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**S**YSTEMATIC exploitation of another country's science and technology innovation, constitutes quintessential greyzone aggression, as it strengthens the acting country, weakens the targeted country, and does so without it being clear where the bustle of globalisation ends and the aggression begins. This report also proposes steps Western governments can take to curtail this practice. They include: establishment of a threshold above which the practice should be curtailed; national-security courses for STEM scientists and the tech start-up community; and more FIRRMA-style regulation of venture-capital funding.

## BACKGROUND

State-led exploitation of Western science and technology research, whether by China or any other country, poses a considerable risk to Western countries' competitive advantage in science and technology innovation – and thus to their economies.<sup>1</sup>

But unlike, say, gradual border alteration, exploitation of science and technology innovation is

not straightforward greyzone aggression, because it is extremely difficult to pinpoint where legitimate cross-border scientific collaboration ends and systematic exploitation by one side of the other side's cutting-edge innovation begins. Yet protecting countries' scientific innovation from exploitation by rivals is not just a matter of academic fair play. Because science and technology innovation powers economic progress, ensuring that it is not drained out of a country by a strategic competitor is crucial to securing future economic growth. Building on the substantial literature discussing China's exploitation of Western science and technology innovation, this report outlines the extent of it and proposes steps Western governments could take to, at least partially, enhance protection.

## EXPLOITATION OF WESTERN SCIENCE, TECHNOLOGY AND INNOVATION

In recent years, Western research

<sup>1</sup>“The West” and “Western” are used in this report to mean the countries of Europe and North America and like-minded countries such as Japan and Australia.

has increasingly been exploited by countries seeking to turbocharge their own economic advancement off the back of Western science and technology innovation. In the vast majority of cases, the country has been China. In 2007, China's People's Liberation Army (PLA) launched a programme to gather scientific expertise and technology from the West, with the apt slogan ‘Picking flowers in foreign lands; [making honey in China](#).’ In 2018, Alex Joske calculated in a report for the Australian Strategic Policy Institute (ASPI) that between 2007 and 2017 PLA had sponsored more than 2,500 Chinese scientists to conduct research at Western academic [institutions \[p4\]](#). Joske reports that ‘approximately 500 Chinese military scientists were sent to each of the UK and the US, roughly 300 each to Australia and Canada and more than 100 each to Germany and Singapore. Hundreds more have been sent to other countries, including the [Netherlands, Sweden, Japan and France \[p9\]](#).’ Among the international universities the PLA most frequently collaborates with are the University of South Wales and the Australian

National University (Australia), the University of Southampton and the University of Manchester (UK), the University of Waterloo, the University of Toronto and McGill University (Canada) and Delft University of Technology (the Netherlands). Nanyang Technological University in Singapore is PLA-linked scientists' top international collaborator. Measured by country, the United States topped the collaboration with PLA-linked scientists, followed by the [United Kingdom, Canada, Australia, Germany, Sweden, Singapore, the Netherlands, Japan and France](#) [p17].

Over these and subsequent years, the number collaborative projects involving PLA academics has grown. In the UK, for example, between 2015 and 2021 the number of joint projects involving top British universities and Chinese military academics rose [from 337 to 1,069](#). During this period, 945 such scientists worked at Imperial College London, 871 at the University of Southampton, 733 at the University of Bristol, 499 at the University of Manchester and 416 at University College London conducted joint projects with China-based military academics. The collaboration also includes significant funding from China: [£240 million between 2015 and 2021](#). Imperial College London, for example, 'accepted £5 million in funding to research high-tech aerospace materials from three companies linked to the Chinese military that are sanctioned in the US,' [The Times reported](#) in February 2022. The picture is similar across the West.

While working at the Western universities, the PLA scientists co-authored a rapidly growing number of articles published in peer-reviewed journals: 95 in 2007; [734 in 2017](#). In co-authoring papers and journal articles, the PLA scientists capitalised on the rapidly growing trend of academic



“IN 2007, CHINA'S PEOPLE'S LIBERATION ARMY LAUNCHED A PROGRAMME TO GATHER SCIENTIFIC EXPERTISE AND TECHNOLOGY FROM THE WEST, WITH THE APT SLOGAN 'PICKING FLOWERS IN FOREIGN LANDS; MAKING HONEY IN CHINA.'”

co-authorship. As Benjamin F. Jones notes, 'while papers with two or more authors constituted only 19 percent of economics journal articles in 1960, this share rose to [\[p191\]](#)'.

Military-linked Chinese researchers often hide this affiliation, both from the universities and from Western government authorities. In 2021, a US federal grand jury charged Chen Song, a Chinese neuroscientist working at Stanford University, with fraud after the FBI established that Song had lied on her visa application by hiding her affiliation with the PLA. The US Department of Justice describes the sequence of events: 'In that application, Song described herself as a neurologist who was coming to the United States to conduct research at Stanford University related to brain disease. As part of the application, Song stated that she had served in the Chinese military only from Sept. 1, 2000, through June 30, 2011. [...] The superseding indictment alleges that these were lies, and that Song was a member of the People's Liberation Army (PLA), the Chinese military, when she entered and while she was in the United States, and that the hospital she listed on her visa as her employer was a cover for her

true employer, the PLA Air Force [General Hospital in Beijing](#).'

The deployment of scientists to top foreign universities is only one part of China's efforts to take advantage of Western scientific excellence. Fully civilian Chinese scientists – ranging from undergraduates to postdocs – are also active at Western universities. The China Scholarship Council, for example, annually finances the studies of around 65,000 Chinese students abroad, mostly for post-graduate degrees, who are expected to return to China [after completing their degrees](#) [p27].

Countless British, American, and other Western students likewise study abroad, and so do many students from developing countries. Indeed, Western governments operate programmes that fund precisely such studies. DAAD, Fulbright and Rhodes scholarships are pillars of international academic exchange, and the UK Foreign, Commonwealth and Development Office has funded the master's degrees of more than 50,000 young people from developing and emerging economies through its [Chevening programme](#).

But unlike DAAD, Fulbright, Rhodes and Chevening students, Chinese students

pursuing degrees at Western universities overwhelming focus on engineering and sciences. In 2018, the Russell Group – which represents the UK's top universities – [reported](#) that most of the 2,650 Chinese academics working at its member universities 'are supporting teaching and research in STEM disciplines, with 40% working in engineering and technology, 21% in biological, mathematical and physical sciences, and 18% in medicine, dentistry and health'. At [Imperial College](#) (London), in the 2014/2015 academic year British students accounted for the largest share of the student body, at 40.7 per cent, followed by Chinese and Hong Kong students at 18.7 per cent. In the 2019/2020 academic year, British students accounted for 36 per cent of the student body, followed by Chinese and Hong Kong students at 26.4 per cent. '80 per cent of the master's students in our engineering department are Chinese. When they graduate, they go to work for companies like Huawei. And we've trained them,' a professor at another leading British university told the author.<sup>2</sup>

In Sweden, meanwhile, the Stockholm Institute of Technology (KTH) [reported](#) in 2018 that international student enrolment at the institute – globally renowned for its research in, inter alia, life sciences and engineering – again increased over the year before, to 11 per cent of the student body. The top country of origin was China, which had seen its enrolment increase by 18 per cent, to 826. Of these, some 200 were master's students and 50 were [doctoral candidates](#). Yet while such figures are common knowledge, universities appear reluctant to discuss them. Email enquiries from the author to several leading science and engineering departments regarding their numbers of Chinese master's students, PhD students and postdocs received no response.



If students from one Western country pursued studies in another Western country with such extreme focus on STEM subjects, the host country might reason that it would be tolerable because the other country provided similarly open doors and similarly advanced knowledge. The challenge arises when a country – such as China – that has not yet reached the same level of science and technology research systematically avails itself of the West’s open doors in order to power a strategic plan with which it plans to overtake the West.

China’s Made in China 2025 strategic plan, with which the country seeks to become the world’s leading high-tech manufacturing power, features as its areas of concentration electric cars and other new energy vehicles; next-generation information technology (IT) and telecommunications; advanced robotics and artificial intelligence; agricultural technology; aerospace engineering; new synthetic materials; advanced electrical equipment; emerging bio-medicine; high-end rail infrastructure; and high-tech [maritime engineering](#).

Its Military-Civil Fusion programme, in turn, aims to apply the technological advancement to [military equipment](#). ‘Vinnova funds R&D at Swedish universities, but we can’t fully

“CHINA’S MADE IN CHINA 2025 STRATEGIC PLAN, WITH WHICH THE COUNTRY SEEKS TO BECOME THE WORLD’S LEADING HIGH-TECH MANUFACTURING POWER, FEATURES AS ITS AREAS OF CONCENTRATION... ADVANCED ROBOTICS AND ARTIFICIAL INTELLIGENCE.”

underwrite every research projects, so scientists need additional funders. The scientists get large amounts of money from Chinese funders. Then Chinese take our ideas. They buy our researchers and our ideas,’ Jan Sandred of the Swedish government’s innovation agency, Vinnova, told the author.<sup>3</sup>

The very significant number of Chinese nationals at all levels of Western scientific research raises concern also because this outbound effort is not conducted in isolation. According to figures compiled by Joske, between 2008 and 2016 Chinese government talent-recruitment programmes recruited as many as 60,000 overseas scientists and entrepreneurs, with the US a primary country from which to recruit. Since 2008, more than a thousand [scientific researchers](#) are estimated to have been recruited, respectively, from the UK, Germany, Singapore, Canada, Japan, France and Australia. Some of these are incentivised to not only collaborate with Chinese universities but to relocate to China. The Thousand Talents Plan – operated under the Ministry of Science and Technology – has incentivised more than 7,000 leading foreign and Chinese academics and entrepreneurs to return to or work in China, where their expertise is used in high-tech

development zones, state-owned research laboratories, companies and [scientific programmes](#) [p27].

**ACQUISITIONS, INVESTMENT AND VENTURE CAPITAL FUNDING**

As detailed by the author in [The Defender’s Dilemma](#), Chinese venture-capital (VC) funding and investments in cutting-edge companies form another pillar of China’s exploitation of Western science and technology innovation. Again as with exploitation of scientific research, while China is currently the main practitioner, Western countries’ openness makes such exploitation attractive to other countries that might wish to make a technological innovation leap on the back of Western expertise. And again like exploitation of Western research, on the surface Chinese VC funding merely looks like standard practice in the globalised world.

In recent years, three cutting-edge Swedish semiconductor firms – Imego, Norstel and Silex Microsystems – have, for example, been acquired by [Chinese buyers](#) [p59], as has the dual-use Italian dronemaker [Alpi Aviation](#). Only after an investigation by Italy’s financial police, the Guardia di Finanza,

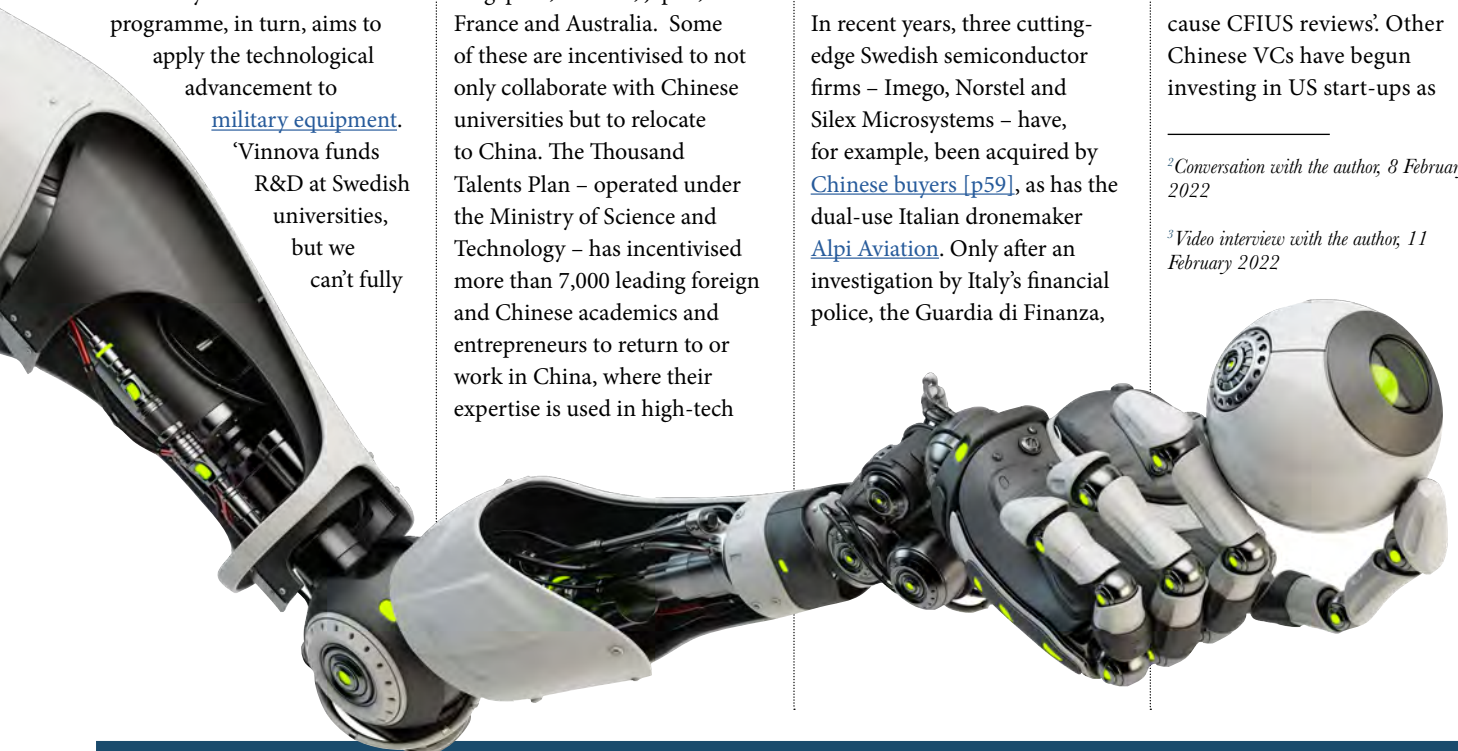
did Italian authorities learn that Alpi’s new owner – a state-owned Chinese enterprise – had hidden its identity through multiple [layers of ownership](#).

In the area of VC, a 2018 report by the Office of the US Trade Representative report found that 151 VC investments into US start-ups featured at least one Chinese investor, up from fewer than 20 in 2010. The Los Altos-based VC firm TSVC has to date invested in nearly 200 tech start-ups.<sup>4</sup> The firm was jointly launched by the Shenzhen municipal government and Tsinghua University.

In 2018, the United States Foreign Investment Risk Review Modernization Act (FIRRMA) expanded the country’s existing foreign direct investments approval scrutiny conducted by the Committee on Foreign Investment in the United States (CFIUS) to also include, inter alia, [VC funding](#). Since then, many Chinese VC firms active in the United States have transferred their registration so that they now count as American. TSVC, for example [notes on its website](#) that ‘TSVC is a U.S. based fund and its investments will not cause CFIUS reviews’. Other Chinese VCs have begun investing in US start-ups as

<sup>2</sup>Conversation with the author, 8 February 2022

<sup>3</sup>Video interview with the author, 11 February 2022



limited partners. Though many European countries – including the UK, Germany, Italy and Sweden – have in recent years strengthened their FDI screening, virtually all lack legislation similar to FIRRMA. ‘We’re struggling with the fact that neither the scientific collaboration nor the investment in scientists’ start-ups are illegal. But are we supposed to be an incubator for China? Should China be able to patent research that originates at our universities? On the other hand, Chinese outfits invest very large amounts of money in our start-ups, and you can’t turn down such money. Sweden is too small to on its own provide all the VC funding our start-ups need,’ Sandred told the author.<sup>5</sup>

**REMEDYING SYSTEMATIC EXPLOITATION OF SCIENCE AND TECHNOLOGY INNOVATION**

The combined effect of these efforts presents Western countries with a conundrum. What constitutes traditional academic collaboration and investment in a globalised age, and what is unfair exploitation of innovation that threatens the targeted country’s economic prosperity and even its national security?

Some collaboration crosses the line of legality. In December 2021, Dr Charles Lieber, who had been serving as chair of Harvard University’s Chemistry and Chemical Biology Department, was convicted by a federal jury for lying to authorities about his links to China’s Thousand Talents Programme and the Wuhan University of Technology (WUT), and about income received from the WUT. The same year, Prof. Peter Haring Bolívar at Germany’s University of Siegen – an expert in high-frequency technology – happened upon a Chinese PhD student as the latter was photographing the stages of [Bolívar’s experiments](#). In addition, very significant amounts of



“SOME COLLABORATION CROSSES THE LINE OF LEGALITY... IN ADDITION, VERY SIGNIFICANT AMOUNTS OF WESTERN IP IS BEING STOLEN THROUGH HACKS AND OTHER THEFT.”

Western IP is being stolen through hacks and other theft by parties not involved with the research.

However, this report concerns legal hoovering-up of Western science and technology innovation. The challenge facing the West is that this legal hoovering-up damages Western innovation, but that there is no definition of what constitutes unacceptable (while legal) exploitation of Western science and technology innovation for the benefit of another country. This mirrors the dilemma Western countries face with other forms of greyzone aggression. In small quantities, some activities are tolerable – indeed, in science and technology innovation some sharing of knowledge across borders is desirable – but there is no Western consensus on what should constitute the threshold for systematic exploitation that needs to be curtailed.

Establishing such a threshold is imperative, as without it

<sup>4</sup>Elisabeth Braw, *The Defender’s Dilemma: Identifying and Deterring Gray-Zone Aggression*, AEI, 2021, p.77

<sup>5</sup>Video interview with the author, 11 February 2022

to study and/or work in the desired areas of research at Western universities;

- 2) Legal acquisition of by IP by the scientists involved;
- 3) Foreign citizens: recruitment of scientists at Western universities for participation in government-sponsored research;
- 4) Funding of Western scientists’ research;
- 5) Funding of, and/or investments in, Western companies with cutting-edge technology;

If left unaddressed, exploitation of Western science and technology innovation risks permanently depriving Western countries of their greatest economic advantage.

**EMERGING EFFORTS TO SECURE RESEARCH**

At the very least since the industrial revolution, Western countries’ economic prosperity has been powered by science and technology innovation. Since the end of the Cold War, this engine has been joined by a second engine fuelling economic growth: globalisation. Now, however, it is becoming clear that one engine – globalisation – helps other countries exploit the other engine. Indeed, the premise of the science and technology collaboration in which China specialises – and which other countries could copy – is that it will propel the expropriating country’s scientific and economic progress at the expense of the targeted country. Even though they do currently lack a definition – and agreement – on what constitutes unacceptable use of Western science and technology innovation, Western representatives are realising that expropriation of science and technology innovation presents a dangerous aberration of globalisation. Until recently, the concern regarding exploitation of

curtailing the unacceptable practices becomes impossible. Indeed, without a clearly defined threshold the exploitation of science and technology innovation is likely to spread. While China is currently its leading practitioner, any country wishing to accelerate its economic progress at the expense of the West would conclude that exploiting Western cutting-edge research and openness is the easiest path forward.

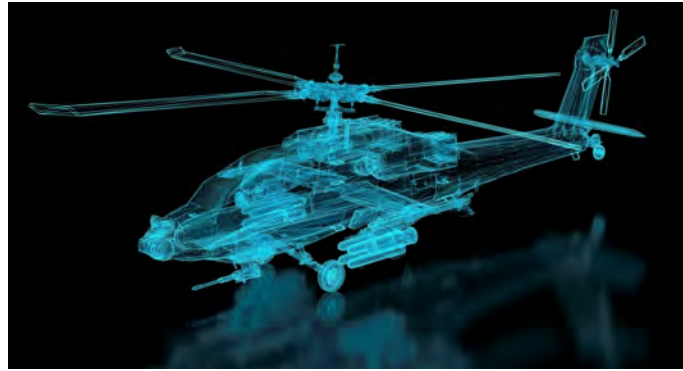
Systematic exploitation of science and technology innovation thus constitutes classic greyzone aggression: a concerted effort to strengthen the aggressor country at the expense of the targeted country below the threshold of armed conflict. Countries could follow China’s example and establish a package comprising a combination of:

- 1) The country’s own citizens (undergraduate, graduate and PhD students; postdocs; guest lecturers and professors) assisted

Western science and technology innovation had almost exclusively concerned foreign countries' exploitation of Western dual-use technology, that is, technology that can be put to military use.<sup>6</sup>

'We're not naïve. [...] We recognise that Chinese citizens have demands on them,' Sigbritt Karlsson, president of Sweden's Royal Institute of Technology (KTH), told [Swedish national television](#) in 2019. Around the same time, the Swedish Security Police (SÄPO) [noted in its annual report](#) that 'China conducts active intelligence-gathering [...] for example through acquisitions of companies with attractive technology.' Sandred told the author that 'we realised that Chinese scientists had come here to copy our research. That's when we lost our academic innocence.'<sup>7</sup>

Around the same time other targeted countries, too, began focusing on the risk that academic collaboration with certain countries could pose to their countries. "Research security" became an established term among policy-makers. In 2019, the US government established the [Joint Committee on the Research Environment](#) (JCORE), composed of senior government officials including the Director of the National Science Foundation. JCORE then established subcommittees including the Subcommittee on Research Security. 'Unfortunately, the governments of some countries [...] seek to exploit the global research enterprises to circumvent the costs and risks of conducting their own research, thereby increasing their economic and military competitiveness at the expense of the United States and its allies and partners,' this



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subcommittee [noted in a 2021 report](#) [p3]. And during his final week in office, President Donald Trump issued a directive strengthening rules for research funded by the US government. The directive included new disclosure and reporting obligations and importantly obliged research institutions with over \$50 million in federal research funding to [create research security programmes](#). Since then, several universities have created Director of Research Security [positions](#). In the summer of 2020, US authorities arrested five Chinese researchers who had not disclosed their affiliations with the PLA or the Chinese Communist Party in their visa applications, and more than 1,000 others [left the country](#).

In 2019, the government of Canada created research security [guidelines](#) for the country's universities. The following year, with Western Covid-vaccine development research vulnerable to exploitation, the Canadian Security Intelligence Service began giving threat briefings

to Canadian universities and pharmaceutical companies. In 2021, Ottawa introduced new [mandatory risk assessment](#) for all research programmes applying for federal grants. At the time of writing, the University of Waterloo is recruiting a Director of Research Security, [the first such post created in Canada](#). (Several more are planned.)

In 2020, Universities UK, the association representing some 140 British universities, released a set of – rather soft – research security recommendations. The UK government, in turn, has launched the “Trusted Research” campaign, run by the Centre for the Protection of National Infrastructure. In its guidance for academia, the [CPNI warns](#) that a hostile state may ‘seek opportunities to increase its own economic advantage, in particular to develop a research and innovation base to increase military and technological advantage over other countries.’ The UK government also plans to compel universities to reveal funding exceeding £75,000 from strategic rivals including [China](#) and Russia.

Australia, meanwhile, in 2019 created the University Foreign Interference Taskforce (UFIT)

to enhance academic resilience against foreign interference, and [published guidelines](#) for universities that included highlighting their responsibility for conducting due diligence of foreign scientists and funders, and for assessing how the university's research might be used. Importantly, the [government also said](#) [p6] it would assist universities by briefing university senior executives on threats and national security policy; by raising awareness with university staff of foreign interference; by engaging with universities through the country's counter-intelligence agency the Australian Security Intelligence Organisation (ASIO) and the Counter Foreign Interference Coordination Centre; by providing updates on critical technologies; and by strengthening university cybersecurity.

In 2021, Australia also introduced [a foreign-research partner screening mechanism](#) – developed together with the ASIO – that screens Australian scientists' prospective partners for national security risks. The Australian government also announced it would establish a list of critical and emerging technologies subject to restrictions on foreign research collaboration. Like most Western countries, Australia already had restrictions on international collaboration involving military or dual-use technologies. 'The director general of the [ASIO], Mike Burgess, said it was a departure from past practice that economic competition was being considered in a national interest assessment,' [Reuters reported](#).

Japan, also in 2021, [announced](#) it would introduce a registration system for research that dual-use research areas including nuclear physics, robotics and artificial intelligence, which means scientists in these fields will need government approval to export their know-how.

<sup>6</sup>As the author highlights in *The Defender's Dilemma*, Western governments are not without sin when it comes to appropriating foreign countries' technology. In 1791, for example US Treasury Secretary Alexander Hamilton declared that the United States needed 'to procure all such machines as are known in any part of Europe'. See [Paul Wiseman](#), 'In Trade Wars of 200 Years Ago, the Pirates Were Americans', *Associated Press*, March 28, 2019.

<sup>7</sup>Video interview with the author, 25 January 2022



(Policing the export of know-how is notoriously difficult.) The government also announced that it would introduce an approval system for foreign researchers, as well as Japanese scientists with significant foreign links, working on dual-use technology. But given Chinese military-linked scientists' habit of hiding those links, Japanese academics worried it would be extraordinarily difficult to verify the backgrounds of their Chinese researchers and doctoral students. Japanese universities are also increasing export-control checks. In April 2020, 72 per cent of Japanese universities had established export control departments, which keep sensitive technologies from being transferred out of the country. This represented an increase from [58 per cent in February 2018](#).

The European Union has also taken action. In January 2022, it [published a 'toolkit'](#) that includes advice for universities within the EU. The toolkit, Tackling R&I Foreign Interference, advises universities to, inter alia, undertake vulnerability assessments; monitor external appointments and honorary degrees awarded to researchers; raise awareness and knowledge of export control legislation and FDI screening; and identify and protect the institution's "crown jewels". In Sweden, SÄPO now delivers regular threat briefings to Vinnova and universities. 'And we try to speak with our scientists and explain to them that they shouldn't just sell their ideas. Yes, for them it's a lot of money, but if our scientists sell their ideas to China, our research advantage dissipates,' Sandred explained.<sup>8</sup>

Given the considerable government efforts over the past two-three years in the area of research security, and considering that the matter concerns the nature of academia

Picture: CC BY 2.0



**Beneficiaries?** Wealthy entrepreneurs – in the league of Jeff Bezos (left) and Elon Musk (right) – would benefit from government briefings on the link between science and technology innovation, national security and countries' prosperity.

itself, it is noteworthy that there is virtually no academic literature on research security. Searches of academic portals yield only a handful of articles. Indeed, within the scientific community there is little awareness – and perhaps little interest – in the long-term implications of China's science exploitation. This is because academic research, and indeed commercialisation of scientific research, have long traditionally been seen as separate from national security. (Military and dual-use research, of course, belongs in a different category.) This distance, while much-loved by researchers and the tech start-up community, is a luxury Western countries can no longer afford. Research security is part of total defence.

Western governments can take several steps to enhance research security. The first is to define the threshold above which foreign academic exploitation of Western scientific and technology innovation is not acceptable. Alternatively, they could create a white-list of countries whose researchers and investors should have full access to science and technology innovation, and also create measures to vet the scientists and investors involved. This would help them ensure that white-list-country scientists do not work on behalf of another country. Another potential step involves legislation and compliance. Governments and their parliaments can – as some have already begun doing –

Picture: Royal Society



introduce stricter general rules on research and innovation. Such rules can include:

- Universities having to vet researchers and PhD students of all nationalities. (It does not address the matter of undergraduate and master's students.)
- Universities having to perform enhanced due diligence before committing to international collaboration on science and technology.
- Universities being required to share with the government information detailing which protection they have put in place to safeguard scientific research.
- The hiring of research-security experts to oversee safeguarding of research in science and technology-focused areas.
- Expanding export rules to include more technologies.
- FIRRMA-style rules regarding foreign VC funding.

Like all compliance legislation, however, such rules would risk becoming tick-boxing exercises, with universities doing the minimum to fulfil the requirements. In addition, many scientists would be likely to resent the additional bureaucracy and might also question the purpose of the government demanding it. An additional path that might replace some compliance

requirements would be for governments to regularly brief scientists and start-up founders – not just university administrators – on national security risks linked to science and technology innovation. These briefings could also be set up as national-security courses for academics and start-up founders and staff, ending with certification and with refresher courses and certification available. This would give universities the reassurance that their scientists possess up-to-date knowledge regarding systematic exploitation of their research. While some would still pursue collaboration with foreign scientists that would help that country unfairly exploit Western science and technology, many would come away assessing their research in a larger perspective. It is safe to reason that most scientists active in the West do not wish the West to lose its edge in science and technology.

On the financing side, given the enormous advantages that science and technology innovation provide, both to companies and to countries, it stands to reason that VCs and extremely wealthy entrepreneurs – in the league of Mark Zuckerberg, Jeff Bezos and Elon Musk – would also benefit from government briefings on the link between science and technology innovation, national security and countries' prosperity. Western VCs increasingly focus on start-ups, such as WeWork, that can yield enormous commercial gains but are based on no particular scientific breakthrough. Megawealthy entrepreneurs like Musk and Bezos, in turn, build pioneering ventures such as space exploration assuming that the scientific excellence to power it will always be available in the United States and allied countries. Government briefings may, of course, have no effect on such entrepreneurs, but the larger perspective could also make them realise the perilous state of the technological progress on which they have built their empires.

<sup>8</sup>Video interview with the author, 11 February 2022