1. Introduction

Tensions between scientific openness and national security concerns have continued to become more acute in recent years. New or redefined concepts such as research security, knowledge security, trusted research and foreign interference in research and innovation have become increasingly salient features of research policy in Western countries with advanced science capabilities (see JASON, 2019; UUK, 2020; European Commission, 2022; Government of the Netherlands, nd.; European Commission, 2024). The array of terms shares a common implication of increased pressures on the activities of research actors as security considerations assume greater prominence in decisions pertaining to scientific research. In the West such pressures have arisen primarily from an increasingly tense geopolitical landscape. The rise of China in science and technology, viewed originally as an opportunity, is today increasingly described by the United States (US) and European Union (EU) as a strategic threat (White House, 2022; European Commission, 2019). The confluence of China's economic and technological rise and the Chinese Communist Party's increased control over those areas over the past few years have prompted, for better or worse, a variety of responses from Western governments to reevaluate collaborations (see d'Hooghe & Lammertink, 2020; 2022).

Policy interventions have been particularly intense in the US, with constraining effects on its own research system as well as international collaborations (Jia et al., 2024). Protective US government strategies are in place to limit interaction with entities and researchers based in China, constrain technology transfer, and prevent data appropriation across a broadened array of sensitive areas (Lester et al., 2023). But consequences of measures such as the Department of Justice's "China Initiative" have included ethnic profiling, restrictions on mobility and institutional autonomy, encroachments on academic freedom, as well as failed prosecutions, exacting a severe personal and professional toll on those targeted (Lewis 2021). Despite the formal end of the initiative in February 2022, uncertainty has been cast over the global scientific endeavour, as the US and China are major scientific partners to all countries with advanced scientific capabilities.

As science and security have become increasingly salient in the US-China relationship, many other countries have been confronted with new challenges. Against this backdrop, there have been reassessments of the appropriate balance between openness and securitization (e.g. Chubb, 2023; Shih, 2024a). The latter refers to the process through which real or perceived threats come to be understood as warranting extraordinary policy measures. This development has given rise to an emerging field of research investigating the changing conditions for international research collaboration amidst rising geopolitical rivalry. One stream of research is concerned with the effects of geopolitical tensions on the scientific and higher educational communities involved in international collaborations (Marginson, 2022; Shih & Forsberg, 2023; Cooney-O'Donoghue, 2024). Another stream focuses on the responses by organizations and national governments (d'Hooghe & Lammertink, 2022; Shih et al., 2023; Lester et al., 2023; Gåsemyr, 2024), highlighting the conflict between global and national interests, and the reshaping of normative understandings of international research collaboration.

Extending the latter line of research, this paper examines the new national-level advisory mechanisms by which states have sought to influence international research collaboration decisions at higher education institution (HEI) and individual levels. These emerging advisory structures generate influence primarily by offering knowledge resources and services to HEIs or researchers. Such initiatives ostensibly seek to raise the salience of national interest concerns, drawing attention to complex trade-offs between openness and increased securitization. We argue such mechanisms form an emerging intermediary layer between a global context of

growing geopolitical contestation, and HEI and individual researchers' autonomy and commitment to the pursuit of scientific advancement.

Although communicated as and framed in country-neutral terms in most Western countries, the development towards greater emphasis on national interests in science policy has in practice been triggered by recent geopolitical developments, and the emergence of a multipolar power structure. With its growing strength on the global science stage and increased turn towards authoritarianism (Cheng, 2020), the People's Republic of China's (PRC) development of advanced scientific and technological capabilities has increasingly been seen to challenge Western, particularly US, hegemonic power (Gåsemyr, 2024). Western governments have thus sought new ways to address concerns related to this conflict that do not require complete disengagement from scientific collaboration with China (see d'Hooghe & Lammertink, 2020; Lester et al., 2023; Shih, Chubb & Cooney-O'Donoghue, 2024; Gåsemyr, 2024).

This paper shows how different countries have applied different approaches to integrate national interests with HE and research policy. How considerations of national interest and geopolitics are balanced with global interests in international collaborative research still needs to be better understood. Examining cases beyond the US provides an initial perspective on how, by establishing national level advisory structures, states can shape, attenuate and risk-manage international research collaboration. This provides insights into the normative changes seen in international academic research collaboration, and the academic literature on the changing relationship between the state and scientific research (Marginson, 2022).

The paper is organized as follows. We first review two relevant literatures, one on the growing tensions between global science and expanding national security prerogatives, the other on the responses to such tensions, particularly as they pertain to research collaboration with China. Second, we outline our methodology, and tabulate the key features of our three country cases: Netherlands, the UK and Australia. Third, we compare the Netherlands' National Contact Point (NCP) for Knowledge Security, the UK's Research Collaboration Advice Team (RCAT), part of a campaign for "trusted research"; and the Australian University Foreign Interference Taskforce (UFIT). The discussion and conclusion highlight some broader implications of the empirical observations, and suggests directions for future research.

2. Relevant literature

2.1 Securitization of science

Scientific progress in the post Cold War period has been characterized by openness and growing heterogeneity among countries producing high level science (Wagner et al., 2015). Underlying reasons to this development has been increased R&D investments globally as well as higher levels of international collaboration and mobility (Marginson, 2022). The structure of science is also characterized by self-organizing networks that work independently across borders and combine resources from different contexts (Wagner et al., 2015). The recent turn towards national interests and calls for self-reliance implies limiting the practices that have been successfully used by many university researchers to advance scientific knowledge.

Science has already been profoundly impacted by the geopolitical tensions (Shih et al., 2023). The rapid advancement of China's scientific and technological capabilities presents a fundamental challenge to collaborative models pursued by Western universities for the past three decades (Marginson, 2022). This shift goes beyond mere competition in the number or quality of publications; it represents significant changes in global power relations. The development of

scientific and technological prowess in China comparable to leading Western states upends long-held assumptions about research and innovation only thriving in democratic systems (Wagner, 2024).

A strained geopolitical environment has led to growing pressures in countries with advanced science capabilities to securitize national science systems and influence science actors, mainly HEIs, to give greater consideration to national interests in their scientific decision-making (Gåsemyr, 2024; Shih, 2024a). This development has been triggered by government concerns that science and technology is increasingly a battlespace for economic and military leadership in a multipolar world (Johnson et al., 2021). The term "open strategic autonomy" used by the European Union signals that Europe needs to be self-reliant in critical areas while maintaining openness wherever possible (Damen, 2022). In China, similar ideas of self-reliance and global integration are promoted through the notion of "dual circulation" (Jin, 2023). In the US the turn towards national interests has been visible through the enactment of the CHIPS and Science Act (White House, 2022), and the Inflation Reduction Act in 2022. The inward-looking policy changes seen in the world's major science regions in the past few years significantly alter the underlying conditions for scientific exchanges (see Marginson, 2022).

These geopolitical developments have produced a clash between two very different meta-narratives, one based on openness and globalism, the other securitization and nationalism (Sa & Sabzalieva, 2018; Shih, 2024a). The first emphasizes the scientific research endeavour as characterised by openness, global scope, and the ambition to do good for humanity (Marginson, 2022). This narrative has tied together ideas of international science as a form of diplomacy, building global relations where science communities work together to solve global challenges, and as a necessity for scientific excellence (Shih, 2024b). The second narrative takes science as a national resource that creates value for the nation-state in a world marked by competition and the presence of ill-intentioned adversaries, thus requiring extensive state intervention (Zubasku & Matthews, 2023). From the latter perspective, science and technology are sources of national competitiveness, important for maintaining national security and defence, and a strategic instrument of influence in international politics (see Marginson, 2022).

To inform and support national science communities amidst new complexities in a geopolitically turbulent world a growing number of national guidelines have been developed in the past few (JASON, 2019; UUK, 2020; Shih et al., 2020; European Commission, 2022; Government of the Netherlands, nd; Department of Education (n.d.b). As detailed below, these initiatives have in several countries also entailed the development of national advisory and support structures to inform the implementation of national guidelines and policies. The variations in the different national structures offer glimpses of how the tensions between openness and securitization are being handled across different contexts, shaping the relationships between states and universities, and, global collaborative norms in science (see Shih et al., 2023).

2.2 Divergences in responses and support mechanisms

As Shih et al. (2023) have observed, responses to the tensions in science and geopolitics have varied significantly. Country-level contexts shape the policy mechanisms available for responding to international collaboration challenges, the goals to be promoted by such responses, and the dynamics between research actors such as HEIs. d'Hooghe and Lammertink (2020; 2022) have provided overviews of the instruments and mechanisms that different countries use to safeguard developments in science and technology. Many of the strategies rely on existing legislation in areas of export controls, investment screening, or protective security. Research securitization, especially through new legislative responses, is relatively rare, with few countries following the United States' CHIPS and Science Act (see White House, 2022).

Less is known about how countries seek to safeguard national science in the process of ongoing international interfaces and what impact such responses have on national science systems. However, as Gåsemyr (2024) notes these effects are visible through emerging institutional responses in different countries. The institutional responses are formed by contextual factors, including relationship between the ministries and the HEI sector, internal university dynamics, and level of internationalization. A study comparing Sweden and Australia's general approaches found that specific measures can vary widely with respect to goals, actors and methods (Shih et al., 2023). Responses vary along a multi-dimensional spectrum, ranging from individual discretion to harder compliance-based measures (Shih. 2024a). Generally, most options will lie towards the discretionary end of the spectrum, and not requiring strict compliance. However, a clear contrast is observed between the nationally institutionalized response in Australia, where government has been the lead actor much more than in Sweden.

Nonetheless, even in contexts with strong government intervention, the ensuing responses of research communities and the academic sector to the government's interventions can still strongly shape how the intersection of scientific excellence, ethics, integrity, security and other national interests are navigated. Some examples of how HEIs and research communities have attempted to manage research security, foreign interference and covert agendas include increasing transparency, awareness raising campaigns regarding global geopolitical context, risk management balancing due diligence with practices conducive for relationship building, and education based on concepts like such as on responsible internationalization and risk management processes (JASON, 2019; UUK 2020). Such approaches have been salient as advanced science capabilities seek to avoid blanket disengagement amid rising geopolitical pressures.

The European Commission (2022) encourages continued collaboration with researchers in "repressive settings" but presses on the importance of balancing open science against risk management. Against this background "de-risking" has become a key term in European policymaking (Council of the European Union, 2023). Currently discussions are ongoing at the European level concerning areas of common interest[1] with China, how collaborative risks can be mitigated in suitable ways and the tools that are applicable to such an end. In theory, risk management should form part of relationship building and maintenance, rather than being an independent consideration. An institutionalized way of handling such challenges with international collaborations especially in authoritarian contexts is by offering institutional support in terms of knowledge resources and services (d'Hooghe & Lammertink, 2022). Such initiatives, examined in detail below, are intended to handle the complex trade-offs between openness and security in a composite manner (Shih et al., 2023; Gåsemyr, 2024).

3. Method

This paper examines emergent state-led attempts at elevating the national interest in academic decision-making, especially in the field of scientific research, via a comparative case study approach. We opted for a comparative case approach to illustrate differences between various institutionalized mechanisms to shape university and individual decision-making in international research collaborations. The cases from Australia, the Netherlands, and the UK are used to highlight responses to challenges related to international research collaborations via new

[1] https://eur-lex.europa.eu/EN/legal-content/summary/scientific-and-technological-cooperation-between-the-eu-and-china.html

institutional structures. All three countries have significant exchanges with actors in China. Australia and the UK have more compared with the Netherlands. Data from SciVal/Elsevier for 2020-2022 shows that the three countries are fairly similar with regard to Field Weighted Citation Impact (Netherlands, 1.70; Australia 1.60 and UK 1.55). In terms of scientific production the three countries are size-wise different. The UK is the largest with 731,206 scientific publications; followed by Australia 373,846; and the Netherlands 221,831 (2020-2022). China was the world's largest producer of scientific publications by volume (2,728,406).

The Netherlands, the UK, and Australia rely heavily on international collaboration. In the Netherlands, Australia and the UK, the share of scholarly outputs including international collaborators were in 2022, 65, 60 and 61% respectively (data extracted from SciVal). For all three countries research collaborations with China have particularly increased. Between 2022 China was the second largest research partner for Australia and the UK respectively. In the Netherlands, China was ranked in 2022 the sixth largest partner. With the exception of the US, the three countries have been among the most visibly proactive with regard to developing advisory and support structures to handle issues such as foreign interference, impact on economic security and ethics transgressions in international research and academic collaborations (see e.g. d'Hooghe & Lammertink, 2022).

Interviews indicated that most questions handled by the advisory structures pertained to research collaborations with Chinese actors. This was case due to rivalries in the present geopolitical landscape, and the large number of collaborations with Chinese actors at the three countries' HEIs. A contributing motivation for inquiries were to understand if specific collaborations were appropriate, as well as to understand how they could be continued and developed. While issues with actors in other countries are also within the scope of inquiries, they were numerically far fewer. Some explanations to why a country agnostic approach was adopted included: Governments not wanting to identify a specific country due to concerns over diplomatic backlash or discrimination; and the issues in focus are not only related to China, but overall covered a broader spectrum of countries.

Data collection

The study was carried out between 2022–2023. Data were collected using a combination of document analysis and in-depth interviews. Official documents and websites formed an initial basis upon which to identify various responses on the state and the organisational levels. Documents include national legislative instruments, advisory materials such as national and HEI guidelines for international collaboration, and policy statements from politicians, government agencies and HEIs. Two of this paper's authors have also drawn upon personal experience in working with the national support structures, which has enabled a deeper understanding of its functions and mechanisms.

In order to gauge the practical effect of such institutional measures, interviews were conducted with stakeholders including government officials, university senior management and policy experts. The interviews were not recorded; however detailed summaries were made. The interviews were semi-structured with open-ended questions focusing on governance of issues, structures, legislative changes, and challenges. For the Dutch case 14 interviews were conducted with NCP officials (5), knowledge security officers (2), researchers (3) at Dutch knowledge institutions, and European Commission policy officers (4). For Australia we conducted (9) interviews with HEI senior management (2), policy advisers (2), UFIT security officers (2), national security analysts (1), and researchers (2). For the UK 13 interview were made with RCAT officials (1), research managers (3), sectoral bodies administrators (4), policy advisers (2), and researchers (3).

Data analysis

The study was designed to follow an abductive process (Dubois & Gadde, 2002). The first phase identified thematic areas of interest, such as methods, goals, challenges and responses, via a combination of document analysis and interviews. This led to a preliminary understanding of the similarities and differences approaches of Australia, the UK and the Netherlands. This method enabled us to pinpoint areas where sparse information about these different responses that necessitated further inquiry, in particular to understand the factors that shape the varying approaches. Interviews focused on understanding the processes involved in scientific collaboration under circumstances of increasing geopolitical pressure, particularly the handling of opportunities and challenges. A literature analysis also contributed to the understanding of matters discussed in the interviews.

4. Case studies

The Netherlands, the UK and Australia are countries with advanced science capabilities and liberal democracies with strong security alliances with the US and wide-ranging research links with China. This complex political-scientific profile implies that each can be expected to highlight key characteristics of the science-security tensions described in the earlier sections.

4.1 Netherlands

The Netherlands is a small and open economy, and international exchanges are integral to Dutch HEIs. A more tense geopolitical landscape has meant that HEIs have needed to increasingly consider sanctions regimes, export controls, and foreign influence threats. The Dutch government started to implement more systemic awareness raising measures across different sectors, including in academia around 2020. Together with the Dutch higher education sector the term "Knowledge Security" was developed. National guidelines for knowledge security were introduced in 2022 focusing on three areas:

1. Preventing undesirable transfer of sensitive knowledge and technology.
2. Covert influencing of education and research by other states.
3. Ethical issues that arise by collaborating with countries that do not respect fundamental human rights.

In conjunction with the release of national guidelines the Dutch National Contact Point for Knowledge Security (hereafter NCP) started its operations in 2022 on the initiative of the Dutch Government, with the Ministry of Education as the lead. The NCP takes a "whole of government approach" by integrating different Dutch ministries and provides assistance to knowledge institutions regarding opportunities and risks concerning international collaboration. The NCP is officially country-agnostic, in order to prevent stigma and discrimination, but most questions have been related to China, but also Iran and Russia. Media reporting has impacted on what questions are asked.

The NCP is open to university-affiliated researchers and aims to provide written answers to questions within 15 working days. By the end of 2023 the NPC had received over 300 questions from universities and researchers.

The answers are not legally binding and do not clearly give advice on whether or not individual researchers or institutions should engage in particular collaborations and activities. Moreover, information about individuals will not be provided in the answers. The nature of the advice is intended to be factually based and will for example relate to:

- Advice on research areas (e.g. potential for dual-use, technology readiness level)
- Sanctions or export controls or other international legislation which may limit/prohibit cooperation
- Reputation of the partner institution.

A knowledge security function was also formed at Dutch universities, with dedicated knowledge security officers employed by the request of the Minister of Education. Today there are knowledge security officers (KSO) at 13 Dutch universities. The KSOs are supposed to implement and upgrade the knowledge of KS at their universities. University leaders have also expressed the benefit of university cases first going through the KSOs. Hence, they play an important role as liaisons to the NCP. In addition to guidelines and structural support, a number of educational and stakeholder engagement activities have been developed. To raise awareness and increase stakeholder engagement the NCP has coordinated a learning community to connect people (researchers and security officers), and organisations around the issue of knowledge security. Moreover, events, online courses and tools (e.g. flyers, information packages) are regularly developed. The NCP also developed a portal, which is continuously updated. Here universities, and individual researchers can access information on risk and threat assessments, case studies and guidelines. Information is available in Dutch and English.

While the NCP services have been generally well received by the HEI sector, the NCP is faced with several challenges. It is, first of all, difficult to define sensitive research areas. The European Commission has in its economic strategy from 2023 identified 10 technology areas, of which 4 have been prioritized (quantum, advanced semiconductors, biotechnology, and AI). These areas are so broad that it is difficult to provide exact advice on what is sensitive. The analysis of technology sensitivity also needs to be addressed with the needs and capabilities of the target groups. A considerable problem is the potential that threats may be conflated with persons of certain ethnicities. For example, screening of people cannot be done based on nationalities according to Dutch law, nor would this be desirable according to several of the interviewees. At the same time China, Russia, and Iran has frequently been identified as major threats creating risks of discrimination towards nationals of those countries.

There are also trade-offs with the NCP model. These relate to balancing the interests of the different parts of government, balancing between customised advice and consistency and efficiency of services, and steering knowledge organisations without interfering with their autonomy. The NCP experience as communicated by managers further shows that written advice is useful but conversations allow for more nuanced advice. While the awareness of "research security" is growing, universities and individual researchers still feel they lack the tools or infrastructure to act.

4.2 The UK

The United Kingdom has some of the top universities in the world and 60% of the country's total scientific publications were published with at least one more author from another country. In 2021/22, 24% of students at HEIs come from abroad.[2] UK universities have a long tradition of accepting donations from wealthy international donors, and due diligence mechanisms were already under scrutiny since the Woolf Inquiry into LSE's extensive ties with Libya found extensive governance failing (Cooley et al., 2022). Against this backdrop, the rise of geostrategic competition the US and China prompted identification of a new set of risks associated with

[2] https://commonslibrary.parliament.uk/research-briefings/cbp-7976/

international research collaboration, alongside a strong concern to preserve the advantages of extensive international linkages in the new context.

Since 2019, the UK government has promoted guidelines on research-related security issues under the label of "Trusted Research." The label references the desired relationship between government, universities and individual researchers. Trusted Research focuses on enhancing institutions and individual researchers' awareness of collaborator partners, particularly where there may be affiliations with foreign militaries, raise awareness of the potential dual-use of research projects, including the military and ethical implications, and to raise awareness of compliance, including export controls and the National Security & Investment Act.

Reflecting an emerging reconceptualization of universities as critical national infrastructure, the "Trusted Research" guidelines were co-published by MI5's Centre for the Protection of National Infrastructure (CPNI) and GCHQ's National Cyber Security Centre. The campaign has sought to raise awareness of risks present in international engagement while supporting international engagement to drive excellence. Funding agencies and the sector quickly adopted the language of "Trusted Research" to publish further guidelines (UKRI, 2022) but it quickly became apparent that more specific and customised guidance would be required to practically implement the principles in the many cases of ambiguity.

In March 2022, the Research Collaboration Advice Team (RCAT) was launched to provide a point of contact to institutions to navigate ambiguities and complexities of internationalised research risk-management. Housed within the UK Department of Science, Innovation and Technology (DSIT) with the goal of "providing advice to research institutions on the national security risks linked to international research," RCAT was created to a) Provide trusted advice on national security in international research collaborations; b) Drive a positive shift in research culture through Trusted Research principles; and c) Collect and share information to deepen understanding of challenges in the research sector.

As of December 2023, the RCAT consists of 15 staff dispersed across five regional teams. Aside from its contact point function RCAT's teams have conducted outreach aimed at generating ongoing dialogues with research teams in more than 130 individual institutions on risks related to international engagement, such as dual-uses of research and technology, foreign interference, and developments in research security. The RCAT's advice is non-binding. Moreover, RCAT is not directly accessible to individual researchers. University governance, risk and compliance staff, along with university executives can contact RCAT for risk advice as to international partnerships and collaborations. This includes engagements with Chinese universities where there may be potential ties to the military. Compared to the existing Export Controls Joint Unit, where wait times can be lengthy - minimum 30 days - RCAT can provide faster, albeit non-binding, responses. However, researchers must first approach their institution's contact points, which may or may not be obvious or well-advertised.

By 2022-23, the RCAT reported providing more than 350 pieces of advice pertaining to over 100 cases. Nearly one-third related to export controls and compliance with complex legislation such as the National Security & Investment Act, which applies to research and technologies in 17 sensitive areas including Advanced Materials, AI, Advanced Robotics, Communications, Quantum, and Synthetic Biology. The university sector has publicly praised the RCAT. The CEO of the Russell Group, representing most of the UK's major research universities, testified that RCAT had alleviated a problem of inconsistency in the government's advice to universities regarding specific partners (Foreign Affairs Committee 2023).

4.3 Australia

Australia is situated in a geopolitical hotbed in the Indo-Pacific region, with several countries such as China, India, Japan and South Korea seeking to actively advance their national security interests. In recent years strict measures have been introduced with the intention of restricting particular kinds of ties to China, which is Australia's largest trading partner and second largest research partner. Australian universities also have a considerable number of Chinese students. In 2023, 156,217 Chinese students were enrolled in academic programs in Australia, marginally higher than the latest figure for the UK, a sector three times the size.[3] Australia's response to the challenges and complexities of today's global science landscape have been framed by a context of prominent public debates on security threats from PRC influence (Chubb, 2023).

Australia's response has been conceptualised through the notion of "foreign interference" in the research sector. Two features of the concept are its breadth and its linkage into broader geopolitical discourses. First is its breadth. Foreign interference has referred to "covert, coercive or corrupting" actions by foreign states, with manifestations in the higher education sector covering a wide ranging of issues from cyber-attacks to IP theft, dual-use research, circumvention of trade controls, and encroachments on academic freedom. Second, in Australian public policy more broadly, countering "foreign interference" has been central to the Australian government's broader policy of "pushback" against China's geostrategic advancements in East Asia and beyond. Linkages into geopolitical concerns are notably less explicit in the case of the Dutch "knowledge security" or British "trusted research."

The key mechanism through which Australia's higher education sector has responded has been the University Foreign Interference Taskforce (UFIT), which comprises senior university leaders and government, primarily national security officials. The grouping of university management and government produced "Guidelines to Counter Foreign Interference in the University Sector," initially in 2019 and updated in 2021. An ostensible goal has been to heighten risk awareness in order to bring about responsible international collaboration, and the international influence is evident in the UK' "trusted research" guidelines released a few months later.

Defining foreign interference as covert, coercive or corrupt activities contrary to Australia's sovereignty, values, and national interests, the UFIT Guidelines have drawn attention to:

- Universities' governance and risk frameworks, including the need for universities to set up "foreign interference" reporting mechanisms;
- Universities' responsibility to raise awareness of broadly defined "foreign interference" risks and the dual uses of research, including potential military applications;
- Enhanced due diligence processes on international partnerships including partner background checks, and requiring staff disclosures of foreign political affiliations and conflicts of interest;
- Strengthened cybersecurity measures.

The result has been a mobilisation of the sector to proactively comply with the principles set out in the guidelines, including the formation of new foreign risk teams to provide oversight and advice to researchers. Another is the implementation of annual interest and affiliation disclosure requirements.

[3] https://amberstudent.com/blog/post/an-ultimate-guide-to-chinese-students-australia-2023

If the UFIT guidelines legitimized and called for a much more selective approach to international collaborations, Australia's *Foreign Relations Act 2020* made it compulsory, granting the Foreign Minister the authority to annul partnerships between Australian and international universities if they were deemed contrary to Australia's national interest and foreign policy objectives. The Act also established a registration scheme for "foreign arrangements." The mere suggestion that the Minister's veto power may be utilised has been sufficient to produce change in university decision-making. In 2022, the Parliamentary Joint Committee on Intelligence and Security (PJCIS) recommended that the Foreign Minister actively investigate a collaboration between Monash University and COMAC, a Chinese state-owned aerospace company (PJCIS, 2022). In response, Monash University cancelled the project.

Universities have been required to implement the UFIT Guidelines, but ultimately must anticipate whether the specific measures they take will or will not be adjudged to be in accordance with the guidelines. One notable ambiguity concerns the establishment of Foreign Risk Teams which in many institutions provide researchers with timely and informed advice on the background of potential collaborators. While some universities have established such accessible internal advisory teams, significant ambiguity remains as to which government institution should be contacted for specific advice on different aspects of "foreign interference."

5. Comparison of the national-level advisory structures

HEIs and researchers must today navigate a complex landscape where the imperative of scientific openness clashes with concerns over national security and technological advantages. The challenges for the HEI sector arising from the tensions between national security and openness are unlikely to subside, particularly in Western research contexts with collaborations with research actors in China. Indiscriminate securitization risks the erosion of global scientific development, and encroachments on academic freedom as governments expand control over academic collaboration, and ethnic discrimination has been a major issue with country-specific approaches such as the United States Department of Justice's "China Initiative." Yet trade-offs are integral to finding solutions. To understand governance models of international collaborations amid geopolitical competition, this paper has looked at various country-level responses. The institutionalized responses of the Netherlands, the UK, and Australia are summarized in Table 1.

Table 1: The advisory structures and organizing concepts

Aspects	**Netherlands**	**UK**	**Australia**
Organizing concepts	"Knowledge security": focus on undesirable transfer of technology; covert influence; and ethical issues.	"Trusted research": focus on relationships between government, universities and researchers	"Foreign interference": focused on pushback against PRC encroachments against security and sovereignty.
Structures	Fully government driven "National Contact Point for Knowledge Security" representing a whole of government approach. Knowledge security function at 13 Dutch universities.	Research Collaboration Advisory Team housed within the Department of Science, Innovation and Technology: accessible to university research officers Trusted Research Officers at many universities	University Foreign Interference Taskforce: bringing together security services with university management, and government Foreign Risk Teams

Legislation	Export controls on strategic goods and services Screening law of foreign students/researchers (under review)	National Security & Investment Act 2021 Higher Education (Freedom of Speech) Act 2023	Espionage and Foreign Interference Law 2018 Foreign Relations Act 2020

The support mechanisms discussed above offer a way for the state to shape researchers and HEI' decisions on international collaborations, in a non-binding manner, raising the salience of national interests and security issues. They share in common this overall goal, as well as an absence of imposition of specific, prescriptive compliance requirements. However, they differ in how they are structured and used by the academic sectors in the three different national settings. Ultimately, our comparison illustrates distinctive features, strengths and drawbacks of different models of institutional support structure. The Dutch NCP for "Knowledge Security" is accessible to all university-affiliated researchers but is accordingly constrained in the level of detail it can provide in its answers. The UK's RCAT is only available to university governance, risk and compliance staff, along with university executives, has actively sought to build the trust behind "Trusted Research" but its advancement of this goal is undermined by its inaccessibility to individual researchers. In Australia, meanwhile, the goal of raising awareness of "foreign interference" concerns prompted the creation of the UFIT comprising national security officials and senior university managers, but the body has left universities themselves to judge the appropriate level and type of internal support for researchers. The challenges that have arisen from Australia's approach have related to its largely top-down nature, which contrasts to the "trust" relationship entailed by the UK's HE sector and government and the Dutch "knowledge security" framework.

Uncertainties in all three countries remain unclear as to the line between appropriate international research exchange, state infringements on the institutional autonomy of HEIs, and academic freedom of individual researchers. While much of the support is focused on export controls and international sanctions regimes, researchers also seek advice on issues that are more of discretionary nature. This could for example be whether it is appropriate to work with a certain actor in China, which has no direct military ties. Here sometimes the advisory and support structures have been used to provide valuable information about partners, contextual matters and collaborative areas but also to help university leaderships to find arguments for legitimizing negative answers. Whether these are based on a fear of reputational damage or management of risks *per se* can be difficult to distinguish.

Moreover, risk identification and management also sometimes require classified information. It is difficult to argue for a certain response when it is based on classified information. Hence the advice risks disclosing classified information or become so vaguely formulated that it is not helpful. Answers/advice are also used for varied purposes. For example, they can be used to legitimize a decision, which was not the intention from the national contact points, or they can be used to argue that no clear no was given and therefore collaboration has been sanctified. A notable challenge with national contact points is that to the basic principles of universities' institutional autonomy, which have essentially been suspended, with Government, national security agencies, and university managers becoming key actors setting universities' policies. This has posed challenges to institutional autonomy, upon which academic freedom depends, but also a notable chilling effect on collaborative work with partners in countries identified as geostrategic rivals of Australia, the Netherlands, and the UK. Chilling effects might not be due to specific security concerns to the three countries but rather due to anticipated concerns about reputational impact of the collaboration in question. While commercialised higher education

institutions in Australia, as in the UK, may have underplayed non-economic reputational costs in the past, the risk now exists that universities will err on the side of caution, potentially blocking beneficial collaborations on vague national security or "foreign interference" related grounds.

6. Conclusions

This paper has examined the emerging intermediary layer between a global context of growing geopolitical contestation on one hand and HEI and individual researchers' autonomy and commitment to the pursuit of scientific advancement on the other. The paper contributes to a developing strand of literature that discusses various country-level responses to growing geopolitical rivalry, and science and technology as a battlespace (e.g. d'Hooghe & Lammertink, 2020; 2022; Shih et al., 2023; Lester et al., 2023; Cooney-O´Donoghue, 2024; Gåsemyr, 2024).

The empirical cases illustrate how national advisory structures, with various levels of government involvement, have been designed to help research actors to consider risks and national interests in international research collaborations, particularly with research actors in China. While much of the extant literature is focusing on responses from the US (e.g. Lewis, 2021; Lester et al., 2023; Jia et al., 2024), other countries are also addressing similar concerns but in somewhat different ways, as illustrated by the three institutionalized responses from the Netherlands, the UK and Australia. The non-uniformity of responses in the three countries indicates that, regardless of particular preferred narratives concerning Beijing's global ambitions, specific responses can still take into considerations idiosyncratic national conditions, and the perceived need of HEIs to continue international collaborations, including with actors in China.

The advisory structures discussed above are relatively new and still developing, so the dynamics between the state and HEIs are likely to continue to change in future. Overall, it is clear that the distance between government influence on HEI decision-making on international collaborations is shrinking. Although the answers from the advisory structures are non-binding, the involvement of government actors in providing direct advice on issues that range from traditional research integrity matters to potentially national security concerns is a considerable change in state-university relationships.

The contact points examined in our study illustrate different ways governments, sometimes together with the HEI sector, have sought to increase HE personnel's knowledge of national interests, including security risks stemming from international research collaborations. While risks have been emphasized the overall aim has been to maintain the conditions for ongoing international collaboration. Additional research could seek to illuminate the impact of different kinds of HE and research policy measures on collaborative patterns at national, institutional, and individual levels. Significant further empirical work will also be needed to understand how the issues raised by securitization and geopolitics are handled by different actors in various countries, particularly emerging science nations outside the West.

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