who come to Europe is decreasing in favor of (post)graduate students.

Outgoing European mobility to China is slowly increasing but remains limited outside of Chinese language and culture programs. Reasons for this might be the small number of English-language courses that are on offer at Chinese universities, the lack of recognition of Chinese study credits in Europe, and the perceived lack of attractiveness of studying in China. Encouraging more Europeans to study in China ought to be a priority area for further development. This is because such study is a crucial way to get a better understanding of China, and its higher education and scientific systems, as well as being a key way to create a level playing field. Encouraging European students to go to China would complement other forms of cooperation, such as mutual visits, joint research projects, workshops and summer schools, and joint labs.

3.2 Funding

The Chinese government's investment in higher education and research has been increasing for many years. In 2017, China spent more than CNY 1.1 trillion (approximately USD 157 billion) on higher education, up almost 10 per cent from 2016.⁵⁰ It spent CNY 1.75 trillion (approximately USD 280 billion) on research and development, an increase of 1 per cent from 2016.⁵¹ Investment in the internationalization of higher education keeps rising too. There are many programs for supporting incoming and outgoing students, and for staff mobility, both at the national level as well as at the local government and university-levels. These programs range from scholarships for short term summer schools to full PhD tracks.

At the national level, the majority of scholarships for students and PhD candidates are administered by the China Scholarship Council (CSC), an organization that is affiliated with the Chinese Ministry of Education. Each year, the CSC sends thousands of Chinese students with a scholarship to top universities abroad. From 2008 to 2014, the CSC supported a total of 41,909 graduate students to pursue either PhD degrees or a 1–2-year overseas study experience. In that period the top destinations of these students were: the US (17,455), Germany (3,998), the UK (3,884), Canada (2,856), Australia (2,701), Japan (2,374), France (2,194) and the Netherlands (1,607).⁵² However, despite

49) Tianmu Hong, Frank N. Pieke, Laurens Steehouder and Ju Lin van Veldhuizen, "Dutch higher education and Chinese students in the Netherlands," LeidenAsiaCentre, 2017, <http://leidenasiacentre.nl/wp-content/uploads/2017/06/Report-Chinese-students-in-the-Netherlands-2017-final.pdf>.

50) "China increases education spending in 2017," Xinhua, May 8, 2018, http://www.xinhuanet.com/english/2018-05/08/c_137164238.htm.

51) "China's R&D Spending up 11.6 pct in 2017," *Chinese Academy of Sciences*, February 14, 2018, http://english.cas.cn/newsroom/china_research/201802/t20180214_190182.shtml.

52) Wen-Qin Shen, Dong Liu & Hongjie Chen, "Chinese Ph.D. students on exchange in European Union countries: experiences and benefits," *European Journal of Higher Education* 7, no. 3 (2017), 322-335, <https://doi.org/10.1080/21568235.2017.1290885>.

these impressive numbers the majority of Chinese students abroad, which in 2017 was more than 600,000,⁵³ are self-funded.⁵⁴

As for incoming mobility, in 2018 the Chinese Ministry of Education allocated USD 469 million for scholarships for international students in China, a 16.8 per cent increase compared to 2017.⁵⁵ Many Chinese universities, including the top-ranked ones, have in the past twenty years developed English-language full degree and PhD programs, especially in the humanities, social sciences, and law. Some of these programs admit only foreign students, others, including those at Chinese-foreign joint universities such as the University of Nottingham Ningbo and Xi'an Jiaotong Liverpool University, recruit both Chinese and international students. In total 289 Chinese universities are allowed to enroll international students with a government scholarship.⁵⁶ The large majority of international students in China, however, are self-funded or have scholarships from non-Chinese sources. According to figures from the Chinese Ministry of Education, only 12 per cent of the 489,200 foreign students who studied at Chinese universities in 2017 were sponsored by scholarships provided by the Chinese government.⁵⁷ In some cases scholarships for programs at Chinese universities are funded by foreign organizations, such as the “Schwarzman Scholars Program for Future Leaders” at Tsinghua University, which is endowed by various American organizations.

Particularly on the rise in recent years have been scholarships for summer schools at Chinese universities. Many of these summer schools aim to make foreign students familiar with China, its culture, and policies, rather than with a specific academic topic. With these programs, the Chinese government hopes to create goodwill among the future generation of foreign researchers, businesspeople and decision-makers. The Chinese private sector too offers summer schools. Chinese telecom company Huawei, for instance, organizes the annual “Seeds for the Future program,” which in the past ten years has brought more than 2,700 students in ICT and related areas to China and the Huawei headquarters in Guangzhou.

Research funding

Another type of Chinese funding, aimed at research projects, concerns China's talent program: the “Thousand Talents Program” and “Thousand Youth Talents Plan” (for scientists under the age of forty) administered by the Chinese Communist Party Organization Bureau, the “Recruitment Program of Foreign Experts,” run by the State Administration of Foreign Experts Affairs of China (SAFEA) and the “Changjiang Scholars Program” of the Ministry of Education. These programs fund the recruitment of world-class researchers, professionals, and entrepreneurs who it is hoped will help to leapfrog China into a leading position in strategic fields. The Thousand Talents Plan, for example, offers awardees incentives such as a starting bonus of EUR 140,000 and research funds of up to EUR 680,000.⁵⁸ Chinese universities or local governments regularly offer to top

53) Shuo Zou, “More students go abroad for master's, study says,” *China Daily*, May 23, 2018, <http://www.china-daily.com.cn/a/201805/23/WS5b04b980a3103f6866ee9fb6.html>.

54) “2017 nian chuguo liuxue, huiguo fuwu guimo shuang zengzhang 2017年出国留学、回国服务规模双增长” [In 2017 both the number of students studying abroad and the students returning to China increased], Ministry of Education, March 30, 2018, http://www.moe.edu.cn/jyb_xwfb/gzdt_gzdt/s5987/201803/t20180329_331771.html.

55) Xiaoci Deng, “Bigger Chinese scholarships attract foreign students to boost soft power,” *Global Times*, June 6, 2018.

56) *Ibid.*

57) *Ibid.*

58) David Bekkers, “China's Pursuit of Overseas Brains: The 1,000 Talents Policy,” *Rijksdienst voor Ondernemend*

up the arrangement with additional funding. Since its launch in 2008 the Thousand Talents program has brought some 7,000 researchers to China.⁵⁹ The majority of these recruits are former Chinese students who have stayed abroad or other ethnic Chinese, thereby tapping into China's large talent pool abroad and turning the long-standing brain drain into a brain gain. However, these programs have also brought hundreds of foreign high-achieving scholars to work part-time or full-time in China. Although there are no figures about the impact of these programs on scientific development in China, China now offers very favorable employment opportunities for high-level researchers and experts. However, negative experiences in this field have been reported as well.⁶⁰

In addition to the sizable funding under the talents programs described above, many foreign researchers work in China as part of smaller bilateral university cooperative projects, without financial rewards other than their regular salary. In these cases, one interviewee explained that China can spend little money inviting a foreign researcher but get substantial research results.

There is no overview of China's investment in transnational research projects. Many of our interviewees said that national-level joint research projects are usually equally funded by both sides. Due to a difference in the basic funding structure, the matching of funds is partly in kind and partly in cash. In China, project funding cannot be used for hiring personnel, while that is often the main item on a European budget. What was commonly heard among interviewees is that in institutional bilateral cooperation, Chinese HEIs and research institutes have more funding available for the participation by Chinese partners than European HEIs have for the European partners. That makes Sino-European research cooperation beyond the scope of co-funded projects difficult. At the same time, there is no reciprocity in access to each other's science funding programs. As one interviewee stated "Under the EU Framework Program 7 (2007-2013), EUR 35 million went to Chinese partners. Now, under Horizon2020 (2014-2020), it is more than EUR 70 million per year." However, European researchers do not have equal access to Chinese research funding programs open for international participation. Some interviewees added that this situation may be different at the subnational level. In the words of one interviewee: "If the Chinese partner sees the benefit of a project and the foreign partner offers top quality, the Chinese side is sometimes willing to fully fund a research project". One Chinese scholar noted that "European institutions often do not have enough money for international cooperation." In other cases the Chinese side unilaterally finances certain aspects of a project, such as a valorization program.

One interviewee shared an anecdote that illustrates that sometimes Chinese partners are not shy to go all out if they feel that the foreign partner has something they really want. During a visit to a military hospital affiliated to a Chinese university, this interviewee was treated as a VIP. Upon arrival, the interviewee was escorted through customs by two soldiers, after which they got into a military car with the flag of the country which the interviewee came from. The Chinese colleague turned out to be not only a professor in medicine, but also a high military official. The Chinese professor introduced the interviewee to the Party Secretary of the university, who offered the in-

Nederland, January 31, 2017, <https://www.rvo.nl/sites/default/files/2017/01/1000-Talents-Policy-Article.pdf>.

59) Heping Jia, "China's plan to recruit talented researchers," *Nature*, January 17, 2018, <https://www.nature.com/articles/d41586-018-00538-z>.

60) Mara Hvistendahl, "China's programme for recruiting foreign scientists comes under scrutiny," *South China Morning Post*, November 3, 2014, <http://www.scmp.com/news/china/article/1631317/chinas-programme-recruiting-foreign-scientists-comes-under-scrutiny>.

interviewee help in getting research funding: “You can apply for funding from the China Scholarship Council, but the money will come from us, the Party. If you want money, you have to come to me. The university can recommend you but I take the final decision.”

Many interviewees said they saw China offering more funding to help European researchers and students come to China to do research, and more funding to help Chinese researchers working at top universities abroad to return to China, than it offered to help Chinese researchers to go to Europe. They noted that hardly any top Chinese researchers came to European countries for research. With the availability of good positions and plenty of research funding in China, and the limited incentives offered by European universities, it is attractive to stay in, or return to, China. There are also additional financial incentives: many of the Chinese top 100 universities offer researchers cash rewards for a publication in top western journals, something that is taboo in western countries. The highest rewards, up to USD 165,000, are paid for a publication in the journals *Science* and *Nature*.⁶¹ This may also be one of the major reasons for a trend that one researcher with much China experience sees developing in which Chinese researchers demand to be first and corresponding author in joint publications.

Another experienced interviewee told us that the difficulty getting Chinese talents to work long-term in Europe is basically a matter of financing: “many European universities and organizations don’t seem to understand that when they themselves don’t fund well, they will not get good quality people and projects on the Chinese side.” Even at the level of PhD candidates, some interviewees complain, it is difficult to attract talents as professors in China want to keep their top students, promising them a job after graduation if they stay in China. Chinese top universities also increasingly organize recruitment events at European universities with large groups of Chinese students. One interviewee said they had seen two to three of such events per year at their university, usually supported by the local Chinese Embassy.

Funding specific areas of research

Various interviewees stated that the Chinese government and organizations such as the CSC primarily funded projects and themes that supported China’s broader agenda for economic development. Data on higher education in China indeed shows a domestic focus on the natural sciences: of the approximately 313,000 students enrolled in doctoral programs in China in 2014, 58 per cent were PhD students in science or engineering.⁶² According to a World Economic Forum report, in 2013 over forty per cent of Chinese graduates finished a degree in science, technology, engineering, or mathematics (STEM). This was more than twice as high as the percentage in the US. In 2016, China had 4.7 million recent STEM graduates, compared to 568,000 in the US.⁶³ CSC focuses on science, technology, and agriculture in their outgoing PhD scholarship programs. One interviewee indeed reported that a preference for science and technology has been reflected in the awarding of CSC scholarships to their university in the past years with roughly half

61) “The Truth about China’s Cash-for-Publication Policy,” *MIT Technology Review*, July 12, 2017, <https://www.technologyreview.com/s/608266/the-truth-about-chinas-cash-for-publication-policy/>.

62) Xueying Han and Richard P. Appelbaum, “China’s science, technology, engineering, and mathematics (STEM) research environment: A snapshot,” *PLoS ONE* 13, no. 4, <https://doi.org/10.1371/journal.pone.0195347>.

63) “The Human Capital Report 2016,” World Economic Forum, accessed October 29, 2018, http://www3.weforum.org/docs/HCR2016_Main_Report.pdf; Niall McCarthy, “The Countries With The Most STEM Graduates,” *Forbes*, February 2, 2017, <https://www.forbes.com/sites/niallmccarthy/2017/02/02/the-countries-with-the-most-stem-graduates-infographic/>.

of the scholarships going to natural science disciplines and medicine being the second largest recipient. Various studies report that the most popular fields of study for Chinese students in Europe are natural sciences, business and economics, and engineering.⁶⁴

Some interviewees noted that within the areas of science and medicine the Chinese government invested strongly in applied research that could lead to products that are relevant to China's development (valorization). One interviewee mentioned that they had seen projects concerning medical research on subjects such as social events, psychological issues, and basic biological functions rejected by the CSC. Figures support this view: in 2013 China spent only 4.7 per cent of its total R&D budget on basic research, compared to 24.7 per cent in France and 17.6 per cent in the US.⁶⁵ In 2017, China spent 0.1 per cent of its gross domestic product on basic research, compared to the US spending 0.2 per cent of its GDP.⁶⁶ This relative neglect can be considered a serious weakness of China's research system and one that may hamper China's aim to become a leading innovating country. More recently, however, China has been increasing funding of basic research. In 2017, China increased its spending on basic research to 5.3 per cent of total research spending, up from 4.8 per cent on average in the period 2005-2015.⁶⁷

In the social sciences and humanities the issue of funding specific areas of research revolves less around science policy than around censorship and political sensitivity (see chapter 6). As some interviewees note, highly sensitive topics are avoided and many students and researchers know how to frame and formulate a research proposal in order to get it past the censors. One researcher notes, for example, that it is hard to publish jointly with Chinese scholars in China studies. However, as one interviewee said: "it is not as if this policy is invariably ultra-conservative. The CSC has, for instance, sponsored projects in LGBT studies."

3.3 Agenda-setting

Our interviewees told us that China often took the initiative in establishing contacts and proposing research projects or student exchange programs. A recent study showed that academic collaborations between China and EU countries have been mainly set up by Chinese researchers.⁶⁸ Many interviewees furthermore saw Chinese counterparts promoting collaboration mainly in areas that are of strategic importance for China, mentioning the areas of engineering, robotics, artificial intelligence, aviation and 5G mobile technology. One of them said the following:

The EU and China have different priorities. Chinese demand for cooperation in electric vehicles, advanced materials, and niche areas in energy didn't match the priorities of the European side. Sensitive areas are those that are close to the market – those were excluded by the European side. Rather, the EU prefers cooperation in research with the Chinese in the pre-competitive (fundamental research) phase.

64) See e.g.: "EU-China Student and Academic Staff Mobility: Present Situation and Future Developments," GHK Consulting and Renmin University, April 29, 2011, http://ec.europa.eu/assets/eac/education/international-cooperation/documents/china/mobility_en.pdf.

65) Wei Yang, "Policy: Boost basic research in China," *Nature*, June 22, 2016, <https://www.nature.com/news/policy-boost-basic-research-in-china-1.20117>.

66) David Cyranoski, "Chinese leaders create science mega-ministry," *Nature*, March 20, 2018, <https://www.nature.com/articles/d41586-018-03246-w>.

67) "China's R&D spending up 11.6% in 2017," *China Daily*, February 13, 2018, <http://www.chinadaily.com.cn/a/201802/13/WS5a827ffa3106e7dcc13c829.html>.

68) Lili Wang and Xianwen Wang, "Who sets up the bridge? Tracking scientific collaborations between China and the European Union," *Research Evaluation* 26, no. 2 (April 2017): 129, <https://doi.org/10.1093/reseval/rvx009>.

However, some European governments, universities, research institutions and individual researchers are insufficiently aware of, or neglect, the strategic implications of such collaboration with Chinese partners. Many of our interviewees also reported a lack of a clear vision among European governments and institutions, allowing Chinese partners to shape the agenda for their collaboration. Several interviewees said their institution did not have a China strategy in place, nor did their institution have guidelines on which subject areas to avoid when working with Chinese partners. However, tellingly perhaps, many of the interviewees themselves had actually never reflected on this until asked about it specifically during the interview.

In negotiations on cooperative ventures, longer-term agendas often remain unstated and implicit, creating doubts or even suspicions on the part of the non-Chinese partner. As a policy officer at a major European university put it: “Chinese tend to speak with you about future goals, but they don’t speak about it openly. They negotiate with you about A, but they hardly speak about B and C which they also want to achieve.” An example was provided by another interviewee who told us that a vice-chancellor of a Chinese university asked him to set up cooperation at faculty-level. This led to a visit to China by a group of European students for a project to make a film about an island in the [contested] South China Sea. After doing the students this favor the same Chinese vice-chancellor told the interviewee that he also wanted to establish a Confucius Institute at their university.

It should be emphasized that agenda-setting happens not only at the level of the Chinese central government, but also at the local government level, as well as being done by businesses. Several interviewees remarked that Chinese partners wanted foreign research partners to deliver input to, or to do research for, local industry in China. This could for instance take the form of Chinese partners asking for fifty per cent of foreign researchers’ project time to be devoted to questions from local companies. It could also be a case of Chinese partners seeking to involve local industry when developing the research agenda or to create additional income for “research on demand.”

One interviewee said: “There is nothing wrong with China’s growing role in setting the agenda, we see it as a good thing, as [a sign that] China [is] becoming mature in research cooperation.” But the balance may have tipped to the wrong side. The fact that, in fast-growing collaborative fields, China’s ‘Revealed Comparative Advantage’ (RCA) scores have increased relative to the EU28 indicates that China has benefited more from scientific collaboration with the EU.⁶⁹ The European side, presumably because it is not leading the joint projects, has not been able to advance their RCAs in the fast-growing collaboration fields.”⁷⁰

3.4 Research ethics

China has been relatively late in developing research ethics and a research ethics assessment system. A full-fledged ethics assessment structure is yet to be realized.⁷¹ European research partners are not clear about what ethics committees are in place on the Chinese side and how they function, and they sometimes do not take the effort to investigate this aspect of China’s research. This is then left for the Chinese research partners to deal with. China often takes a pragmatic view. For instance, where scientists in the West generally

69) Ibid.

70) Ibid.

71) Xin Ming, David Douglas, Agata Gurzawska, Philip Brey, “Ethics Assessment in Different Countries: China Country Report,” SATORI, June, 2015, <http://satoriproject.eu/media/4.b-Country-report-China.pdf>.

reject human gene editing research on embryos on the grounds that it amounts to genetic engineering of humans (albeit in the earliest technological stages), in China, this kind of research is happening as we speak with an attitude of “do first, talk later.”⁷² This climate can be attractive to some European researchers, particularly those working in the field of medical research. When asked about the reasons why they conducted research in collaboration with Chinese partners, several interviewees pointed out that working in China was a way to duck the very strict European rules on animal and human subjects. It is easier to do experiments in China, especially in areas in which China wants to become a global leader. One researcher explained the ethical dilemmas he is faced with on the issue of animal experiments, which are handled more easily in China:

Should we transfer our animal experiments to China because from 2025 our European university needs to be free of animal experiments? Our university rector told us to move our animal experiments elsewhere and the planned infrastructure for animal experiments at our university was cancelled [...] An EU-funded animal experiments lab has been set up in Lisbon, Portugal, with good facilities... However, for animal experiments you need to apply to an ethics committee, a process taking nine to twelve months. In China things take three to four weeks.

Another researcher spoke about the dilemmas in big data:

I think there might not be an ethical committee code of conduct in place in China for doing IT research or big data research. A lot of cooperation with China happens in the field of big data. But Chinese and European researchers in this field often do not think about ethical issues or ask themselves where the big data comes from. Data protection guidelines in Europe are sometimes so stringent that they cannot use the data. It would even put interviewees in danger to ask them for a signed consent form, as is required in the UK. In China, researchers say they can use the data and promise to protect the data and make sure nothing bad happens with it. But Chinese researchers cannot guarantee that these data might not be used by Chinese politicians or civil servants later on.

Although European universities expect their employees to adhere to codes of research ethics in all their work, including in international cooperation projects, it seems that in practice researchers do not always adhere to this rule. We need to bear in mind that, when we pause to reconsider our engagement with an illiberally-ruled country, we will have to consider all aspects. Criticizing a lack of academic freedom or infringement of intellectual property rights in China, for instance, while condoning the dodging of our own rules by working in China would squander whatever grounds we have to criticize Chinese practices that do not conform to our rules and values.

72) Didi Kirsten Tatlow, “A Scientific Ethical Divide Between China and West,” *New York Times*, June 29, 2015, <https://www.nytimes.com/2015/06/30/science/a-scientific-ethical-divide-between-china-and-west.html>.

4. Opportunities and challenges

4.1 Opportunities

What makes China an attractive partner for European higher education institutions? The majority of interviewees saw major benefits of cooperation with China coming from the sheer size of China's academic system. With eight million students graduating annually (2017), China has a great pool of academic talent and many European universities are happy to receive foreign-funded PhD candidates to sustain their research. Our interviewees in the natural and technical, as well as the medical sciences, in particular saw cooperation with China as a necessity to maintain or strengthen research excellence. They tended to take a generally bullish view stating that China already was a global leader, because of continuous investments of the Chinese government in science, technology and innovation. They mentioned that recruitment of PhD students was a priority to make up for the decreasing numbers of domestic students, especially in applied research. There is a shared belief among practitioners in these subjects that China is the future as far as research and higher education is concerned. These kinds of views of Chinese universities' excellence were less prevalent, though not absent, among scholars in the social sciences and humanities. These scholars pointed out that their top partners were to be found in Europe or in the US.

Other general benefits that were often mentioned by interviewees were Chinese research funding, access to (big) data, and the use of expensive equipment that is scarce or simply not available at European institutions. For instance, two interviewees explained that they knew of several joint research projects in which the Chinese partner had expensive equipment at its disposal but lacked the knowledge to make good use of it. In these projects, the European partner supplied the know-how and in turn got the opportunity to work with the equipment. An interviewee working in medical research mentioned that it was convenient to have access to large cohorts of patients. Another interviewee pointed out that "in public health, it is necessary to involve China because China is sometimes the source of certain epidemic diseases."

Others said that their country or university invested in the cooperation with an eye on the future, as they saw China becoming an academic powerhouse sooner rather than later; or because they saw it as imperative to involve China if one wanted to find solutions to global challenges such as climate change. According to administrators of UK-China joint institutes and joint programs interviewed for a 2017 research report, for the UK the most important benefits of these joint initiatives include the potential they offer to gain strong familiarity with the Chinese market and deeper knowledge of operating in China, as well as the opportunity to learn about the Chinese way of carrying out operations and gain new ideas for implementation in the UK.⁷³

Several interviewees mentioned that for some European universities and business schools, which need an influx of foreign students to safeguard their future, the benefits lie simply in attracting Chinese fee-paying students.

The German Federal Ministry of Education (BMBF) has developed a detailed China cooperation strategy based on an analysis of strengths, weaknesses, opportuni-

73) "Research on Current UK-China Transnational Education: From the Perspective of Administrators and Students," British Council and China Education Association for International Exchange, August, 2017, <https://siem.britishcouncil.org/sites/siem/files/field/file/news/2017%20BC-CEAIE%20Joint%20Research%20Report%20of%20UK-China%20TNE.pdf>.

ties, and threats (SWOT). It sees cooperation providing opportunities for ‘unleashing German innovation potential in China’ especially in areas that support the ‘German Industry 4.0 Plan’ and providing training of future employees for German industries (see section 3.1).⁷⁴ More broadly, improved interactions between academia, industry and governments (triple helix cooperation) could allow European countries side to better leverage its capacities with regard to China.

Many interviewees said European countries and institutions often missed opportunities and should pay more attention to what China has to offer. They highlighted science park cooperation, valorization, and two-way staff exchanges. One interviewee mentioned a case in which his country had missed opportunities because there was no follow up on contact with, and requests for feedback from, the Chinese Ministry of Science and Technology.

The rapid rise of China in the rankings of the Global Innovation Index, from 29th in the overall index in 2015 to 17th in 2018,⁷⁵ does offer opportunities for expanding the scope of Europe-China collaboration. In view of the increasingly tense relationship between China and the US, and the currently escalating trade war, Europe may have a window of opportunity for strengthening ties with China. In 2017, there was a decline of 24 per cent in Chinese students receiving visas to go to the US.⁷⁶

4.2 Challenges

The pioneering days of China’s opening up and the promise of more liberal changes are gone. More realistic, and better-informed, assessments of the opportunities and risks of collaboration with China are necessary. Many of the problems mentioned by the interviewees have to do with research and teaching in China itself and European partner institutions can do little to change these things. There are, however, several important issues that we can and must address, either because they are in part our own doing as European partners (such as the lack of a strategic approach towards China) or because they take place in Europe itself (such as infringements on academic freedom in European classrooms). These, we believe, require further thought, awareness-raising, and perhaps even coordinated action.

Before proceeding here, we note that discussions of the risks and challenges of international cooperation with China in higher education and research focus overwhelmingly on political concerns such as political influencing, censorship, and academic freedom. This goes for academic discourse, media reports, as well as our interviewees’ input for this report. Indeed, we agree with a recent MERICS study that “[...] all areas of Europe’s interaction with China have strong political undertones [...]” and, therefore, we need to give due consideration to the political dynamics of China-Europe collaborations in higher education and research.⁷⁷ However, we should not disregard the non-political risks and challenges that in certain cases may very well be a more immediate threat to successful collaborations. For instance, both European and Chinese interviewees indicated that language and cultural barriers are a very prominent challenge to working

74) “China Strategy 2015-2020,” Federal Ministry of Education and Research.

75) “The Global Innovation Index 2018: Energizing the World with Innovation,” Cornell University, INSEAD, and WIPO, 2018, 241, <https://www.globalinnovationindex.org/gii-2018-report>.

76) Stef W. Kight, “The disappearing Chinese student visa,” *AXIOS*, May 6, 2018, <https://www.axios.com/foreign-student-visas-dropping-china-india-trump-81e70609-9fa7-43eb-8f40-ccfef9fe3fa5.html>.

77) Thorsten Benner et al., “Authoritarian Advance: Responding to China’s growing political influence in Europe,” *GPPI & MERICS*, February, 2018, 3, <https://www.merics.org/en/publications/authoritarian-advance>.

together. Also, differences in administrative practices and procedures between Chinese and European university structures continue to be a major challenge for both Chinese and European partners. Europeans are often puzzled by the opacity and unpredictability of the Chinese governmental system and institutions.⁷⁸ Many interviewees raised issues linked to a lack of information and/or transparency regarding plans, policies, and project goals on the Chinese side. For instance, they said that the difficulty getting information about the military links or business partnerships of Chinese universities sometimes gave foreign partners cause for concern.

Many of our interviewees observed a general lack of knowledge among researchers and institutions about China's political and academic system or about their Chinese partner's agenda's or relationships. Various interviewees mentioned that, in order to keep informed about Chinese policy developments in higher education and research, it was necessary to be in regular personal contact with Chinese people or to be in China. One interviewee put it as follows: "you don't get it [the risks involved] if you have not spent much time here; many people back home just don't want to be aware." This lack of knowledge may lead to security risks but also gives the Chinese side an edge, especially in conjunction with its advantage in setting the agenda (see 3.3 above).

One of our interviewees expressed his perception of the lack of insight in China's academic system in rather stark words:

An important difference is that Western scientists often think that Chinese colleagues are doing "science for science's sake", to find the "truth" or contribute to a better world; but Chinese scientists primarily work for "the big man" (currently President Xi) and his policy goals; that is a different basis for doing research and scholars should be aware of that.

One of the interviewees, when mentioning espionage by Chinese students in their European country, drew the conclusion that "if one understands China better, one also sometimes has to draw the conclusion that certain things in cooperation are not – or are no longer – possible."

Another interviewee pointed to the benefits of being well informed:

When a European partner does have the right China knowledge and experience, the results are often markedly different. They will know who the top researchers are, where to put their money in China, and what kind of projects the Chinese side is willing to fund.

There may indeed be naivety or even negligence at play here. Instead of expecting Chinese partners to play by our rules, we are better advised to understand the Chinese rules and objectives in order to arrive at more pragmatic ways of engaging in cooperation that are not based on expectations but on well-understood interests. One interviewee put this as follows: "You should not think in risks and challenges; when both sides take a strategic approach and make sure there will be a mutual benefit, the cooperation will be successful."

Of course, such a strategic approach must also be based on a better understanding of other issues that have now come to limit the extent of collaboration, such as political

78) See also: Chang Zhu, Yuzhuo Cai and Karen François, "Perceptions of European and Chinese Stakeholders on Doctoral Education in China and Europe," *European Journal of Higher Education* 7, no. 3 (2017), 227-242; "Research on Current UK-China Transnational Education," British Council and China Education Association for International Exchange.

influencing and lack of academic freedom and the issue of espionage by Chinese students and researchers in Europe. Indeed, the elephant in the room when talking about risks and challenges is the explicitly political factors that have become much more prominent in Chinese society since Xi Jinping became president in 2013. Our interviewees pointed to various specific issues that have followed from the increased political interference in research, teaching, and international cooperation such as increasing difficulty to freely access the internet, surveillance cameras in classrooms, and difficulties with getting visas for scientists and university staff to work in China. They also pointed to recent regulations and laws such as the August 2017 State Council plan furthering integration of civil and military technologies, the cybersecurity law (in effect since June 2017), the NGO law (in effect since January 2017), and the State Council ‘Scientific Data Administrative Measures’ (March 2018).

With regard to the issue of use of research data, universities may be well-advised to draw up a data management plan and discuss the aspects of data use in detail with their Chinese partners. As one scientist noted “We agree beforehand how we deal with data usage. How do we publish? With whom? Where do we take measurements? Where do we store the data?”

Various interviewees warned that Europe should not become dependent on Chinese financing, through, for instance, CSC scholarships. They said research should not be at risk if the Chinese government suddenly decides to stop CSC funding to a particular country or university.

4.3 Political influencing

Over the last two years, there has been a spate of Western media and think tank reports published on China’s political influence activities. Chinese political influencing deploys multiple tactics to target foreign media, academia, opinion leaders, (former) politicians, political parties and businesses. The goal of Chinese influencing in other countries is to insert Chinese interests, opinions, and priorities into public opinion and decision-making processes.

Reports from Australia and New Zealand are the most strongly worded and also contain the most serious case material, but similar reports from the US and Europe have also begun to appear. According to Anne-Marie Brady, professor at the University of Canterbury in New Zealand, China co-opts foreign academics, entrepreneurs, and politicians to promote China’s perspective in the media and academia and builds up positive relations with susceptible individuals by showing generous political hospitality in China:

The explosion in numbers of all-expenses-paid quasi-scholarly and quasi-official conferences in China (and some which are held overseas) is a notable feature of the Xi era, on an unprecedented scale (...) Small states are particularly vulnerable to foreign influence activities: our traditional media has limited resources and lacks competition; our tertiary education sectors are small, and despite the laws on academic freedom, easily intimidated.⁷⁹

79) Anne-Marie Brady, “Magic Weapons: China’s political influence activities under Xi Jinping,” September 16, 2017, 9, 43, <https://www.wilsoncenter.org/sites/default/files/magicweaponsanne-mariebradyseptember162017.pdf>; See also: Jonathan Sullivan, “Western universities are not prepared for engaging with China: attempts to exert influence exploit schools’ financial needs and individualism,” *Nikkei Asian Review*, December 27, 2017, https://asia.nikkei.com/Viewpoints/Jonathan-Sullivan/Western-universities-are-not-prepared-for-engaging-with-China?n_cid=-NARAN012; Elizabeth Redden, “China’s ‘Long Arm,’” *Inside Higher Ed*, January 3, 2018, <https://www.insidehighered.com>.

Many of these efforts appear to be a continuation and intensification of long-established, so-called Communist Party United Front work with non-communist forces inside and outside China. Others amount to little more than the lobbying efforts by many other countries, companies or interest groups. Sometimes, however, efforts shade into illegal (or at the very least unethical) practices of influence-buying, corruption, or even espionage.⁸⁰

In an arguable instance of political influencing, the Chinese government called upon overseas Chinese scholars and students to represent its political standpoint in the Netherlands when Permanent Court of Arbitration ruled against China in the South China Sea case in 2016.⁸¹ In other cases Chinese students and staff in Europe have been called upon to come and cheer for Chinese high-level visitors with the aim of overshadowing possible demonstrators against China.

A recent report by the Wilson Center on political influence and interference in American higher education noted a worrisome trend, noting signs of influencing in the US such as retaliation to the hosting of speakers and events, pressures on faculty, and Chinese students. However, the report also warns that these concerns, while warranted, 'are sometimes overblown and fraught with potential for mischaracterization, or worse, racial profiling.'⁸²

Similar findings emerge from our research in Europe. When asked about the influence of Chinese strategies in Europe, our interviewees in general had clear opinions that much was afoot and that science in China had become more aligned with the state's security needs and strategic vision. Some of our interviewees shared stories of Chinese students' reluctance to speak and of monitoring by Chinese embassies, Associations of Chinese Scholars and Students, and by local cells of the Chinese Communist Party at universities in Europe. The latter "Party cells" are set up to "meet challenges in terms of education, development, and management of student Party members [overseas]," holding discussions of Party theory and regularly sending students' ideological reports back to the motherland.⁸³ The interviewees also spoke of institutions being invited to join politically oriented programs (e.g. on the BRI). In addition, these interviewees presented us with information on Chinese government or Communist Party influence over higher education and research in China itself. All in all, our findings were too anecdotal to claim that China is engaging in large-scale concerted political influencing (as defined above) in Europe through higher education and research.

com/news/2018/01/03/scholars-and-politicians-raise-concerns-about-chinese-governments-influence-over.

80) For German examples, see Christoph Giesen and Ronen Steinke, "Wie chinesische Agenten den Bundestag ausspionieren" [How Chinese agents spy on the German parliament], *Süddeutsche Zeitung*, July 6, 2018, <https://www.sueddeutsche.de/politik/einflussnahme-auf-politiker-wie-chinesische-agenten-den-bundestag-ausspionieren-1.4042673>.

81) "Chinese overheid houdt stevige grip op studenten in het buitenland" [Chinese government keeps steady grip on students abroad], *DUB*, June 8, 2018. <https://www.dub.uu.nl/nl/nieuws/chinese-overheid-houdt-stevige-grip-op-studenten-het-buitenland>.

82) Anastasia Damnjanovic, "A Preliminary Study of PRC Political Influence and Interference Activities in American Higher Education," September 6, 2018, 113, <https://www.wilsoncenter.org/publication/preliminary-study-prc-political-influence-and-interference-activities-american-higher>.

83) "Piaoyang zai haiwai de dangqi - Shanghai waiguoyu daxue xifang yu xi haiwai dang xiaozu 飘扬在海外的党旗——上海外国语大学西方语系海外党小组" [The Party Flag fluttering overseas - The overseas Party Cells of the Shanghai International Studies University School of European and Latin American Studies], Shanghai International Studies University, accessed April 30, 2018 (page has been removed, backed-up version available upon request). See also: "Ji Shanghai waiguoyu daxue xifang yu xi haiwai xuexeng dang xiaozu 记上海外国语大学西方语系海外学生党小组" [Recording the Overseas Student Party Group of the Western Languages Department of Shanghai International Studies University], *CPC News Net* 中国共产党新闻网, May 4, 2012, <http://dangjian.people.com.cn/GB/17809631.html>.

Confucius Institutes

Confucius Institutes are Chinese government-funded centers for the promotion of Chinese language and culture that have been established all over the world. In 2016, there were 170 Confucius Institutes and 293 “Confucius Classrooms” (i.e. China-sponsored courses in Chinese language and culture in secondary education) in Europe. In recent years, the media and academics have written extensively about the issue of Confucius Institutes serving as soft power tools and about the perceived adverse effects of these institutes on academic freedom. Most of these reports originate from the US and the issue, although not absent, appears to be less heated in Europe. The Confucius institutes were not often brought up in our interviews, maybe because they do not generally affect research cooperation at large. However, some European universities have closed their Confucius Institutes (Lyon University and Stockholm University).⁸⁴ We emphasize that Confucius Institutes are inherently political and that collaborations with Confucius Institutes may have political strings attached. This is not at all to say that cooperation is undesirable under all circumstances, but we recommend European institutions to be aware of this and to formulate their own “red lines” before entering into cooperation to ensure that the Confucius Institute contract leaves no room for political interference.

4.4 Infringements on academic freedom

Restrictions on academic freedom⁸⁵ are a prominent feature in the narrative of concern about cooperation with China in western academia. In this context, western academics have called for the (re)building of consensus on the concept of academic freedom itself and the way it should guide academic practice. For instance, James A. Millward, a professor of history at Georgetown University, decrying Western institutions bending too easily under Chinese pressures, has argued that:

*We need some open statements or standards, guidelines, about how these situations should be dealt with, and we don't really have that. There is this kind of general sense of what academic freedom is and so on and so forth, but universities just want to go forth alone.*⁸⁶

This view was echoed by several of our interviewees.

The Chinese understanding of academic of freedom is a different one, calling for limitations on what can be taught. In 2015, the Chinese Minister of Education Yuan Guiren called for resistance to western textbooks spreading “false western viewpoints”

84) Diego Torres, “China’s soft power offensive,” *Politico*, December 26, 2017, <https://www.politico.eu/article/china-soft-power-offensive-confucius-institute-education/>.

85) The United Nations Educational, Scientific and Cultural Organization (UNESCO) defines academic freedom as the freedom of academics to teach and discuss, carry out research, publish results, freely express opinions about the academic institution or system in which one works, participate in professional or representative academic bodies and not be censored (source: “Recommendation Concerning the Status of Higher Education Teaching Personnel,” UNESCO, November 11, 1997, paragraph 27, http://portal.unesco.org/en/ev.php-URL_ID=13144&URL_DO=-DO_TOPIC&URL_SECTION=201.html).

86) Redden, “China’s ‘Long Arm.’”

causing some national controversy.⁸⁷ An article on the CCP news website published in the wake of those remarks offers something of an official Chinese stance on academic freedom:

*Academic freedom is not equal to “doing whatever you want.” The purpose of studying Western knowledge is to use it in our country’s interest, but we shouldn’t be manipulated by Western knowledge and its value system in particular. Teachers shouldn’t use their classrooms as a place where they can teach whatever they want.*⁸⁸

Our interviewees often pointed to the increasing political scrutiny that is being given to teaching and research in China as a major issue hindering the full and free exchange of ideas. Several of our interviewees had experienced limited room for discussion of sensitive issues and many raised the issue of Chinese students not being free to express themselves on all topics. They also raised the issue of Chinese students being watched. They said they were aware that Chinese students – both at home and abroad – might have a fellow student monitoring them and that, if a student is heard making a critical remark about Chinese politics, they might be reprimanded.⁸⁹

Some salient examples were given. For instance, one interviewee spoke of a workshop that was held in Europe and attended by Chinese scholars. At this workshop, a young Chinese scholar spoke enthusiastically about the Arab Spring and the power of social media in non-democratic countries. It was later reported to our interviewee that a higher-ranking university official reprimanded the scholar, threatening to report him. As a result of this reprimand, the young scholar stopped speaking. Another interviewee shared a case where a Chinese researcher was ‘invited for tea’ (a soft form of interrogation) by the local authorities after returning home to China. He was asked to tell the authorities about both his own research and also about other research on China which was being conducted at the European university department where he received his PhD. One interviewee said they had found that the research question “Are Chinese institutions conducive to economic growth?” was already deemed (too) sensitive. Other interviewees with personal experience of research collaboration, particularly in the natural sciences, however, stated that they had never experienced political interference with their work.

Nearly all interviewees were aware of the prevalence of censorship in China. They overwhelmingly cited limited access to sources online and problems with VPNs (software used to circumvent internet censorship). Some also mentioned running into obstacles when trying to access libraries. One European interviewee raised a case of direct interference where they had received a “strong request” to change the theme of a moot court organized by the European university in China. Another interviewee mentioned

87) Chris Buckley, “China Warns Against ‘Western Values’ in Imported Textbooks,” January 30, 2015, <https://sinosphere.blogs.nytimes.com/2015/01/30/china-warns-against-western-values-in-imported-textbooks/>.

88) “Han Xiping: xueshu ziyou bing bu dengyu “renxing” daxue ketang bu shi ‘xiuchang’ 韩喜平：学术自由并不等于“任性” 大学课堂不是“秀场” [Han Xiping: academic freedom is not equal to “doing whatever you want” and university classrooms are not for showing off personal convictions], *CPC News Net* 中国共产党新闻网, February 4, 2015, <http://theory.people.com.cn/n/2015/0204/c148980-26506107.html>.

89) For reference, a recent US journalistic article, based on over 100 interviews, points out that some Chinese students, American faculty members, and human rights activists believe Chinese students and faculty sometimes spy on other Chinese students - and, to a lesser extent, American professors (source: Isaac Stone Fish, “The Other Political Correctness: Why are America’s elite universities censoring themselves on China?,” *The New Republic*, September 4, 2018, <https://newrepublic.com/article/150476/american-elite-universities-selfcensorship-china>).

that their students (at a foreign branch campus in China) had several pages of their textbook glued together because they touched upon topics that were seen as sensitive in China. The students had then informed our interviewee that these topics were not to be discussed in class.

Conversely, another interviewee, a European humanities scholar, mentioned that, when they were teaching a class during a summer school at Renmin University, they had full freedom of speech, talking about individualism in western political thinking. When the interviewee expressed surprise about this freedom to speak, a Chinese scholar responded: “Here we educate the leaders of the future. We need to know how the other side is thinking.” Two other European interviewees, working at Chinese top universities, also said that their employers did not in any way restrict the topics they were teaching. One of them suggested that the university realized they had to be “open to the outside world” in order to become a world-class university. It is likely that foreign scholars are generally given more freedom when compared to their local colleagues, so long as they stay within a certain controlled environment. A comment by another interviewee supported this point of view. They said they sometimes had the feeling that they were being invited to speak specifically in order to raise issues, as a foreigner, that Chinese scholars were unable to bring up themselves.

Concerns about academic freedom thwarting ambitions of transnational education

Pioneering transnational education in the Netherlands, the University of Groningen planned to establish a campus with China Agricultural University in the city of Yantai in China. The original plan was to establish a joint private university (branded by the University of Groningen as a branch campus). This campus would have Chinese income (from tuition fees) and Chinese investment (by local governments, Chinese companies, and the Chinese Agricultural University), while utilizing human resources provided by the University of Groningen.⁹⁰ The main aims of establishing the campus were to focus on education programs, attract Chinese talent, and create opportunities in research and human resource development for companies from the north of the Netherlands.

During the preparation period, it became clear that Chinese government control would be strengthened with a central role for the Chinese Communist Party Secretary in the managing board of the joint university. This development increased doubt among employees and students in Groningen about the limitations to academic freedom that would be present on a campus in China. In the end, the university board decided it would not table the plans for the Yantai campus in the university council because it expected too much internal opposition.

Currently, work is still being done on alternative cooperation plans in Yantai.

90) “Branch campus Yantai,” University of Groningen, accessed October 4, 2018, <https://www.rug.nl/about-us/internationalization/yantai/>. “

Limitations to research

Foreigners doing research in China are confronted with many limitations, particularly in the social sciences. For instance, foreigners are forbidden from conducting independent surveys. Foreign researchers must find Chinese partners to conduct their survey for them, or else find ways to add their items to an existing Chinese survey. It is also hard to obtain reliable data in social science research on sensitive issues such as poverty or ethnic minorities. One interviewee told us that they could not freely use and publish the data from joint social science research in China. This data first had to be screened by the Chinese side before it was released through the Chinese partner university. Another interviewee, who had conducted a survey in a minority area together with Chinese partners, told us that after riots had occurred in this area their original research results were replaced by a new survey in which they were not involved.

A recent study by the scholars Sheena Chestnut Greitens and Rory Truex, surveying over 500 China scholars, found that:

Repressive research experiences are a rare but real phenomenon, and collectively present a barrier to the conduct of research in China. Roughly 9 per cent of China scholars report having been “taken for tea” by authorities within the past ten years; 26 per cent of scholars who conduct archival research report being denied access; and 5 per cent of researchers reported having some difficulty obtaining a visa.⁹¹

The study also noted that the scholars having visa issues (including denials) were disproportionately those who studied topics like ethnicity, human rights, religion, and the Party itself.⁹²

With regard to Chinese students abroad, it is known that publicly funded students have to periodically report to China’s diplomatic missions and are expected to be members of the official Chinese students’ organizations (these associations are usually called the Association of Chinese Students and Scholars). In Europe at least, the management of Chinese students and students’ associations used to be carried out with a light-touch, but scrutiny and management have recently been stepped up.⁹³

A report by the *Global Times*, a Chinese tabloid newspaper, quoted Su Wei, a professor at the Party School of the CCP Chongqing Municipal Committee, as having said that: “The rising number of overseas Party branches is a new phenomenon, showing the growing influence of the CPC [CCP] and China.” The same *Global Times* article also reported that the founder of a two-week old Party branch at UC Davis decided to shut it down “after learning about the US Foreign Agents Registration Act, which requires any person in the US representing the interests of foreign powers in a ‘political or quasi-political capacity’ to disclose their relationship with that foreign government as well as any information about related activities and finances.”⁹⁴ Based on a conversation with a former Party cell leader, one of our interviewees told us that the cell at their university aimed to keep Chinese (government sponsored) students on the “right ideological track.”

91) Sheena Chestnut Greitens and Rory Truex, “Repressive Experiences among China Scholars: New Evidence from Survey Data,” August 1, 2018, 17, <https://ssrn.com/abstract=3243059>.

92) Chestnut Greitens and Truex, “Repressive Experiences among China Scholars: New Evidence from Survey Data,” 2.

93) “Chinese overheid houdt stevige grip op studenten in het buitenland”, *DUB*.

94) Yu Zhang, “CPC members encounter obstacles while trying to establish Party branches overseas,” *Global Times*, November 28, 2017, <http://www.globaltimes.cn/content/1077619.shtml>.

Students are warned when they go off-limits with their opinions or public remarks on political issues “for their own good, and with an eye on their future back home.”

A final European incident that merits mentioning here occurred at the 2014 conference of the European Association for Chinese Studies, which was in part funded by the Confucius Institute, at the University of Minho in Braga, Portugal. On the first day of the conference, Xu Lin, chief of the Confucius Institute Headquarters, ordered the seizure of all program booklets to tear out four pages on which references were made to institutions in Taiwan. This incident exacerbated European concerns about the effects that cooperation with Confucius Institutes might have on academic freedom.⁹⁵

4.5 Self-censorship

The self-censorship that China inspires poses a most significant challenge to international academia. The case of multiple academic publishers, including the prestigious Springer Nature and Cambridge University Press, complying with requests from the Chinese government to remove or block access to hundreds of articles on their Chinese websites (“solicited self-censorship”) was widely reported in 2017. Although Cambridge University Press has backtracked on their decision under public pressure, other publishers such as Springer Nature have not.⁹⁶ As Greg Distelhorst, assistant professor at the University of Toronto, put it: “[...] my biggest concern is whether our own academic institutions are willing to stand up for freedom of expression when they risk losing the Chinese market.”⁹⁷

At the level of individual academics, China scholars sometimes choose to avoid speaking out on certain sensitivities (real or imagined) so as to not risk access to China and its study or research resources. Furthermore, according to the Wilson Center report written by Chestnut Greitens and Truex which was mentioned earlier, “[...] some scholars who are Chinese citizens or of ethnic Chinese heritage said they self-censored out of fear that family and friends in China could be used for retribution.”⁹⁸ Strikingly, the study found that “a strong majority of China scholars agree with the statement, ‘self-censorship is a problem in the China field.’ 70 per cent of respondents either agreed or strongly agreed, while 22 per cent were neutral and 7 per cent disagreed or strongly disagreed.”⁹⁹

Indeed, the majority of our interviewees stated that self-censorship is very common among European university policy officers and researchers from both China and Europe. As one interviewee put it: “If you do your job as a China advisor well, then you advise against what would certainly stir problems, such as a visit by the Dalai Lama.” Some find it difficult to decide where being polite to the Chinese side ends and self-censorship starts: “It is a skillful balancing act,” one scholar remarked, “between etiquette and self-censorship.” Another interviewee recommended not to be too careful:

95) Elizabeth Redden, “Censorship at China Studies Meeting,” *Inside Higher Ed*, August 6, 2014, <https://www.insidehighered.com/news/2014/08/06/accounts-confucius-institute-ordered-censorship-chinese-studies-conference>.

96) Elizabeth Redden, “Publisher Complies With Chinese Censorship,” *Inside Higher Ed*, November 2, 2017, <https://www.insidehighered.com/quicktakes/2017/11/02/publisher-complies-chinese-censorship>.

97) Greg Distelhorst (@gregdistelhorst), “Anyway, when the report author contacted me to ask for stories about PRC students around MIT, here’s what I said. I’m much more concerned about the spinelessness of western commercial actors than infiltration-by-student. 8/n,” Twitter screen capture, September 6, 2018, <https://twitter.com/gregdistelhorst/status/1037893023240077312>.

98) Anastasya Lloyd-Damnjanovic, “A Preliminary Study of PRC Political Influence and Interference Activities in American Higher Education,” September 6, 2018, 65, <https://www.wilsoncenter.org/publication/preliminary-study-prc-political-influence-and-interference-activities-american-higher>.

99) Chestnut Greitens and Truex, “Repressive Experiences among China Scholars: New Evidence from Survey Data,” 17.

Humanities research (in China) can lead to problems, but you mustn't always prevent problems from happening. It is important to work together and try to map the reasons for a conflict in a dialogue. It is important to keep your own identity and your own ethical boundaries in mind.

The majority of our interviewees are aware that the three T's (Tibet, Taiwan, and the Tiananmen Square protests) are sensitive subjects that are to be avoided. Isaac Stone Fish, journalist and senior fellow at the Asia Society's Center on US-China Relations, has pointed to the risk of people perceiving things as more sensitive than they actually are, saying that "the unpredictability and unevenness of how—and when and why—Beijing decides to act leads people and institutions to be overcautious, which only makes the strategy more effective."¹⁰⁰ A Chinese interlocutor working in Europe took the same view and called upon European scholars to be less afraid to speak out.

Stone Fish has argued that self-censorship in the US is on the rise for three reasons: (1) China's emergence as a global superpower; (2) its increased repressiveness on issues of free speech; (3) the financial dependence of American universities on China.¹⁰¹ In order to map the situation in Europe, similar research should be conducted.

Universities that are strongly dependent on Chinese students' tuition fees or have affiliated campuses or joint-ventures in China may indeed be more prone to self-censorship. After all, any activity unappreciated by China may reflect on operations in China or the flow of incoming Chinese students. This is reported to have been the case with the academic Stephen Morgan of the University of Nottingham Ningbo, who did not have his position on the Ningbo campus board extended after publishing an article critical of the CCP in an online University of Nottingham publication.¹⁰²

We do not have data about the extent of financial dependence on Chinese funding in European academia and our interviews have not brought forth significant cases of institutional-level self-censorship. However, individuals and departments are likely to be inclined to hush any self-censorship on their part. Especially bearing in mind the high percentage of interviewees who marked out self-censorship as a problem, we believe the relevant higher education players in Europe should take due note and, as suggested above, gauge the extent of susceptibility to self-censorship among institutions and individuals.

4.6 Data management and IP

Data management

In March 2018, the State Council laid down new rules which strengthened Chinese control of scientific data that is generated in China.¹⁰³ The main principle behind this is what we could call data sovereignty, an issue similar and related to China's insistence on cyber sovereignty, in a way which contradicts the principle upheld by many westerners that the Internet is a "global commons" beyond the regulatory control of any individual

100) Stone Fish, "The Other Political Correctness: Why are America's elite universities censoring themselves on China?"

101) Ibid.

102) Garrie van Pinxteren, "Al te grote academische vrijheid wordt niet gewaardeerd in China" [Too much academic freedom is not appreciated in China], *NRC*, July 3, 2018, <https://www.nrc.nl/nieuws/2018/07/03/al-te-grote-academische-vrijheid-wordt-niet-gewaardeerd-in-china-a1608706>.

103) "Kexue shuju guanli banfa 科学数据管理办法" [Administrative measures regarding scientific data], State Council 国务院, March 17, 2018, http://www.gov.cn/zhengce/content/2018-04/02/content_5279272.htm.

government. The new rules exemplify China's push to ensure that it does not lose its cutting-edge technological advances to other countries.

According to the new rules, (partly) Chinese government-funded data – and any data concerning state secrets, national security, or societal and public interest – will have to be stored on servers physically located on Chinese territory, instead of relying on remote access on servers that can be located anywhere else in the world. Data must be submitted to government-sanctioned data centers before it can be used in publications. At the same time, the new regulations stipulate (mandatory) open access and data sharing, with the exception of data that involves state secrets, matters of national security or public interest, trade secrets and personal information.¹⁰⁴

The new rules primarily concern data in the fields of natural science and engineering. Authors of government-funded papers, who need to hand over their data for publication in foreign journals, are obliged to get permission to do so first. It is as yet unclear if and how these regulations that apply to government-funded research by organizations such as the NSFC and the CSC will be implemented and if they will influence Chinese-foreign projects. Ropes and Gray point out that: “the definition of government funding includes funding at all phases throughout the life cycle of scientific data, including generation, acquisition, processing, analysis, sorting, dissemination, as well as storage and management.”

Even before these new regulations were issued, many foreign scholars we spoke with commented that data from joint research obtained in China could not always leave China or could not always be worked on by foreign researchers. For instance, one of them stated that Chinese supervisors were protective of some of their data on China's environment. A report by Nature Publishing Group found that: “Chinese scientists have limited enthusiasm for, or awareness of, the global trend towards openly sharing data.”¹⁰⁵

European scientists often see big data as a public good. They are not always aware that big data obtained in China might have been collected without following European protocols for privacy protection. Notably, China's lack of provisions to match the EU General Data Protection Regulation (GDPR), implemented in May 2018, will restrict research cooperation involving personal data. China presently does not have a coherent framework regarding the protection of personal data, lacking, for instance, an independent supervisory authority.¹⁰⁶

Some interviewees pointed out that there was a risk that the findings of collaborative research might later on be used for purposes that the European partners or their governments might be uncomfortable with, such as use by the military or businesses.

I wanted to use a browser plug-in to study Sina Weibo, to see how users share information online. This plug-in would have allowed me free access to Weibo data and convenient visualization of digital networks. The PRC-based researchers behind the software were using this tool to crowdsource their study of user interactions on Weibo, to create a meta-analysis, but this then created ethical problems for

104) Dennis Normile, “China asserts firm grip on research data,” *Science*, April 9, 2018, <http://www.sciencemag.org/news/2018/04/china-asserts-firm-grip-research-data>.

105) Charlotte Liu et al., “Turning point: Chinese science in transition,” November, 2015, page ii, <https://static.springer.com/sgw/documents/1535770/application/pdf/Turning+Point%E2%80%94Chinese+Science+in+Transition.EN.NPG.pdf>.

106) Yojana Sharma, “EU data laws puts China research collaborations at risk,” *University World News*, October 5, 2018, <http://www.universityworldnews.com/article.php?story=20181005135517574>; Marijk van der Wende, “The New Silk Road,” Utrecht University, accessed November 1, 2018, <https://www.uu.nl/en/organisation/centre-for-global-challenges/projects/the-new-silk-road>.

me. One of their goals was to help the PRC government prevent online rumours, effectively improving the state's censorship and surveillance capacities. If I had participated, through my own research, I might have put the spotlight on specific users that would otherwise not have come to the government's attention, for instance Chinese dissidents. Many people who do data science in China do not seem to understand why this is a concern, and many European scholars who are not very familiar with China might argue that the data was public anyway. However, participating in such a scheme might mean putting a unwitting research subject at risk, and that is unethical.

One interviewee noted that ethics committees were not in place on the Chinese side when research was done on big data that had risks of violating privacy. Another expressed the following concern:

Data management is an issue in neuroscience – we are talking about cohorts of 5,000-10,000 patients. At one point, two universities in China offered to transmit patient data by satellite. This left the European partner university unsure how to deal with issues of confidentiality.

Data and IP theft

An issue that has become increasingly important in recent years is the suspicion that Chinese people may be engaged in data or intellectual property theft. The latter is a prominent grievance with regard to China and a key argument used by the present US administration to justify US tariffs in the US-China “trade war” that has been building in intensity since the start of 2018. In a June 2018 paper, the White House condemned Chinese economic aggression, particularly singling out Chinese IP theft.¹⁰⁷

Several of our interviewees said that they heard rumors about or were familiar with cases of data theft by Chinese partners. However, no personal experiences with data theft at higher education institutions were shared. There was one interviewee who could confirm a case of data theft at a European company. Some of the rumored incidents mentioned allegedly took place at a research university, a technical university, and a technical school of applied sciences. The policy officers at the European universities whom we interviewed said that they were not aware of any concrete evidence of data theft by Chinese individuals or institutions, although we cannot exclude the possibility that they knew more than they were willing to share, due to the sensitivity of the issue. One European interviewee in fact admitted as much, stating that: “There have been cases of data theft in Europe, but I can say nothing on record.”

It is worrying that, as some interviewees pointed out, European universities and facilities are remarkably open and easily accessible. Chinese researchers sometimes invite Chinese guests to come to take a look at their facilities without reporting these visits to their department. A European scientist told us that their university has recently started to make Chinese students sign non-disclosure agreements, following a similar policy at another university in a neighboring country that files for many patents in technology and has reportedly suffered from data leakage to China. The scientist added, however, that it remained hard to detect leakage to China by students. This interviewee also mentioned that their institution did not share this information with other universities

107) “How China’s Economic Aggression Threatens the Technologies and Intellectual Property of the United States and the World,” White House Office of Trade and Manufacturing Policy, June, 2018, <https://www.whitehouse.gov/wp-content/uploads/2018/06/FINAL-China-Technology-Report-6.18.18-PDF.pdf>.

in their country. One interviewee recommended that European participants “exclude semiconductors from cooperation with the Chinese.”

The issue of data and IP theft has been given considerable attention in the press, by think tanks, and by government information services, most notably in the US.¹⁰⁸ However, our interviews did not bring forth categorical proof of such Chinese malpractice in Europe-China collaboration in higher education and research. In part, this may have to do with the lack of awareness among our European interviewees, whose job on the whole is to facilitate Sino-foreign cooperation rather than to scrutinize Chinese efforts at data or IP theft, or even espionage. This raises the question of whether the cases of illegal activities carried out by Chinese scholars, students or partners of European researchers are rare exceptions or whether they are much more widespread but successfully manage to stay under the radar.

In so far as data theft occurs, cases will most likely be concentrated in those areas where Chinese government or enterprises expect to obtain useful and proprietary data or intellectual property. One interviewee noted:

What Western partners may deem espionage, a Chinese student may just see as passing on relevant information for China. Chinese students are supervised by a Chinese professor who received their research funding with the clear assignment to break through the monopoly position of certain [foreign] companies. If these Chinese students go abroad to study, they will deliver information to their professor. It isn't very smart for a professor in Europe to cooperate with such a Chinese professor.

As mentioned above, European researchers and institutions are, on the whole, open in character and do little to protect their data or IP. One case from our interviews illustrated this particularly well.

A European university of science and technology had established a long-term partnership with a Chinese university, where one of its PhD graduates had risen through the ranks to become dean of a faculty. Thanks to the connections between this dean and his former department in Europe, a project had been developed, which was generating results that were of high value to business. Whereas the European researchers were mainly interested in pushing the boundaries of knowledge, the Chinese partners were busy selling the results from the project to local businesses. This happened in full knowledge of the Europeans and even got their cooperation. [They] considered this unproblematic and a normal way to disseminate their results.

This example shows how Europeans may be unaware that their research and knowledge is very valuable to Chinese governments, businesses, or researchers. A recent Chatham House report about EU-China innovation relations presented the following as one of its conclusions:

Growing industrial competition complicates potential close innovation relations. The encouragement of innovation networks needs to be balanced by risk management measures to maintain incentives for individual firms and institutions to invest in innovation, and by the further development and strengthening of intellectual property rights protection.¹⁰⁹

108) See e.g.: Alex Keown, “Second Scientist Pleads Guilty to Stealing GlaxoSmithKline Trade Secrets,” *BioSpace*, September 18, 2018, <https://www.biospace.com/article/-jc1n-second-scientist-pleads-guilty-to-stealing-glaxo-smithkline-trade-secrets/>.

109) K. C. Kwok, Lawrence J. Lau and Tim Summers, “EU–China Innovation Relations: From Zero-sum to Global

In addition to countermeasures against Chinese illegal activities, awareness-raising, information sharing, and the drafting of clear and binding protocols for the collaboration with Chinese partners, ought to be a priority.

Technology theft?

A much-reported instance of alleged technology theft involves Ruopeng Liu, a Chinese student at Duke University in the US who, in 2008, was helping to develop a cloak that shields objects from a broad spectrum of wave frequencies, a civilian-military dual-use technology. At one point, the professor leading the Pentagon-funded lab, started to become suspicious about Mr. Liu, who seemed keen to collaborate with old colleagues in China and even invited them to visit the lab and photograph equipment. The lead professor became convinced that Mr. Liu was trying to share cutting-edge technology with colleagues in China.

Upon his return to China, Mr. Liu went on to establish a research institute, eventually receiving millions of dollars of investment, registering thousands of patents and even hosting a visit by President Xi Jinping. Mr. Liu's institute works on some of the same technologies he studied at Duke University. Mr. Liu has been investigated by the FBI, but was never charged with a crime. He has insisted he did nothing wrong, beyond taking advantage of an open and collaborative university atmosphere. The project at Duke was deemed unclassified early-stage research.

Notably, the lead professor himself has spoken out against tougher restrictions on Chinese researchers, arguing instead that universities should better educate staff about existing rules and what to do in case of intellectual property theft. "With reasonable safeguards, I think we can manage it," he said, cautioning against the damage that overreaction could do to US universities.¹¹⁰

Speaking about Sino-European cooperation in artificial intelligence (AI), one interviewee noted:

Consider whether you want the algorithms that come out of such a joint research center to come into Chinese possession. If there is no harm in that happening, you can work together in a joint research center on AI. If China can get more out of the cooperation than the European partner, than the European partner shouldn't get involved, because you cannot shield yourselves from data leaks, no matter what NDAs you agree on.

Networks," May, 2018, 2, <https://www.chathamhouse.org/sites/default/files/publications/research/2018-05-25-eu-china-innovation-relations-summers-kwok-lau.pdf>.

110) Ana Swanson and Keith Bradsher, "White House Considers Restricting Chinese Researchers Over Espionage Fears," *New York Times*, April 30, 2018, <https://www.nytimes.com/2018/04/30/us/politics/trump-china-researchers-espionage.html>.

5. Conclusions

Our assessment of Europe-China collaboration in higher education and research paints a broad picture of divergent views on, and concerns about, individual experiences and trends. However, despite the many concerns expressed, the majority of our interviewees agreed on one thing: that we should not stop engaging and cooperating with China. This is also this report's main bottom line. However, we also conclude that European governments and higher education institutions need to step up their game and base their cooperation on a clear strategy and an assessment of the risks and challenges that is balanced against the benefits. Europe-China collaborations in higher education and research have exponentially increased over recent decades and European institutions accrue many benefits from these collaborations, such as a supply of (Chinese government-funded) PhD students, valuable crossovers in joint projects and access to cutting-edge Chinese research facilities and data. Beyond official cooperation mechanisms, the large influx of independent, fee-paying Chinese students at European higher education institutes is a key source of income for higher education institutions. At an aggregate level, contact in higher education in research is considered to promote mutual understanding between Europe and China.

However, the times are changing. It is unlikely that the emboldened illiberal China of today is simply going to play by "our" rules. Instead, we are better advised to understand the Chinese rules and objectives in order to arrive at cooperation that is not based on expectations, but on well-understood interests. Chinese higher education and research are strongly embedded in national top-down strategies for economic, scientific, and innovation excellence. These strategies aim for China to compete with the (European) countries that are currently leading in relevant fields. However, we do not see the Chinese authorities preparing for a war of the worlds, where they seek to impose their own values and system. Rather, they seek development and security and want to shape an international order that is no longer predicated on Western, liberal ideas and where China's own, authoritarian system of governance is as legitimate as any other. However, where and when Chinese authorities or other actors seek to impose their authoritarian system of governance and illiberal ideas, or revert to unfair play, we have to stand up against them.

Although this study is not able to categorically substantiate claims of Chinese data or IP theft in Europe, it would be naive to brush these risks off. European governments and higher education institutions should be open to the conclusion that certain things are not – or no longer – possible. Considering targeted measures such as the exclusion on national security grounds (including the protection of critical infrastructure) of certain foreign nationals from specific study programs or research projects should no longer be a taboo. However, it is of the utmost importance that we do not shun everything that has to do with "the Chinese" out of fear that higher education and research have become a battlefield in the conflict between Chinese authoritarianism and the values of a liberal education. We found no evidence of concerted political influencing activities in higher education and research but self-censorship in Europe-China collaborations is deemed a very widespread phenomenon. This can potentially be exacerbated by dependence on Chinese students' tuition fees or Chinese government funding. Our interviewees had in general clear opinions that much was afoot and that science in China had become more aligned with security.

In addition to the above mentioned risks, European governments and higher education institutions face the following main challenges:

1. *Strategic vision.* Insufficient strategic vision (and/or its implementation) curtails the European side's ability to benefit from cooperation. For instance, Chinese strategizing and the European lack thereof gives China a significant advantage in setting the agenda.
2. *Knowledge and awareness.* The European side generally lacks knowledge and awareness with regard to China. It is badly informed about China's higher education and research strategies, China's academic system, and the risks and challenges of cooperation.
3. *Funding.* A shortage of strategic European funding (particularly on the national and institutional level) makes it difficult for European institutions to engage in mutually beneficial cooperation.
4. *Ethics and data safeguards.* Well-attested challenges for research cooperation emanate from the fact that China has insufficient safeguards with regard to personal data protection and research ethics.
5. *Infringements on academic freedom.* Freedom of expression in higher education and research within China has been reined in considerably in recent years and there are signs that this is also being extended to Chinese nationals abroad. European experiences with censorship, and infringement on academic freedom mostly concern the social sciences and humanities and mostly take place in China.
6. *Language and culture barrier.* For European higher education institutes the Chinese language and culture still form a major barrier to developing cooperation, both with regard to joint research projects and educational mobility programs.

It is clear from our research that universities need instruments to manage the risks of international cooperation. Aiding higher education institutions in their weighing of benefits, risks and challenges, European governments should take steps to raise awareness of the risks in cooperation with China. They should develop and/or insure implementation of codes of academic integrity. Together with higher education institutions, they should also develop risk assessment guidelines, and checklists for safe cooperation with foreign partners for use in higher education and research as well as research-intensive industries. On the intra-European and inter-institutional levels, higher education institutions should pool knowledge and resources and develop national and/or European multi-partner joint approaches or programs for cooperation with Chinese partners.

In addition, European students should be encouraged to study in China so as to complement existing forms of cooperation and to mitigate the next generation's knowledge deficit with regard to China. At the same time, European governments and higher education institutions should continue to invest in the recruitment of high-quality Chinese students to ensure the influx of foreign talents and incentivize them to stay in Europe and sustain European research and innovation. Finally, it is recommended that the European side invest more in developing triple helix cooperation vis-a-vis China. By pooling knowledge and funding from business, government and higher education institutions, the European side will be better able to match China's planning and management of research cooperation.

Further research

Although we believe our 65 interviews with officials, sector professionals, and academics fairly represent the current range of European experiences, we would like to emphasize that further in-depth research is needed to expand and confirm our findings. A thorough quantitative mapping of the extent of Europe-China collaboration, together with an overview of funding streams in Europe-China collaborations would enable us to better identify and address possible imbalances in the cooperation. An area that needs particular attention is European experiences with the risks of cooperation, a significant share of which presumably escapes the public eye. Finally, skipping ahead to proposed action, more energy should be invested into developing intra-European and/or inter-institutional cooperation. As these ideas are beyond individual higher education institutions, national governments and European institutions have an important role to play.

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